Prof. Dr. Alfred Toth

The Theory of the Night

Hamburg

Cover-picture: "The Phantom", directed by F.W. Murnau (Germany, 1922)

Zwar hat der Idealismus mit dem Gedanken des im ewigen Jetzt vollendeten Logos das metaphysische Bewusstsein des Abendlandes bis an die Höhe des absoluten Todes herangeführt. Bewältigt aber hat er diese Idee nicht, denn er spricht nur von der absoluten Logik der Gedanken Gottes. Von der Möglichkeit einer absoluten Ethik der göttlichen Existenz, d.h. von einer Metaphysik des Willens weiss er nichts. Und nirgends (ausser in zusammenhanglosen Einfällen Schellings) ist sein Wissen von der Ahnung berührt, dass die durchsichtige Helle des reinen Begriffs, die wie ein sonniges Mittagslicht über dem reellen Leben des konkreten Bewußt-seins leuchtet, ihren Ursprung aus der transzendentalen Nacht eines Willens, der noch nicht Entscheidung und deshalb noch nicht lebendige, durchleuchtete Wirklichkeit geworden ist, herleitet.

Idealism has led the metaphysical consciousness of the Occident with the thought of the logos, completed in the eternal Now, up to the height of the absolute Death. However, it has not mastered this idea, since it speaks solely about the absolute logic of the existence of God. It has no idea of the possibility of an absolute ethics of the divine existence. And nowhere (except in disconnected ideas of Schelling), its knowledge is touched by the suspicion, that the translucent brightness of the pure notion, which shines like a sunny midday-light above the real life of the concrete consciousness, deduces its origin from the transcendental Night of a Will, which has not yet become decision and thus not yet become living, shining reality.

Gotthard Günther (1937, p. 45)

Preface

> Er hatte noch nicht den Fuß auf den Starkstrom gesetzt, die die äußere Welt von der eigenen trennt.
> He had not yet set his foot on the high voltage current, which separates the outer world from one's own world.
>
> *Herbert Achternbusch, Das Haus am Nil. Frankfurt am Main 1981, S. 351*

This book presents a semiotic negative "language" in eight different "dialects". Unlike negative language introduced into poly-contextural logic by Gotthard Günther (cf. Günther 1980, pp. 285 ss.), whose "words" are based on Hamilton circles of negative cycles and thus purely on logical values, which have by definition neither sense nor meaning, the "words" of our eight dialects of a semiotic negative language do have sense and meaning in the form of the denomination function and the denotation function as part-relations of the Peirce-Bense sign relation.

According poly-contextural logic and ontology, logical position is the reign of cognition, while logical negation is the reign of volition. Negative languages are thus nothing else than action schemata ("Handlungsanweisungen", G. Günther), and are therefore best described in semiotics by creation schemata, which had been already introduced by Charles Sanders Peirce in his paper "Analysis of creation" (cf. Semiosis 2, 1976, pp. 5-9). However, "PBT"-Semiotics ("Peirce-Bense-Toth Semiotics", a termed coined by Rudolf Kaehr) as a basis of our Theory of the Night has been changed, insofar all semiotic sub-relations have been contexturized according to the poly-contextural semiotic studies by Rudolf Kaehr. Consequently, the category theoretic basis of the semiotic creation schemata had to be replaced by the diamond theoretic basis, also discovered by Rudolf Kaehr. This has a special impact on the "words" of the semiotic negative language, which do no longer appear as pairs of dual functions, but of chiastic relations, whose semioses are no longer restricted to the morphisms of quantitative category theory, but also include qualitative hetero-morphisms.

Since a few chapters of this book have been previously published in my "Electronic Journal of Mathematical Semiotics", starting back in 2009, the present author had the pleasure to collaborate with Prof. Dr. Rudolf Kaehr (Glasgow), and this intense joint work lasted during several years. Besides giving a lot of citations, Kaehr published several articles and a whole book on my mathematical semiotics. Most probably, there was and still is nobody, who liked my Theory of the Night as much as Kaehr did, and, doubtlessly, nobody understood it in the whole range of the theory and its implications as Kaehr did. However, it took the present author years to find his "semiotic numbers", which are based on an enlarged poly-contextural logic, that allows not only to iterate the subject, but also the object position and the mediation of the values of the aristotelian basis valid for every

contexture. Approximately at the same time, when the semiotic numbers could be constructed, the present author and his colleagues from cybernetics, systems theory and semiotics had to accept the message that Prof. Dr. Rudolf Kaehr had suddenly passed away (cf. Toth, Obituary to Prof. Dr. Rudolf Kaehr, in the "Electronic Journal"). Therefore, the present author's intention to soon presenting to his colleague and friend the finally completed Theory of the Night, has been brutally destroyed on July 5th, 2016. I therefore dedicated my new book to the blessed memory of a man whose mental capacity was able to transcend the minds of the majority of human beings.

Tucson (AZ), August 27th, 2016

Prof. Dr. Alfred Toth

Contents

Introduction

1. It is a strange fact, that the sign as a scheme of action, like the sign as a scheme of representation, goes back to Aristotle (cf. Trabant 1989, pp. 79 ss.), but does not play any role in Peirce's and Bense's semiotics. However, it is perhaps not by change, that a definition of the sign as a scheme of action is lacking, although the development of the linguistic theory of action falls into the beginnings of the development of theoretical semiotics. However, it is a fact that the sign, in the framework of semiotics, is primarily not a scheme of action, because in its most general definition action means the "changing of a state of world" (Heinrichs 1980, p. 22). But states of world belong, in the terminology of Bense (1975, p. 65), to the "ontological space" of the pre-thetic objects, but not to the "semiotic space" of the thetic signs. In other words: In Peirce's and Bense's notion of the triadic sign, which is based on the monocontextural separation between signs and object and where objects can thus only appear as object-relations, signs cannot change states of world, since they, too, can only be perceived as signs. Therefore, according to theoretical semiotics, signs can change signs, and in order to do such changes, a theory of action is not necessary. Thus, in classical monocontextural semiotics, the theory of the semioses substitutes a theory of action, because signs can never reach their transcendental object and cannot change ontological, but only semiotic states of world.

However, it is a fact, too, which is at least known outside of classical semiotics, that signs can have effect out of their semiotic space and inside of the onological space of the object, events, states, etc. For example, a command can start a war. But also the inverse process, thus the changing of signs by objects, is well-known. E.g., the better knowledge of high-energy physics has several times changed atomic models, which had already been believed to be correct. Hence, if someone wants to construct a semiotic theory of action that goes beyond a linguistic theory of action based again on (linguistic) signs and that is powerful enough of letting signs influence reality and vice versa, then it is necessary to abolish the border between sign and reality, i.e to replace moncontextural through polycontextural semiotics.

2. Such a model of a polycontextural semiotics has been displayed by the present author (Toth 2008) under the name of "Pre-Semiotics", because the sign model which is the basis,

PZR = (3.a 2.b 1.c 0.d),

contains the object, which is represented by the artificial or natural sign, as a categorial object (0.d) and thus settles one step before thetic semiosis, in the space between the ontological and the semiotic space.

Now, in former publications, I have already shown that every triadic sign class has 6 permutations. Consequently, every tetradic sign class has 24 permutations. Furthermore, I have shown that each of these 24 permutations can be introduced as semiotic schemes of actions. Since each tetradic sign class has a dual reality thematic, we thus get for 15 pre-semiotic dual systems $15 \cdot 2 \cdot 24 = 720$ tetradic semiotic schemes of action. Also, it had been shown that a tetradic sign class has exactly the following $4 + 15 + 24 + 24 = 67$ partial relations:

monadic partial relations: (.0.), (.1.), (.2.), (.3.).

dyadic partial relations: (0.1), (0.2), (0.3), (1.0), (2.0), (3.0), (1.1), (1.2), (1.3), (2.1), (2.2), (2.3), (3.1), (3.2), (3.3).

triadic partial relations: (0., 2., 1.), (0., 1., 2.), (1., 2., 0.), (1., 0., 2), (2., 1., 0.), (2., 0., 1), (3., 2., 1.), (3., 1., 2.), (2., 3., 1.), (2., 1., 3.), (1., 3.,2.), (1., 2., 3), (0., 3., 2.), (0., 2., 3.), (2., 3., 0.), (2., 0., 3.), (3., 2., 0.), (3., 0., 2.), (0., 3., 1.), (0., 1., 3.), (1., 3., 0.), (1., 0., 3.), (3., 1., 0.), (3., 0., 1.).

tetradic partial relations: (3., 2., 1., 0.), (2., 3., 1., 0.), (2., 1., 3., 0.), (1., 2., 3., 0.), (3., 1., 2., 0.), (1., 3., 2., 0.), (2., 3., 0., 1.), (3., 2., 0., 1.), (2., 1., 0., 3.), (1., 2., 0., 3.), (3., 1., 0., 2.), (1., 3., 0., 2.), (2., 0., 3., 1.), (3., 0., 2., 1.), (2., 0., 1., 3.), (1., 0., 2., 3.), (3., 0., 1., 2.), (1., 0., 3., 2.), (0., 2., 3., 1.), (0., 3., 2., 1.), (0., 1., 2., 3.), (0., 2., 1., 3.), (0., 3., 1., 2.), (0., 1., 3., 2.).

We thus get totally $15 \cdot 2 \cdot 67 = 2'010$ semiotic schemes of actions, which are polycontextural simply because of the elimination of the discontexturality between sign and object and the embedding of the object qua categorial object into the sign relation.

3. Moreover, I had also shown that the pre-semiotic tetradic sign relation is complete regarding to epistemological, logical and ontological relation insofar as we have the following isomorphies between logical relations and semiotic categories:

subjective subject (sS) ≅ Thirdness (interpretant relation, I)
objective object (oO) ≅ Secondness (object relation, O)
subjective object (sO) ≅ Firstness (medium relation, M)
objective subject (oS) ≅ Zeroness (quality, Q)

Therefore, we can display the above 67 semiotic-numerical partial relations also in the following semiotic-logical form:

3.1. Monadic semiotic-logical partial relations

(s0), (oS), (o0), (sS).

3.2. Dyadic semiotic-logical partial relations

((s0), (oS)); ((s0), (o0)); ((s0), (sS)); ((oS), (s0)); ((o0), (s0)); ((sS), (s0)); ((oS), (oS)); ((oS), (o0)); ((oS), (sS)); ((o0), (oS)); ((o0), (o0)); ((o0), (sS)); ((sS), (oS)); ((sS), (o0)), ((sS), (sS)).

3.3. Triadic semiotic-logical partial relations

((s0), (o0), (oS)); ((s0), (oS)), (o0)); ((oS), (o0), (s0)); ((oS), (s0), (o0)); ((o0), (oS), (s0)); ((o0), (s0), (oS)); ((sS), (o0), (oS)); ((sS), (oS), (o0)); ((o0), (sS), (oS)); ((o0), (oS), (sS)); ((oS), (sS), (o0)); ((oS), (o0), (sS)); ((s0), (sS), (o0)); ((s0), (o0), (sS); ((o0), (sS), (s0)); ((o0), (s0), (sS)); ((sS), (o0), (s0)); ((sS), (s0), (o0)); ((s0), (sS), (oS)); ((s0), (oS), (sS)); ((oS), (sS), (s0)); ((oS), (s0), (sS)); ((sS), (oS), (s0)); ((sS), (s0), (oS)).

A triadic partial relation of a tetradic semiotic relation is a combinatorial selection of the four pre-semiotic categories (0.), (.1.), (.2.), (.3.) or (s0), (oS), (o0), (sS), respectively. I.e., we thus can either (0., .1., .2.), (.1., .2., .3.), (0., .2., .3.) or (0., .1., .3.) combine to triads. In doing so, we get the following $2 \cdot 24 = 48$ permutations

(0.d 2.b 1.c) × (c.1 b.2 d.0) → ((s0), (o0), (oS)) ×((s0), (o0), (oS))
(0.d 1.c 2.b) × (b.2 c.1 d.0) → ((s0), (oS), (o0)) × ((o0), (s0), (oS))
(1.c 2.b 0.d) × (d.0 b.2 c.1) → ((oS), (o0), (s0)) × ((oS), (o0), (s0))
(1.c 0.d 2.b) × (b.2 d.0 c.1) → ((oS), (s0), (o0)) × ((o0), (oS), (s0))
(2.b 1.c 0.d) × (d.0 c.1 b.2) → ((o0), (oS), (s0)) × ((oS), (s0), (o0))
(2.b 0.d 1.c) × (c.1 d.0 b.2) → ((o0), (s0), (oS)) × ((s0), (oS), (o0))
(3.a 2.b 1.c) × (c.1 b.2 a.3) → ((sS), (o0), (oS)) × ((s0), (o0), (sS))
(3.a 1.c 2.b) × (b.2 c.1 a.3) → ((sS), (oS), (o0)) × ((o0), (s0), (sS))
(2.b 3.a 1.c) × (c.1 a.3 b.2) → ((o0), (sS), (oS)) × ((s0), (sS), (o0))
(2.b 1.c 3.a) × (a.3 c.1 b.2) → ((o0), (oS), (sS)) × ((sS), (s0), (o0))
(1.c 3.a 2.b) × (b.2 a.3 c.1) → ((oS), (sS), (o0)) × ((o0), (sS), (s0))
(1.c 2.b 3.a) × (a.3 b.2 c.1) → ((oS), (o0), (sS)) × ((sS), (o0), (s0))
(0.d 3.a 2.b) × (b.2 a.3 d.0) → ((s0), (sS), (o0)) × ((o0), (sS), (oS))
(0.d 2.b 3.a) × (a.3 b.2 d.0) → ((s0), (o0), (sS)) × ((sS), (o0), (oS))
(2.b 3.a 0.d) × (d.0 a.3 b.2) → ((o0), (sS), (s0)) × ((oS), (sS), (o0))
(2.b 0.d 3.a) × (a.3 d.0 b.2) → (o0), (s0), (sS)) × ((sS), (oS), (o0))
(3.a 2.b 0.d) × (d.0 b.2 a.3) → ((sS), (o0), (s0)) × ((oS), (o0), (sS))
(3.a 0.d 2.b) × (b.2 d.0 a.3) → ((sS), (s0), (o0)) × ((o0), (oS), (sS))

(0.d 3.a 1.c) × (c.1 a.3 d.0) → ((s0), (sS), (oS)) × ((s0), (sS), (oS))
(0.d 1.c 3.a) × (a.3 c.1 d.0) → ((s0), (oS), (sS)) × ((sS), (s0), (oS))
(1.c 3.a 0.d) × (d.0 a.3 c.1) → ((oS), (sS), (s0)) × ((oS), (sS), (s0))
(1.c 0.d 3.a) × (a.3 d.0 c.1) → ((oS), (s0), (sS)) × ((sS), (oS), (s0))
(3.a 1.c 0.d) × (d.0 c.1 a.3) → ((sS), (oS), (s0)) × ((oS, (s0), (sS))
(3.a 0.d 1.c) × (c.1 d.0 a.3) → ((sS), (s0), (oS)) × ((s0), (oS), (sS))

3.4. Tetradic semiotic-logical partial relations

((sS), (o0), (oS), (s0)); ((o0), (sS), (oS), (s0)); ((o0), (oS), (sS), (s0)); ((oS), (o0), (sS), (s0)); ((sS), (oS), (o0), (s0)); ((oS), (sS), (o0), (s0)); ((o0), (sS), (s0), (oS)); ((sS), (o0), (s0), (oS)); ((o0), (oS), (s0), (sS)); ((oS), (o0), (s0), (sS)); ((sS), (oS), (s0), (o0)); ((oS), (sS), (s0), (o0)); ((o0), (s0), (sS), (oS)); ((sS), (s0), (o0), (oS)); ((o0), (s0), (oS, (sS)); ((oS), (s0), (o0), (sS)); ((sS), (s0), (oS), (o0)); ((oS), (s0), (sS), (o0)); ((s0), (o0), (sS), (oS)); ((s0), (sS), (o0), (oS)); ((s0), (oS), (o0), (sS)); ((s0), (o0), (oS), (sS)); ((s0), (sS), (oS), (o0)); ((s0), (oS), (sS), (o0)).

Complete listing of the $2 \cdot 24 = 48$ tetradic permutations:

(3.a 2.b 1.c 0.d) ×(d.0 c.1 b.2 a.3) →
((sS), (o0), (oS), (s0)) × ((oS), (s0), (o0), (sS))
(2.b 3.a 1.c 0.d) × (d.0 c.1 a.3 b.2) →
((o0), (sS), (oS), (s0)) × ((oS), (s0), (sS), (o0))
(2.b 1.c 3.a 0.d) × (d.0 a.3 c.1 b.2) →
((o0), (oS), (sS), (s0)) × ((oS), (sS), (s0), (o0))
(1.c 2.b 3.a 0.d) × (d.0 a.3 b.2 c.1) →
((oS), (o0), (sS), (s0)) × ((oS), (sS), (o0), (s0))
(3.a 1.c 2.b 0.d) × (d.0 b.2 c.1 a.3) →
((sS), (oS), (o0), (s0)) × ((oS), (o0), (s0), (sS))
(1.c 3.a 2.b 0.d) × (d.0 b.2 a.3 c.1) →
((oS), (sS), (o0), (s0)) × ((oS), (o0), (sS), (s0))
(2.b 3.a 0.d 1.c) × (c.1 d.0 a.3 b.2) →
((o0), (sS), (s0), (oS)) × ((s0), (oS), (sS), (o0))
(3.a 2.b 0.d 1.c) × (c.1 d.0 b.2 a.3) →
((sS), (o0), (s0), (oS)) × ((s0), (oS), (o0), (sS))
(2.b 1.c 0.d 3.a) × (a.3 d.0 c.1 b.2) →
((o0), (oS), (s0), (sS)) × ((sS), (oS), (s0), (o0))
(1.c 2.b 0.d 3.a) × (a.3 d.0 b.2 c.1) →
((oS), (o0), (s0), (sS)) × ((sS), (oS), (o0), (s0))

(3.a 1.c 0.d 2.b) × (b.2 d.0 c.1 a.3) →
((sS), (oS), (s0), (oO)) × ((oO), (oS), (s0), (sS))
(1.c 3.a 0.d 2.b) × (b.2 d.0 a.3 c.1) →
((oS), (sS), (s0), (oO)) × ((oO), (oS), (sS), (s0))
(2.b 0.d 3.a 1.c) × (c.1 a.3 d.0 b.2) →
((oO), (s0), (sS), (oS)) × ((s0), (sS), (oS), (oO))
(3.a 0.d 2.b 1.c) × (c.1 b.2 d.0 a.3) →
((sS), (s0), (oO), (oS)) × ((s0), (oO), (oS), (sS))
(2.b 0.d 1.c 3.a) × (a.3 c.1 d.0 b.2) →
((oO), (s0), (oS), (sS)) × ((sS), (s0), (oS), (oO))
(1.c 0.d 2.b 3.a) × (a.3 b.2 d.0 c.1) →
((oS), (s0), (oO), (sS)) × ((sS), (oO), (oS), (s0))
(3.a 0.d 1.c 2.b) × (b.2 c.1 d.0 a.3) →
((sS), (s0), (oS), (oO)) × ((oO), (s0), (oS), (sS))
(1.c 0.d 3.a 2.b) × (b.2 a.3 d.0 c.1) →
((oS), (s0), (sS), (oO)) × ((oO), (sS), (oS), (s0))
(0.d 2.b 3.a 1.c) × (c.1 a.3 b.2 d.0) →
((s0), (oO), (sS), (oS)) × ((s0), (sS), (oO), (oS))
(0.d 3.a 2.b 1.c) × (c.1 b.2 a.3 d.0) →
((s0), (sS), (oO), (oS)) × ((s0), (oO), (sS), (oS))
(0.d 1.c 2.b 3.a) × (a.3 b.2 c.1 d.0) →
((s0), (oS), (oO), (sS)) × ((sS), (oO), (s0), (oS))
(0.d 2.b 1.c 3.a) × (a.3 c.1 b.2 d.0) →
((s0), (oO), (oS), (sS)) × ((sS), (s0), (oO), (oS))
(0.d 3.a 1.c 2.b) × (b.2 c.1 a.3 d.0) →
((s0), (sS), (oS), (oO)) × ((oO), (s0), (sS), (oS))
(0.d 1.c 3.a 2.b) × (b.2 a.3 c.1 d.0) →
((s0), (oS), (sS), (oO)) × ((oO), (sS), (s0), (oS))

5. However, as Rudolf Kaehr (2008) has shown, a sign relation is not really poly-contextural solely by embedding the categorial object into the triadic Peircean sign relation, but the sub-signs constituting the sign relation must be mapped to semiotic contextures. This idea of Kaehr's has, as I have already pointed out elsewhere, a splendid impact for the future development of mathematical semiotics.

In order to map semiotic contextures as inner environments to the sub-signs of a pre-semiotic tetradic sign relation, we will use the following 4-adic polycontextural semiotic 4×4 matrix:

	0	1	2	3
0	$(0.0)_{3,2,1}$	$(0.1)_{1,3}$	$(0.2)_{1,2}$	$(0.3)_{2,3}$
1	$(1.0)_{3,1}$	$(1.1)_{1,3,4}$	$(1.2)_{1,4}$	$(1.3)_{3,4}$
2	$(2.0)_{2,1}$	$(2.1)_{1,4}$	$(2.2)_{1,2,4}$	$(2.3)_{2,4}$
3	$(3.0)_{3,2}$	$(3.1)_{3,4}$	$(3.2)_{2,4}$	$(3.3)_{2,3,4}$

Since the pre-semiotic sign relation is tetradic, but trichotomic, the four sub-signs to the left of the thick black line can only appear in reality thematics and thus change the order of their contextural numbers from morphismic to hetero-morphismic order. Thus, the above matrix is a "porte-manteau" matrix of two matrices.

Günther stated: "Being is the birthplace of Thinking, but Nothing is the homeland of the Will. In the Nothing there is nothing to see as long as we do not decide to enter the Nothing and build there a world according to the laws of negativity. This world God has not yet created, and there is not a world plan for it either, before the Thinking did not describe it in a negative language" (Günther 1937, p. 45). Several decades later, he added: "The transparent clearness of the pure notion, that shines like a sunny midday-light over the real life of the concrete consciousness, has its origin out of the transcendental Night of a Will that has not yet become decision and thus not yet living, translucent reality" (Günther 1980, p. 288). We thus conclude, that the night is the reign of the Will. Since the Will needs a negative language to formulate its vocabulary, the negative languages can only consist of directions of actions. The actions, however, we can formulate precisely on the basis of mathematical pre-semiotics. Togheter with the inner environments via contextures, we have a real polycontextural pre-semiotics as a Theory of the Night.

6. Since the action schemata of the 4 monadic semiotic partial relations

(sO), (oS), (oO), (sS)

as well as of the 15 dyadic semiotic partial relations

(sO) ↔ (oS)	(sS) ↔ (sO)	(oO) ↔ (oO)
(sO) ↔ (oO)	(oS) ↔ (oS))	(oO) ↔ (sS)
(sO) ↔ (sS)	(oS) ↔ (oO)	(sS) ↔ (oS)
(oS) ↔ (sO)	(oS) ↔ (sS)	(sS) ↔ (oO)
(oO) ↔ (sO)	(oO) ↔ (oS)	(sS) ↔ (sS)

are trivial, we restrict ourselves in this book to set as a basis the 24 triadic and the 24 tetradic semiotic partial relations for all 15 pre-semiotic sign classes and their reality thematics together with the semiotic contextures from a 4-contextural 4-adic semiotic matrix.

Chapter One: The Peano Night

I. Action schemata of the 2 · 24 triadic semiotic partial relations

1. Pre-semiotic dual system
$(3.1_{3,4}\ 2.1_{1,4}\ 1.1_{1,3,4}\ 0.1_{1,3}) \times (1.0_{3,1}\ 1.1_{4,3,1}\ 1.2_{4,1}\ 1.3_{4,3})$

Qualitative action

$$\begin{matrix}(2.1_{1,4}) \\ \curlywedge \gg (0.1_{1,3}) \\ (1.1_{1,3,4})\end{matrix} \times \begin{matrix}(1.1_{4,3,1}) \\ \curlywedge \gg (1.0_{3,1}) \\ (1.2_{4,1})\end{matrix}$$

$$\begin{matrix}(3.1_{3,4}) \\ \curlywedge \gg (0.1_{1,3}) \\ (1.1_{1,3,4})\end{matrix} \times \begin{matrix}(1.1_{4,3,1}) \\ \curlywedge \gg (1.0_{3,1}) \\ (1.3_{4,3})\end{matrix}$$

$$\begin{matrix}(1.1_{1,3,4}) \\ \curlywedge \gg (0.1_{1,3}) \\ (2.1_{1,4})\end{matrix} \times \begin{matrix}(1.2_{4,1}) \\ \curlywedge \gg (1.0_{3,1}) \\ (1.1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(3.1_{3,4}) \\ \curlywedge \gg (0.1_{1,3}) \\ (2.1_{1,4})\end{matrix} \times \begin{matrix}(1.2_{4,1}) \\ \curlywedge \gg (1.0_{3,1}) \\ (1.3_{4,3})\end{matrix}$$

$$\begin{matrix}(1.1_{1,3,4}) \\ \curlywedge \gg (0.1_{1,3}) \\ (3.1_{3,4})\end{matrix} \times \begin{matrix}(1.3_{4,3}) \\ \curlywedge \gg (1.0_{3,1}) \\ (1.1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(2.1_{1,4}) \\ \curlywedge \gg (0.1_{1,3}) \\ (3.1_{3,4})\end{matrix} \times \begin{matrix}(1.3_{4,3}) \\ \curlywedge \gg (1.0_{3,1}) \\ (1.2_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(2.1_{1,4}) \\ \curlywedge \gg (1.1_{1,3,4}) \\ (0.1_{1,3})\end{matrix} \times \begin{matrix}(1.0_{3,1}) \\ \curlywedge \gg (1.1_{4,3,1}) \\ (1.2_{4,1})\end{matrix}$$

$(3.1_{3,4})$ $(1.0_{3,1})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(0.1_{1,3})$ $(1.3_{4,3})$

$(0.1_{1,3})$ $(1.2_{4,1})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(2.1_{1,4})$ $(1.0_{3,1})$

$(3.1_{3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(2.1_{1,4})$ $(1.3_{4,3})$

$(0.1_{1,3})$ $(1.3_{4,3})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(3.1_{3,4})$ $(1.0_{3,1})$

$(2.1_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(3.1_{3,4})$ $(1.2_{4,1})$

0bjectal action

$(1.1_{1,3,4})$ $(1.0_{3,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(0.1_{1,3})$ $(1.1_{4,3,1})$

$(3.1_{3,4})$ $(1.0_{3,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(0.1_{1,3})$ $(1.3_{4,3})$

$(0.1_{1,3})$ $(1.1_{4,3,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.1_{1,3,4})$ $(1.0_{3,1})$

$(3.1_{3,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.1_{1,3,4})$ $(1.3_{4,3})$

$(1.1_{1,3,4})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(1.1_{4,3,1})$

$(0.1_{1,3})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(1.0_{3,1})$

Interpretative action

$(2.1_{1,4})$ $(1.0_{3,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(0.1_{1,3})$ $(1.2_{4,1})$

$(1.1_{1,3,4})$ $(1.0_{3,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(0.1_{1,3})$ $(1.1_{4,3,1})$

$(2.1_{1,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(1.1_{1,3,4})$ $(1.2_{4,1})$

$(0.1_{1,3})$ $(1.1_{4,3,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(1.1_{1,3,4})$ $(1.0_{3,1})$

$(1.1_{1,3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(1.1_{4,3,1})$

$(0.1_{1,3})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(1.0_{3,1})$

2. Pre-semiotic dual system
$(3.1_{3,4}\ 2.1_{1,4}\ 1.1_{1,3,4}\ 0.2_{1,2}) \times (2.0_{2,1}\ 1.1_{4,3,1}\ 1.2_{4,1}\ 1.3_{4,3})$

Qualitative action

$$\begin{matrix}(2.1_{1,4}) \\ \curlywedge \gg (0.2_{1,2}) \\ (1.1_{1,3,4})\end{matrix} \times \begin{matrix}(1.1_{4,3,1}) \\ \curlywedge \gg (2.0_{2,1}) \\ (1.2_{4,1})\end{matrix}$$

$$\begin{matrix}(3.1_{3,4}) \\ \curlywedge \gg (0.2_{1,2}) \\ (1.1_{1,3,4})\end{matrix} \times \begin{matrix}(1.1_{4,3,1}) \\ \curlywedge \gg (2.0_{2,1}) \\ (1.3_{4,3})\end{matrix}$$

$$\begin{matrix}(1.1_{1,3,4}) \\ \curlywedge \gg (0.2_{1,2}) \\ (2.1_{1,4})\end{matrix} \times \begin{matrix}(1.2_{4,1}) \\ \curlywedge \gg (2.0_{2,1}) \\ (1.1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(3.1_{3,4}) \\ \curlywedge \gg (0.2_{1,2}) \\ (2.1_{1,4})\end{matrix} \times \begin{matrix}(1.2_{4,1}) \\ \curlywedge \gg (2.0_{2,1}) \\ (1.3_{4,3})\end{matrix}$$

$$\begin{matrix}(1.1_{1,3,4}) \\ \curlywedge \gg (0.2_{1,2}) \\ (3.1_{3,4})\end{matrix} \times \begin{matrix}(1.3_{4,3}) \\ \curlywedge \gg (2.0_{2,1}) \\ (1.1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(2.1_{1,4}) \\ \curlywedge \gg (0.2_{1,2}) \\ (3.1_{3,4})\end{matrix} \times \begin{matrix}(1.3_{4,3}) \\ \curlywedge \gg (2.0_{2,1}) \\ (1.2_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(2.1_{1,4}) \\ \curlywedge \gg (1.1_{1,3,4}) \\ (0.2_{1,2})\end{matrix} \times \begin{matrix}(2.0_{2,1}) \\ \curlywedge \gg (1.1_{4,3,1}) \\ (1.2_{4,1})\end{matrix}$$

$$\begin{matrix}(3.1_{3,4}) \\ \curlywedge \gg (1.1_{1,3,4}) \\ (0.2_{1,2})\end{matrix} \times \begin{matrix}(2.0_{2,1}) \\ \curlywedge \gg (1.1_{4,3,1}) \\ (1.3_{4,3})\end{matrix}$$

$(0.2_{1,2})$ $(1.2_{4,1})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(2.1_{1,4})$ $(2.0_{2,1})$

$(3.1_{3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(2.1_{1,4})$ $(1.3_{4,3})$

$(0.2_{1,2})$ $(1.3_{4,3})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(3.1_{3,4})$ $(2.0_{2,1})$

$(2.1_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (1.1_{1,3,4})$ $\times$ $\curlywedge \gg (1.1_{4,3,1})$
$(3.1_{3,4})$ $(1.2_{4,1})$

Objectal action

$(1.1_{1,3,4})$ $(2.0_{2,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(0.2_{1,2})$ $(1.1_{4,3,1})$

$(3.1_{3,4})$ $(2.0_{2,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(0.2_{1,2})$ $(1.3_{4,3})$

$(0.2_{1,2})$ $(1.1_{4,3,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.1_{1,3,4})$ $(2.0_{2,1})$

$(3.1_{3,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.1_{1,3,4})$ $(1.3_{4,3})$

$(1.1_{1,3,4})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(1.1_{4,3,1})$

$(0.2_{1,2})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(2.0_{2,1})$

Interpretative action

$(2.1_{1,4})$ $(2.0_{2,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(0.2_{1,2})$ $(1.2_{4,1})$

$(1.1_{1,3,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (3.1_{4,3})$
$(0.2_{1,2})$ $(0.2_{1,2})$

$(2.1_{1,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(1.1_{1,3,4})$ $(1.2_{4,1})$

$(0.2_{1,2})$ $(1.1_{4,3,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(1.1_{1,3,4})$ $(2.0_{2,1})$

$(1.1_{1,3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(1.1_{4,3,1})$

$(0.2_{1,2})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(2.0_{2,1})$

3. Pre-semiotic dual system
$(3.1_{3,4}\ 2.1_{1,4}\ 1.1_{1,3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 1.1_{4,3,1}\ 1.2_{4,1}\ 1.3_{4,3})$

Qualitative Action

$(2.1_{1,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(1.1_{1,3,4})$ $(1.2_{4,1})$

$(3.1_{3,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(1.1_{1,3,4})$ $(1.3_{4,3})$

$$(1.1_{1,3,4}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(2.1_{1,4}) \quad (1.1_{4,3,1})$$

$$(3.1_{3,4}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(2.1_{1,4}) \quad (1.3_{4,3})$$

$$(1.1_{1,3,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(3.1_{3,4}) \quad (1.1_{4,3,1})$$

$$(2.1_{1,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(3.1_{3,4}) \quad (1.2_{4,1})$$

Medial action

$$(2.1_{1,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.1_{1,3,4}) \times \curlywedge \gg (1.1_{4,3,1})$$
$$(0.3_{2,3}) \quad (1.2_{4,1})$$

$$(3.1_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.1_{1,3,4}) \times \curlywedge \gg (1.1_{4,3,1})$$
$$(0.3_{2,3}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (1.1_{1,3,4}) \times \curlywedge \gg (1.1_{4,3,1})$$
$$(2.1_{1,4}) \quad (3.0_{3,2})$$

$$(3.1_{3,4}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (1.1_{1,3,4}) \times \curlywedge \gg (1.1_{4,3,1})$$
$$(2.1_{1,4}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (1.1_{1,3,4}) \times \curlywedge \gg (1.1_{4,3,1})$$
$$(3.1_{3,4}) \quad (3.0_{3,2})$$

$$(2.1_{1,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (1.1_{1,3,4}) \times \curlywedge \gg (1.1_{4,3,1})$$
$$(3.1_{3,4}) \quad (1.2_{4,1})$$

Objectal action

$(1.1_{1,3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(0.3_{2,3})$ $(1.1_{4,3,1})$

$(3.1_{3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(0.3_{2,3})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(1.1_{4,3,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.1_{1,3,4})$ $(3.0_{3,2})$

$(3.1_{3,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.1_{1,3,4})$ $(1.3_{4,3})$

$(1.1_{1,3,4})$ $(1.3_{3,4})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(1.1_{4,3,1})$

$(0.3_{2,3})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(3.0_{3,2})$

Interpretative action

$(2.1_{1,4})$ $(3.0_{3,2})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(0.3_{2,3})$ $(1.2_{4,1})$

$(1.1_{1,3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(0.3_{2,3})$ $(1.1_{4,3,1})$

$(2.1_{1,4})$ $(1.1_{4,3,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(1.1_{1,3,4})$ $(1.2_{4,1})$

$(0.3_{2,3})$ $(1.1_{4,3,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(1.1_{1,3,4})$ $(3.0_{3,2})$

$(1.1_{1,3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(1.1_{4,3,1})$

$(0.3_{2,3})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(3.0_{3,2})$

4. Pre-semiotic dual system
$(3.1_{3,4}\ 2.1_{1,4}\ 1.2_{1,4}\ 0.2_{1,2}) \times (2.0_{2,1}\ 2.1_{4,1}\ 1.2_{4,1}\ 1.3_{4,3})$

Qualitative action

$(2.1_{1,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(1.2_{1,4})$ $(1.2_{4,1})$

$(3.1_{3,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(1.2_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.2_{4,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(2.1_{1,4})$ $(2.1_{4,1})$

$(3.1_{3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(2.1_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(3.1_{3,4})$ $(2.1_{4,1})$

$(2.1_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(3.1_{3,4})$ $(1.2_{4,1})$

Medial action

$$(2.1_{1,4}) \quad (2.0_{2,1})$$
$$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$$
$$(0.2_{1,2}) \quad (1.2_{4,1})$$

$$(3.1_{3,4}) \quad (2.0_{2,1})$$
$$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$$
$$(0.2_{1,2}) \quad (1.3_{4,3})$$

$$(0.2_{1,2}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$$
$$(2.1_{1,4}) \quad (2.0_{2,1})$$

$$(3.1_{3,4}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$$
$$(2.1_{1,4}) \quad (1.3_{4,3})$$

$$(0.2_{1,2}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$$
$$(3.1_{3,4}) \quad (2.0_{2,1})$$

$$(2.1_{1,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$$
$$(3.1_{3,4}) \quad (1.2_{4,1})$$

Objectal action

$$(1.2_{1,4}) \quad (2.0_{2,1})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(0.2_{1,2}) \quad (2.1_{4,1})$$

$$(3.1_{3,4}) \quad (2.0_{2,1})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(0.2_{1,2}) \quad (1.3_{4,3})$$

$$(0.2_{1,2}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(1.2_{1,4}) \quad (2.0_{2,1})$$

$(3.1_{3,4})$ $(2.1_{4,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.2_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(2.1_{4,1})$

$(0.2_{1,2})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(2.0_{2,1})$

Interpretative action

$(2.1_{1,4})$ $(2.0_{2,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(0.2_{1,2})$ $(1.2_{4,1})$

$(1.2_{1,4})$ $(2.0_{2,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(0.2_{1,2})$ $(2.1_{4,1})$

$(2.1_{1,4})$ $(2.1_{4,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(1.2_{1,4})$ $(1.2_{4,1})$

$(0.2_{1,2})$ $(2.1_{4,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(1.2_{1,4})$ $(2.0_{2,1})$

$(1.2_{1,4})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(2.1_{4,1})$

$(0.2_{1,2})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(2.0_{2,1})$

5. Pre-Semiotic dual system
$(3.1_{3,4}\ 2.1_{1,4}\ 1.2_{1,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 2.1_{4,1}\ 1.2_{4,1}\ 1.3_{4,3})$

Qualtitative action

$(2.1_{1,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(1.2_{1,4})$ $(1.2_{4,1})$

$(3.1_{3,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(1.2_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.2_{4,1})|$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(2.1_{1,4})$ $(2.1_{4,1})$

$(3.1_{3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(2.1_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(3.1_{3,4})$ $(2.1_{4,1})$

$(2.1_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(3.1_{3,4})$ $(1.2_{4,1})$

Medial action

$(2.1_{1,4})$ $(3.0_{3,2})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(0.3_{2,3})$ $(1.2_{4,1})$

$(3.1_{3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(0.3_{2,3})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(1.2_{4,1})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(2.1_{1,4})$ $(3.0_{3,2})$

$(3.1_{3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(2.1_{1,4})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(1.3_{4,3})$
$\curlywedge \gg (1.2_{1,4})$ $\curlywedge \gg (2.1_{4,1})$
$(3.1_{3,4})$ $(3.0_{3,2})$

$(2.1_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge 2.1_{4,1})$
$(3.1_{3,4})$ $(1.2_{4,1})$

Objectal action

$(1.2_{1,4})$ $(3.0_{3,2})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(0.3_{2,3})$ $(2.1_{4,1})$

$(3.1_{3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(0.3_{2,3})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(2.1_{4,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.2_{1,4})$ $(3.0_{3,2})$

$(3.1_{3,4})$ $(2.1_{4,1})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(1.2_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(2.1_{4,1})$

$(0.3_{2,3})$ $(1.3_{4,3})$
$\curlywedge \gg (2.1_{1,4})$ $\times$ $\curlywedge \gg (1.2_{4,1})$
$(3.1_{3,4})$ $(3.0_{3,2})$

Interpretative action

$$(2.1_{1,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(0.3_{2,3}) \quad (1.2_{4,1})$$

$$(1.2_{1,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(0.3_{2,3}) \quad (2.1_{4,1})$$

$$(2.1_{1,4}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(1.2_{1,4}) \quad (1.2_{4,1})$$

$$(0.3_{2,3}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(1.2_{1,4}) \quad (3.0_{3,2})$$

$$(1.2_{1,4}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(2.1_{1,4}) \quad (2.1_{4,1})$$

$$(0.3_{2,3}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(2.1_{1,4}) \quad (3.0_{3,2})$$

6. Pre-semiotic dual system

$$(3.1_{3,4}\ 2.1_{1,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 1.2_{4,1}\ 1.3_{4,3})$$

Qualitative action

$$(2.1_{1,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(1.3_{3,4}) \quad (1.2_{4,1})$$

$$(3.1_{3,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(1.3_{3,4}) \quad (1.3_{4,3})$$

$$(1.3_{3,4}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(2.1_{1,4}) \quad (3.1_{4,3})$$

$$(3.1_{3,4}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(2.1_{1,4}) \quad (1.3_{4,3})$$

$$(1.3_{3,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(3.1_{3,4}) \quad (3.1_{4,3})$$

$$(2.1_{1,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(3.1_{3,4}) \quad (1.2_{4,1})$$

Medial action

$$(2.1_{1,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(0.3_{2,3}) \quad (1.2_{4,1})$$

$$(3.1_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(0.3_{2,3}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.1_{1,4}) \quad (3.0_{3,2})$$

$$(3.1_{3,4}) \quad (1.2_{4,1})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.1_{1,4}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.1_{3,4}) \quad (3.0_{3,2})$$

$$(2.1_{1,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.1_{3,4}) \quad (1.2_{4,1})$$

Objectal action

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(3.1_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(0.3_{2,3}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(1.3_{3,4}) \quad (3.0_{3,2})$$

$$(3.1_{3,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(1.3_{3,4}) \quad (1.3_{4,3})$$

$$(1.3_{3,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(3.1_{3,4}) \quad (3.1_{4,3})$$

$$(0.3_{2,3}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (2.1_{1,4}) \times \curlywedge \gg (1.2_{4,1})$$
$$(3.1_{3,4}) \quad (3.0_{3,2})$$

Interpretative action

$$(2.1_{1,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(0.3_{2,3}) \quad (1.2_{4,1})$$

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(2.1_{1,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(1.3_{3,4}) \quad (1.2_{4,1})$$

$(0.3_{2,3})$ $(3.1_{4,3})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(1.3_{3,4})$ $(3.0_{3,2})$

$(1.3_{3,4})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(3.1_{4,3})$

$(0.3_{2,3})$ $(1.2_{4,1})$
$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$
$(2.1_{1,4})$ $(3.0_{3,2})$

7. Pre-semiotic dual system

$(3.1_{3,4}\ 2.2_{1,2,4}\ 1.2_{1,4}\ 0.2_{1,2}) \times (2.0_{2,1}\ 2.1_{4,1}\ 2.2_{4,2,1}\ 1.3_{4,3})$

Qualitative action

$(2.2_{1,2,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(1.2_{1,4})$ $(2.2_{4,2,1})$

$(3.1_{3,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(1.2_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(2.2_{1,2,4})$ $(2.1_{4,1})$

$(3.1_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(2.2_{1,2,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(3.1_{3,4})$ $(2.1_{4,1})$

$(2.2_{1,2,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(3.1_{3,4})$ $(2.2_{4,2,1})$

Medial action

$(2.2_{1,2,4})$ $(2.0_{2,1})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(0.2_{1,2})$ $(2.2_{4,2,1})$

$(3.1_{3,4})$ $(2.0_{2,1})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(0.2_{1,2})$ $(1.3_{4,3})$

$(0.2_{1,2})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
(2.2_{1}) $(2.0_{2,1})$

$(3.1_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(2.2_{1,2,4})$ $(1.3_{4,3})$

$(0.2_{1,2})$ $(1.3_{4,3})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(3.1_{3,4})$ $(2.0_{2,1})$

$(2.2_{1,2,4})$ $(1.3_{4,3})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(3.1_{3,4})$ $(2.2_{4,2,1})$

Objectal action

$(1.2_{1,4})$ $(2.0_{2,1})$
$\curlywedge \gg (2.2_{1,2,4})$ $\times$ $\curlywedge \gg (2.2_{4,2,1})$
$(0.2_{1,2})$ $(2.1_{4,1})$

$(3.1_{3,4})$ $(2.0_{2,1})$
$\curlywedge \gg (2.2_{1,2,4})$ $\times$ $\curlywedge \gg (2.2_{4,2,1})$
$(0.2_{1,2})$ $(1.3_{4,3})$

$(0.2_{1,2})$ $(2.1_{4,1})$
$\curlywedge \gg (2.2_{1,2,4})$ $\times$ $\curlywedge \gg (2.2_{4,2,1})$
$(1.2_{1,4})$ $(2.0_{2,1})$

$(3.1_{3,4})$ $(2.1_{4,1})$
$\curlywedge \gg (2.2_{1,2,4})$ $\times$ $\curlywedge \gg (2.2_{4,2,1})$
$(1.2_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (2.2_{1,2,4})$ $\times$ $\curlywedge \gg (2.2_{4,2,1})$
$(3.1_{3,4})$ $(2.1_{4,1})$

$(0.2_{1,2})$ $(1.3_{4,3})$
$\curlywedge \gg (2.2_{1,2,4})$ $\times$ $\curlywedge \gg (2.2_{4,2,1})$
$(3.1_{3,4})$ $(2.0_{2,1})$

Interpretative action

$(2.2_{1,2,4})$ $(2.0_{2,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(0.2_{1,2})$ $(2.2_{4,2,1})$

$(1.2_{1,4})$ $(2.0_{2,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(0.2_{1,2})$ $(2.1_{4,1})$

$(2.2_{1,2,4})$ $(2.1_{4,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(1.2_{1,4})$ $(2.2_{4,2,1})$

$(0.2_{1,2})$ $(2.1_{4,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(1.2_{1,4})$ $(2.0_{2,1})$

$(1.2_{1,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(2.2_{1,2,4})$ $(2.1_{4,1})$

$(0.2_{1,2})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(2.2_{1,2,4})$ $(2.0_{2,1})$

8. Pre-semiotic dual system
$(3.1_{3,4}\ 2.2_{1,2,4}\ 1.2_{1,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 2.1_{4,1}\ 2.2_{4,2,1}\ 1.3_{4,3})$

Qualitative action

$(2.2_{1,2,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(1.2_{1,4})$ $(2.2_{4,2,1})$

$(3.1_{3,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(1.2_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(2.2_{1,2,4})$ $(2.1_{4,1})$

$(3.1_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(2.2_{1,2,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(3.1_{3,4})$ $(2.1_{4,1})$

$(2.2_{1,2,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(3.1_{3,4})$ $(2.2_{4,2,1})$

Medial action

$(2.2_{1,2,4})$ $(3.0_{3,2})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(0.3_{2,3})$ $(2.2_{4,2,1})$

$(3.1_{3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (1.2_{1,4})$ $\times$ $\curlywedge \gg (2.1_{4,1})$
$(0.3_{2,3})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.2_{1,4})$ × $\curlywedge \gg (2.1_{4,1})$
$(2.2_{1,2,4})$ $(3.0_{3,2})$

$(3.1_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.2_{1,4})$ × $\curlywedge \gg (2.1_{4,1})$
$(2.2_{1,2,4})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(1.3_{4,3})$
$\curlywedge \gg (1.2_{1,4})$ × $\curlywedge \gg (2.1_{4,1})$
$(3.1_{3,4})$ $(3.0_{3,2})$

$(2.2_{1,2,4})$ $(1.3_{4,3})$
$\curlywedge \gg (1.2_{1,4})$ × $\curlywedge \gg (2.1_{4,1})$
$(3.1_{3,4})$ $(2.2_{4,2,1})$

Objectal action

$(1.2_{1,4})$ $(3.0_{3,2})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(0.3_{2,3})$ $(2.1_{4,1})$

$(3.1_{3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(0.3_{2,3})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(2.1_{4,1})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(1.2_{1,4})$ $(3.0_{3,2})$

$(3.1_{3,4})$ $(2.1_{4,1})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(1.2_{1,4})$ $(1.3_{4,3})$

$(1.2_{1,4})$ $(1.3_{4,3})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(3.1_{3,4})$ $(2.1_{4,1})$

$(0.3_{2,3})$ $(1.3_{4,3})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(3.1_{3,4})$ $(3.0_{3,2})$

Interpretative action

$(2.2_{1,2,4})$ $(3.0_{3,2})$
$\curlywedge \gg (3.1_{3,4})$ × $\curlywedge \gg (1.3_{4,3})$
$(0.3_{2,3})$ $(2.2_{4,2,1})$

$(1.2_{1,4})$ $(3.0_{3,2})$
$\curlywedge \gg (3.1_{3,4})$ × $\curlywedge \gg (1.3_{4,3})$
$(0.3_{2,3})$ $(2.1_{4,1})$

$(2.2_{1,2,4})$ $(2.1_{4,1})$
$\curlywedge \gg (3.1_{3,4})$ × $\curlywedge \gg (1.3_{4,3})$
$(1.2_{1,4})$ $(2.2_{4,2,1})$

$(0.3_{2,3})$ $(2.1_{4,1})$
$\curlywedge \gg (3.1_{3,4})$ × $\curlywedge \gg (1.3_{4,3})$
$(1.2_{1,4})$ $(3.0_{3,2})$

$(1.2_{1,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.1_{3,4})$ × $\curlywedge \gg (1.3_{4,3})$
$(2.2_{1,2,4})$ $(2.1_{4,1})$

$(0.3_{2,3})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.1_{3,4})$ × $\curlywedge \gg (1.3_{4,3})$
$(2.2_{1,2,4})$ $(3.0_{3,2})$

9. Pre-semiotic dual system
$(3.1_{3,4}\ 2.2_{1,2,4}\ 1.3_{4,3}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 2.2_{4,2,1}\ 1.3_{4,3})$

Qualitative action

$(2.2_{1,2,4})$ $(3.1_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ × $\curlywedge \gg (3.0_{3,2})$
$(1.3_{3,4})$ $(2.2_{4,2,1})$

$(3.1_{3,4})$ $(3.1_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ × $\curlywedge \gg (3.0_{3,2})$
$(1.3_{3,4})$ $(1.3_{4,3})$

$(1.3_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(2.2_{1,2,4})$ $(3.1_{4,3})$

$(3.1_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(2.2_{1,2,4})$ $(1.3_{4,3})$

$(1.3_{3,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(3.1_{3,4})$ $(3.1_{4,3})$

$(2.2_{1,2,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(3.1_{3,4})$ $(2.2_{4,2,1})$

Medial action

$(2.2_{1,2,4})$ $(3.0_{3,2})$
$\curlywedge \gg (1.3_{3,4})$ $\times$ $\curlywedge \gg (3.1_{4,3})$
$(0.3_{2,3})$ $(2.2_{4,2,1})$

$(3.1_{3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (1.3_{3,4})$ $\times$ $\curlywedge \gg (3.1_{4,3})$
$(0.3_{2,3})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.3_{3,4})$ $\times$ $\curlywedge \gg (3.1_{4,3})$
$(2.2_{1,2,4})$ $(3.0_{3,2})$

$(3.1_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.3_{3,4})$ $\times$ $\curlywedge \gg (3.1_{4,3})$
$(2.2_{1,2,4})$ $(1.3_{4,3})$

$(0.3_{2,3})$ $(1.3_{4,3})$
$\curlywedge \gg (1.3_{3,4})$ $\times$ $\curlywedge \gg (3.1_{4,3})$
$(3.1_{3,4})$ $(3.0_{3,2})$

$(2.2_{1,2,4})$ $(1.3_{4,3})$
$\curlywedge \gg (1.3_{3,4})$ $\times$ $\curlywedge \gg (3.1_{4,3})$
$(3.1_{3,4})$ $(2.2_{4,2,1})$

Objectal action

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(3.1_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(0.3_{2,3}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(1.3_{3,4}) \quad (3.0_{3,2})$$

$$(3.1_{3,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(1.3_{3,4}) \quad (1.3_{4,3})$$

$$(1.3_{3,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(3.1_{3,4}) \quad (3.1_{4,3})$$

$$(0.3_{2,3}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(3.1_{3,4}) \quad (3.0_{3,2})$$

Interpretative action

$$(2.2_{1,2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(0.3_{2,3}) \quad (2.2_{4,2,1})$$

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(2.2_{1,2,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(1.3_{3,4}) \quad (2.2_{4,2,1})$$

$(0.3_{2,3})$ $(3.1_{4,3})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(1.3_{3,4})$ $(3.0_{3,2})$

$(1.3_{3,4})$ $(2.2_{1,2,4})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (3.1_{4,3})$
$(2.2_{4,2,1})$ $(0.3_{2,3})$

$(0.3_{2,3})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.1_{3,4})$ $\times$ $\curlywedge \gg (1.3_{4,3})$
$(2.2_{1,2,4})$ $(3.0_{3,2})$

10. Pre-semiotic dual system
$(3.1_{3,4}\ 2.3_{2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 3.2_{4,2}\ 1.3_{4,3})$

Qualitative action

$(2.3_{2,4})$ $(3.1_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(1.3_{3,4})$ $(3.2_{4,2})$

$(3.1_{3,4})$ $(3.1_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(1.3_{3,4})$ $(1.3_{4,3})$

$(1.3_{3,4})$ $(3.2_{4,2})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(2.3_{2,4})$ $(3.1_{4,3})$

$(3.1_{3,4})$ $(3.2_{4,2})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(2.3_{2,4})$ $(1.3_{4,3})$

$(1.3_{3,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(3.1_{3,4})$ $(3.1_{4,3})$

$(2.3_{2,4})$ $(1.3_{4,3})$
$\curlywedge \gg (0.3_{2,3})$ $\times$ $\curlywedge \gg (3.0_{3,2})$
$(3.1_{3,4})$ $(3.2_{4,2})$

Medial action

$$(2.3_{2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(0.3_{2,3}) \quad (3.2_{4,2})$$

$$(3.1_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(0.3_{2,3}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.3_{2,4}) \quad (3.0_{3,2})$$

$$(3.1_{3,4}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.3_{2,4}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.1_{3,4}) \quad (3.0_{3,2})$$

$$(2.3_{2,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.1_{3,4}) \quad (3.2_{4,2})$$

Objectal action

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(3.1_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(0.3_{2,3}) \quad (1.3_{4,3})$$

$$(0.3_{2,3}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(1.3_{3,4}) \quad (3.0_{3,2})$$

$$(3.1_{3,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(1.3_{3,4}) \quad (1.3_{4,3})$$

$$(1.3_{3,4}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(3.1_{3,4}) \quad (3.1_{4,3})$$

$$(0.3_{2,3}) \quad (1.3_{4,3})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(3.1_{3,4}) \quad (3.0_{3,2})$$

Interpretative action

$$(2.3_{2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(0.3_{2,3}) \quad (3.2_{4,2})$$

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(2.3_{2,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(1.3_{3,4}) \quad (3.2_{4,2})$$

$$(0.3_{2,3}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(1.3_{3,4}) \quad (3.0_{3,2})$$

$$(1.3_{3,4}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(2.3_{2,4}) \quad (3.1_{4,3})$$

$$(0.3_{2,3}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (3.1_{3,4}) \times \curlywedge \gg (1.3_{4,3})$$
$$(2.3_{2,4}) \quad (3.0_{3,2})$$

11. Pre-semiotic dual system
$(3.2_{2,4}\ 2.2_{1,2,4}\ 1.2_{1,4}\ 0.2_{1,2}) \times (2.0_{2,1}\ 2.1_{4,1}\ 2.2_{4,2,1}\ 2.3_{4,2})$

Qualitative action

$(2.2_{1,2,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(1.2_{1,4})$ $(2.2_{4,2,1})$

$(3.2_{2,4})$ $(2.1_{4,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(1.2_{1,4})$ $(2.3_{4,2})$

$(1.2_{1,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(2.2_{1,2,4})$ $(2.1_{4,1})$

$(3.2_{2,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(2.2_{1,2,4})$ $(2.3_{4,2})$

$(1.2_{1,4})$ $(2.3_{4,2})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(3.2_{2,4})$ $(2.1_{4,1})$

$(2.2_{1,2,4})$ $(2.3_{4,2})$
$\curlywedge \gg (0.2_{1,2}) \times \curlywedge \gg (2.0_{2,1})$
$(3.2_{2,4})$ $(2.2_{4,2,1})$

Medial action

$(3.2_{2,4})$ $(2.0_{2,1})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(0.2_{1,2})$ $(2.3_{4,2})$

$(3.2_{2,4})$ $(2.0_{2,1})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(0.2_{1,2})$ $(2.3_{4,2})$

$(0.2_{1,2})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(2.2_{1,2,4})$ $(2.0_{2,1})$

$(3.2_{2,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(2.2_{1,2,4})$ $(2.3_{4,2})$

$(0.2_{1,2})$ $(2.3_{4,2})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(3.2_{2,4})$ $(2.0_{2,1})$

$(2.2_{1,2,4})$ $(2.3_{4,2})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(3.2_{2,4})$ $(2.2_{4,2,1})$

Objectal action

$(1.2_{1,4})$ $(2.0_{2,1})$
$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$
$(0.2_{1,2})$ $(2.1_{4,1})$

$(3.2_{2,4})$ $(2.0_{2,1})$
$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$
$(0.2_{1,2})$ $(2.3_{4,2})$

$(0.2_{1,2})$ $(2.1_{4,1})$
$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$
$(1.2_{1,4})$ $(2.0_{2,1})$

$(3.2_{2,4})$ $(2.1_{4,1})$
$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$
$(1.2_{1,4})$ $(2.3_{4,2})$

$(1.2_{1,4})$ $(2.3_{4,2})$
$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$
$(3.2_{2,4})$ $(2.1_{4,1})$

$(0.2_{1,2})$ $(2.3_{4,2})$
$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$
$(3.2_{2,4})$ $(2.0_{2,1})$

Interpretative action

$$(2.2_{1,2,4}) \quad (2.0_{2,1})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(0.2_{1,2}) \quad (2.2_{4,2,1})$$

$$(1.2_{1,4}) \quad (2.0_{2,1})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(0.2_{1,2}) \quad (2.1_{4,1})$$

$$(2.2_{1,2,4}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(1.2_{1,4}) \quad (2.2_{4,2,1})$$

$$(0.2_{1,2}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(1.2_{1,4}) \quad (2.0_{2,1})$$

$$(1.2_{1,4}) \quad (2.2_{4,2,1})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(2.2_{1,2,4}) \quad (2.1_{4,1})$$

$$(0.2_{1,2}) \quad (2.2_{1,2,4})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(2.2_{1,2,4}) \quad (2.0_{2,1})$$

12. Pre-semiotic dual system

$(3.2_{2,4}\ 2.2_{1,2,4}\ 1.2_{1,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 2.1_{4,1}\ 2.2_{4,2,1}\ 2.3_{4,2})$

Qualitative action

$$(2.2_{1,2,4}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(1.2_{1,4}) \quad (2.2_{4,2,1})$$

$$(3.2_{2,4}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(1.2_{1,4}) \quad (2.3_{4,2})$$

$(1.2_{1,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(2.2_{1,2,4})$ $(2.1_{4,1})$

$(3.2_{2,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(2.3_{2,4})$ $(2.2_{1,2,4})$

$(1.2_{1,4})$ $(2.3_{4,2})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(3.2_{2,4})$ $(2.1_{4,1})$

$(2.2_{1,2,4})$ $(2.3_{4,2})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(3.2_{2,4})$ $(2.2_{4,2,1})$

Medial action

$(2.2_{1,2,4})$ $(3.0_{3,2})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(0.3_{2,3})$ $(2.2_{4,2,1})$

$(3.2_{2,4})$ $(3.0_{3,2})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(0.3_{2,3})$ $(2.3_{4,2})$

$(0.3_{2,3})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(2.2_{1,2,4})$ $(3.0_{3,2})$

$(3.2_{2,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(2.2_{1,2,4})$ $(2.3_{4,2})$

$(0.3_{2,3})$ $(2.3_{4,2})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(3.2_{2,4})$ $(3.0_{3,2})$

$(2.2_{1,2,4})$ $(2.3_{4,2})$
$\curlywedge \gg (1.2_{1,4}) \times \curlywedge \gg (2.1_{4,1})$
$(3.2_{2,4})$ $(2.2_{4,2,1})$

Objectal action

$$(1.2_{1,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(0.3_{2,3}) \quad (2.1_{4,1})$$

$$(3.2_{2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(0.3_{2,3}) \quad (2.3_{4,2})$$

$$(0.3_{2,3}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(1.2_{1,4}) \quad (3.0_{3,2})$$

$$(3.2_{2,4}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(1.2_{1,4}) \quad (2.3_{4,2})$$

$$(1.2_{1,4}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(3.2_{2,4}) \quad (2.1_{4,1})$$

$$(0.3_{2,3}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(3.2_{2,4}) \quad (3.0_{3,2})$$

Interpretative action

$$(2.2_{1,2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(0.3_{2,3}) \quad (2.2_{4,2,1})$$

$$(1.2_{1,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(0.3_{2,3}) \quad (2.1_{4,1})$$

$$(2.2_{1,2,4}) \quad (2.1_{4,1})$$
$$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$$
$$(1.2_{1,4}) \quad (2.2_{4,2,1})$$

$(0.3_{2,3})$ $(2.1_{4,1})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(1.2_{1,4})$ $(3.0_{3,2})$

$(1.2_{1,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(2.2_{1,2,4})$ $(2.1_{4,1})$

$(0.3_{2,3})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(2.2_{1,2,4})$ $(3.0_{3,2})$

13. Pre-semiotic dual system
$(3.2_{2,4}\ 2.2_{1,2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 2.2_{4,2,1}\ 2.3_{4,2})$

Qualitative action

$(2.2_{1,2,4})$ $(3.1_{4,3})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(1.3_{3,4})$ $(2.2_{4,2,1})$

$(3.2_{2,4})$ $(3.1_{4,3})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(1.3_{3,4})$ $(2.3_{4,2})$

$(1.3_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(2.2_{1,2,4})$ $(3.1_{4,3})$

$(3.2_{2,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(2.2_{1,2,4})$ $(2.3_{4,2})$

$(1.3_{3,4})$ $(2.3_{4,2})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(3.2_{2,4})$ $(3.1_{4,3})$

$(2.2_{1,2,4})$ $(2.3_{4,2})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(3.2_{2,4})$ $(2.2_{4,2,1})$

Medial action

$$(2.2_{1,2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(0.3_{2,3}) \quad (2.2_{4,2,1})$$

$$(3.2_{2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(0.3_{2,3}) \quad (2.3_{4,2})$$

$$(0.3_{2,3}) \quad (2.2_{4,2,1})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.2_{1,2,4}) \quad (3.0_{3,2})$$

$$(3.2_{2,4}) \quad (2.2_{4,2,1})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.2_{1,2,4}) \quad (2.3_{4,2})$$

$$(0.3_{2,3}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.2_{2,4}) \quad (3.0_{3,2})$$

$$(2.2_{1,2,4}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.2_{2,4}) \quad (2.2_{4,2,1})$$

Objectal action

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(3.2_{2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(0.3_{2,3}) \quad (2.3_{4,2})$$

$$(0.3_{2,3}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.2_{1,2,4}) \times \curlywedge \gg (2.2_{4,2,1})$$
$$(1.3_{3,4}) \quad (3.0_{3,2})$$

$(3.2_{2,4})$ $(3.1_{4,3})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(1.3_{3,4})$ $(2.3_{4,2})$

$(1.3_{3,4})$ $(2.3_{4,2})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(3.2_{2,4})$ $(3.1_{4,3})$

$(0.3_{2,3})$ $(2.3_{4,2})$
$\curlywedge \gg (2.2_{1,2,4})$ × $\curlywedge \gg (2.2_{4,2,1})$
$(3.2_{2,4})$ $(3.0_{3,2})$

Interpretative action

$(2.2_{1,2,4})$ $(3.0_{3,2})$
$\curlywedge \gg (3.2_{2,4})$ × $\curlywedge \gg (2.3_{4,2})$
$(0.3_{2,3})$ $(2.2_{4,2,1})$

$(1.3_{3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (3.2_{2,4})$ × $\curlywedge \gg (2.3_{4,2})$
$(0.3_{2,3})$ $(3.1_{4,3})$

$(2.2_{1,2,4})$ $(3.1_{4,3})$
$\curlywedge \gg (3.2_{2,4})$ × $\curlywedge \gg (2.3_{4,2})$
$(1.3_{3,4})$ $(2.2_{4,2,1})$

$(0.3_{2,3})$ $(3.1_{4,3})$
$\curlywedge \gg (3.2_{2,4})$ × $\curlywedge \gg (2.3_{4,2})$
$(1.3_{3,4})$ $(3.0_{3,2})$

$(1.3_{3,4})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.2_{2,4})$ × $\curlywedge \gg (2.3_{4,2})$
$(2.2_{1,2,4})$ $(3.1_{4,3})$

$(0.3_{2,3})$ $(2.2_{4,2,1})$
$\curlywedge \gg (3.2_{2,4})$ × $\curlywedge \gg (2.3_{4,2})$
$(2.2_{1,2,4})$ $(3.0_{3,2})$

14. Pre-semiotic dual system
$(3.2_{2,4}\ 2.3_{2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 3.2_{4,2}\ 2.3_{4,2})$

Qualitative action

$$\begin{matrix}(2.3_{2,4}) \\ \curlywedge \gg (0.3_{2,3}) \\ (1.3_{3,4})\end{matrix} \times \begin{matrix}(3.1_{4,3}) \\ \curlywedge \gg (3.0_{3,2}) \\ (3.2_{4,2})\end{matrix}$$

$$\begin{matrix}(3.2_{2,4}) \\ \curlywedge \gg (0.3_{2,3}) \\ (1.3_{3,4})\end{matrix} \times \begin{matrix}(3.1_{4,3}) \\ \curlywedge \gg (3.0_{3,2}) \\ (2.3_{4,2})\end{matrix}$$

$$\begin{matrix}(1.3_{3,4}) \\ \curlywedge \gg (0.3_{2,3}) \\ (2.3_{2,4})\end{matrix} \times \begin{matrix}(3.2_{4,2}) \\ \curlywedge \gg (3.0_{3,2}) \\ (3.1_{4,3})\end{matrix}$$

$$\begin{matrix}(3.2_{2,4}) \\ \curlywedge \gg (0.3_{2,3}) \\ (2.3_{2,4})\end{matrix} \times \begin{matrix}(3.2_{4,2}) \\ \curlywedge \gg (3.0_{3,2}) \\ (2.3_{4,2})\end{matrix}$$

$$\begin{matrix}(1.3_{3,4}) \\ \curlywedge \gg (0.3_{2,3}) \\ (3.2_{2,4})\end{matrix} \times \begin{matrix}(2.3_{4,2}) \\ \curlywedge \gg (3.0_{3,2}) \\ (3.1_{4,3})\end{matrix}$$

$$\begin{matrix}(2.3_{2,4}) \\ \curlywedge \gg (0.3_{2,3}) \\ (3.2_{2,4})\end{matrix} \times \begin{matrix}(2.3_{4,2}) \\ \curlywedge \gg (3.0_{3,2}) \\ (3.2_{4,2})\end{matrix}$$

Medial action

$$\begin{matrix}(2.3_{2,4}) \\ \curlywedge \gg (1.3_{3,4}) \\ (0.3_{2,3})\end{matrix} \times \begin{matrix}(3.0_{3,2}) \\ \curlywedge \gg (3.1_{4,3}) \\ (3.2_{4,2})\end{matrix}$$

$$\begin{matrix}(3.2_{2,4}) \\ \curlywedge \gg (1.3_{3,4}) \\ (0.3_{2,3})\end{matrix} \times \begin{matrix}(3.0_{3,2}) \\ \curlywedge \gg (3.1_{4,3}) \\ (2.3_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.3_{2,4}) \quad (3.0_{3,2})$$

$$(3.2_{2,4}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.3_{2,4}) \quad (2.3_{4,2})$$

$$(0.3_{2,3}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.2_{2,4}) \quad (3.0_{3,2})$$

$$(2.3_{2,4}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.2_{2,4}) \quad (3.2_{4,2})$$

Objectal action

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(3.2_{2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(0.3_{2,3}) \quad (2.3_{4,2})$$

$$(0.3_{2,3}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(1.3_{3,4}) \quad (3.0_{3,2})$$

$$(3.2_{2,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(1.3_{3,4}) \quad (2.3_{4,2})$$

$$(1.3_{3,4}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(3.2_{2,4}) \quad (3.1_{4,3})$$

$$(0.3_{2,3}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(3.2_{2,4}) \quad (3.0_{3,2})$$

Interpretative action

$(2.3_{2,4})$ $(3.0_{3,2})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(0.3_{2,3})$ $(3.2_{4,2})$

$(1.3_{3,4})$ $(3.0_{3,2})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(0.3_{2,3})$ $(3.1_{4,3})$

$(2.3_{2,4})$ $(3.1_{4,3})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(1.3_{3,4})$ $(3.2_{4,2})$

$(0.3_{2,3})$ $(3.1_{4,3})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(1.3_{3,4})$ $(3.0_{3,2})$

$(1.3_{3,4})$ $(3.2_{4,2})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(2.3_{2,4})$ $(3.1_{4,3})$

$(0.3_{2,3})$ $(3.2_{4,2})$
$\curlywedge \gg (3.2_{2,4}) \times \curlywedge \gg (2.3_{4,2})$
$(2.3_{2,4})$ $(3.0_{3,2})$

15. Pre-semiotic dual system
$(3.3_{2,3,4}\ 2.3_{2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 3.2_{4,2}\ 3.3_{4,3,2})$

Qualitative action

$(2.3_{2,4})$ $(3.1_{4,3})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(1.3_{3,4})$ $(3.2_{4,2})$

$(3.3_{2,3,4})$ $(3.1_{4,3})$
$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$
$(1.3_{3,4})$ $(3.3_{4,3,2})$

$$(1.3_{3,4}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(2.3_{2,4}) \quad (3.1_{4,3})$$

$$(3.2_{2,4}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(2.3_{2,4}) \quad (2.3_{4,2})$$

$$(1.3_{3,4}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(3.2_{2,4}) \quad (3.1_{4,3})$$

$$(2.3_{2,4}) \quad (2.3_{4,2})$$
$$\curlywedge \gg (0.3_{2,3}) \times \curlywedge \gg (3.0_{3,2})$$
$$(3.2_{2,4}) \quad (3.2_{4,2})$$

Medial action

$$(2.3_{2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(0.3_{2,3}) \quad (3.2_{4,2})$$

$$(3.3_{2,3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(0.3_{2,3}) \quad (3.3_{4,3,2})$$

$$(0.3_{2,3}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.3_{2,4}) \quad (3.0_{3,2})$$

$$(3.3_{2,3,4}) \quad (3.2_{4,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(2.3_{2,4}) \quad (3.3_{4,3,2})$$

$$(0.3_{2,3}) \quad (3.3_{4,3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.3_{2,3,4}) \quad (3.0_{3,2})$$

$$(2.3_{2,4}) \quad (3.3_{4,3,2})$$
$$\curlywedge \gg (1.3_{3,4}) \times \curlywedge \gg (3.1_{4,3})$$
$$(3.3_{2,3,4}) \quad (3.2_{4,2})$$

Objectal action

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(3.3_{2,3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(0.3_{2,3}) \quad (3.3_{4,3,2})$$

$$(0.3_{2,3}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(1.3_{3,4}) \quad (3.0_{3,2})$$

$$(3.3_{2,3,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(1.3_{3,4}) \quad (3.3_{4,3,2})$$

$$(1.3_{3,4}) \quad (3.3_{4,3,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(3.3_{2,3,4}) \quad (3.1_{4,3})$$

$$(0.3_{2,3}) \quad (3.3_{4,3,2})$$
$$\curlywedge \gg (2.3_{2,4}) \times \curlywedge \gg (3.2_{4,2})$$
$$(3.3_{2,3,4}) \quad (3.0_{3,2})$$

Interpretative action

$$(2.3_{2,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.3_{2,3,4}) \times \curlywedge \gg (3.3_{4,3,2})$$
$$(0.3_{2,3}) \quad (3.2_{4,2})$$

$$(1.3_{3,4}) \quad (3.0_{3,2})$$
$$\curlywedge \gg (3.3_{2,3,4}) \times \curlywedge \gg (3.3_{4,3,2})$$
$$(0.3_{2,3}) \quad (3.1_{4,3})$$

$$(2.3_{2,4}) \quad (3.1_{4,3})$$
$$\curlywedge \gg (3.3_{2,3,4}) \times \curlywedge \gg (3.3_{4,3,2})$$
$$(1.3_{3,4}) \quad (3.2_{4,2})$$

$$\begin{matrix}(0.3_{2,3}) & & (3.1_{4,3}) \\ \curlywedge \gg (3.3_{2,3,4}) & \times & \curlywedge \gg (3.3_{4,3,2}) \\ (1.3_{3,4}) & & (3.0_{3,2})\end{matrix}$$

$$\begin{matrix}(1.3_{3,4}) & & (3.2_{4,2}) \\ \curlywedge \gg (3.3_{2,3,4}) & \times & \curlywedge \gg (3.3_{4,3,2}) \\ (2.3_{2,4}) & & (3.1_{4,3})\end{matrix}$$

$$\begin{matrix}(0.3_{2,3}) & & (3.2_{4,2}) \\ \curlywedge \gg (3.3_{2,3,4}) & \times & \curlywedge \gg (3.3_{4,3,2}) \\ (2.3_{2,4}) & & (3.0_{3,2})\end{matrix}$$

II. Action schemata of the 2 · 24 tetradic semiotic partial relations

1. Pre-semiotic dual system
(3.1 2.1 1.1 0.1) × (1.0 1.1 1.2 1.3)

Qualitative action

$$\begin{matrix}(1.1_{1,3,4}) & \gg \curlyvee \succ \begin{matrix}(3.1_{3,4}) \\ (2.1_{1,4})\end{matrix} & \times & (1.0_{3,1}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1}) \\ (1.3_{4,3})\end{matrix}\end{matrix}$$

$$\begin{matrix}(1.1_{1,4,3}) & \gg \curlyvee \succ \begin{matrix}(2.1_{1,4}) \\ (3.1_{3,4})\end{matrix} & \times & (1.0_{3,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3}) \\ (1.2_{4,1})\end{matrix}\end{matrix}$$

$$\begin{matrix}(2.1_{1,4}) & \gg \curlyvee \succ \begin{matrix}(3.1_{3,4}) \\ (1.1_{1,3,4})\end{matrix} & \times & (1.0_{3,1}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1}) \\ (1.3_{4,3})\end{matrix}\end{matrix}$$

$$\begin{matrix}(2.1_{1,4}) & \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4}) \\ (3.1_{3,4})\end{matrix} & \times & (1.0_{3,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3}) \\ (1.1_{4,3,1})\end{matrix}\end{matrix}$$

$$\begin{matrix}(3.1_{3,4}) & \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4}) \\ (2.1_{1,4})\end{matrix} & \times & (1.0_{3,1}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1}) \\ (1.1_{4,3,1})\end{matrix}\end{matrix}$$

$$(3.1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2.1_{1,4})\\(0.1_{1,3})\\(1.1_{1,3,4})\end{matrix} \quad \times \quad (1.0_{3,1}) \gg \Upsilon \succ \begin{matrix}(1.1_{4,3,1})\\(1.3_{4,3})\\(1.2_{4,1})\end{matrix}$$

Medial action

$$(0.1_{1,3}) \gg \Upsilon \succ \begin{matrix}(3.1_{3,4})\\(1.1_{1,3,4})\\(2.1_{1,4})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(1.2_{4,1})\\(1.0_{3,1})\\(1.3_{4,3})\end{matrix}$$

$$(0.1_{1,3}) \gg \Upsilon \succ \begin{matrix}(2.1_{1,4})\\(1.1_{1,3,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(1.3_{4,3})\\(1.0_{3,1})\\(1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \Upsilon \succ \begin{matrix}(0.1_{1,3})\\(1.1_{1,3,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(1.3_{4,3})\\(1.2_{4,1})\\(1.0_{3,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3.1_{3,4})\\(1.1_{1,3,4})\\(0.1_{1,3})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(1.0_{3,1})\\(1.2_{4,1})\\(1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \Upsilon \succ \begin{matrix}(0.1_{1,3})\\(1.1_{1,3,4})\\(2.1_{1,4})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(1.2_{4,1})\\(1.3_{4,3})\\(1.0_{3,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2.1_{1,4})\\(1.1_{1,3,4})\\(0.1_{1,3})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(1.0_{3,1})\\(1.3_{4,3})\\(1.2_{4,1})\end{matrix}$$

Objectal action

$$(0.1_{1,3}) \gg \Upsilon \succ \begin{matrix}(3.1_{3,4})\\(2.1_{1,4})\\(1.1_{1,3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \Upsilon \succ \begin{matrix}(1.1_{4,3,1})\\(1.0_{3,1})\\(1.3_{4,3})\end{matrix}$$

$$(0.1_{1,3}) \gg \Upsilon \succ \begin{matrix}(1.1_{1,3,4})\\(2.1_{1,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \Upsilon \succ \begin{matrix}(1.3_{4,3})\\(1.0_{3,1})\\(1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(0.1_{1,3})\\(2.1_{1,4})\\(3.1_{3,4})\end{matrix} \times (1.2_{4,1}) \gg \Upsilon \succ \begin{matrix}(1.3_{4,3})\\(1.1_{4,3,1})\\(1.0_{3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(3.1_{3,4})\\(2.1_{1,4})\\(0.1_{1,3})\end{matrix} \times (1.2_{4,1}) \gg \Upsilon \succ \begin{matrix}(1.0_{3,1})\\(1.1_{4,3,1})\\(1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \Upsilon \succ \begin{matrix}(0.1_{1,3})\\(2.1_{1,4})\\(1.1_{1,3,4})\end{matrix} \times (1.2_{4,1}) \gg \Upsilon \succ \begin{matrix}(1.1_{4,3,1})\\(1.3_{4,3})\\(1.0_{3,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \Upsilon \succ \begin{matrix}(1.1_{1,3,4})\\(2.1_{1,4})\\(0.1_{1,3})\end{matrix} \times (1.2_{4,1}) \gg \Upsilon \succ \begin{matrix}(1.0_{3,1})\\(1.3_{4,3})\\(1.1_{4,3,1})\end{matrix}$$

Interpretative action

$$(0.1_{1,3}) \gg \Upsilon \succ \begin{matrix}(2.1_{1,4})\\(3.1_{3,4})\\(1.1_{1,3,4})\end{matrix} \times (1.3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1.1_{4,3,1})\\(1.0_{3,1})\\(1.2_{4,1})\end{matrix}$$

$$(0.1_{1,3}) \gg \Upsilon \succ \begin{matrix}(1.1_{1,3,4})\\(3.1_{3,4})\\(2.1_{1,4})\end{matrix} \times (1.3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1.2_{4,1})\\(1.0_{3,1})\\(1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(0.1_{1,3})\\(3.1_{3,4})\\(2.1_{1,4})\end{matrix} \times (1.3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1.2_{4,1})\\(1.1_{4,3,1})\\(1.0_{3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2.1_{1,4})\\(3.1_{3,4})\\(0.1_{1,3})\end{matrix} \times (1.3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1.0_{3,1})\\(1.1_{4,3,1})\\(1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \Upsilon \succ \begin{matrix}(0.1_{1,3})\\(3.1_{3,4})\\(1.1_{1,3,4})\end{matrix} \times (1.3_{4,3}) \Upsilon \succ \begin{matrix}(1.2_{4,1})\\(1.0_{3,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \Upsilon \succ \begin{matrix}(1.1_{1,3,4})\\(3.1_{3,4})\\(0.1_{1,3})\end{matrix} \times (1.3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1.0_{3,1})\\(1.1_{4,3,1})\\(1.2_{4,1})\end{matrix}$$

2. Pre-semiotic dual system

$(3.1_{3,4}\ 2.1_{1,4}\ 1.1_{1,3,4}\ 0.2_{1,2}) \times (2.0_{2,1}\ 1.1_{4,3,1}\ 1.2_{1,4}\ 1.3_{4,3})$

Qualitative action

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(2.1_{1,4})\end{matrix} (0.2_{1,2}) \quad \times \quad (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(1.3_{4,3})\end{matrix} (1.1_{4,3,1})$$

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(3.1_{3,4})\end{matrix} (0.2_{1,2}) \quad \times \quad (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(1.2_{4,1})\end{matrix} (1.1_{4,3,1})$$

$$(2.1_{1,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(1.1_{1,3,4})\end{matrix} (0.2_{1,2}) \quad \times \quad (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1})\\(1.3_{4,3})\end{matrix} (1.2_{4,1})$$

$$(2.1_{1,4}) \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4})\\(3.1_{3,4})\end{matrix} (0.2_{1,2}) \quad \times \quad (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(1.1_{4,3,1})\end{matrix} (1.2_{4,1})$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4})\\(2.1_{1,4})\end{matrix} (0.2_{1,2}) \quad \times \quad (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(1.1_{4,3,1})\end{matrix} (1.3_{4,3})$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(1.1_{1,3,4})\end{matrix} (0.2_{1,2}) \quad \times \quad (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1})\\(1.2_{4,1})\end{matrix} (1.3_{4,3})$$

Medial action

$$(0.2_{1,2}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(2.1_{1,4})\end{matrix} (1.1_{1,3,4}) \quad \times \quad (1.1_{4,3,1}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(1.3_{4,3})\end{matrix} (2.0_{2,1})$$

$$(0.2_{1,2}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(3.1_{3,4})\end{matrix} (1.1_{1,3,4}) \quad \times \quad (1.1_{4,3,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(1.2_{4,1})\end{matrix} (2.0_{2,1})$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (1.1_{1,3,4})\\ (3.1_{3,4})\end{matrix} \times (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.2_{4,1})\\ (2.0_{2,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.1_{1,3,4})\\ (0.2_{1,2})\end{matrix} \times (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (1.2_{1,4})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (1.1_{1,3,4})\\ (2.1_{1,4})\end{matrix} \times (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (1.3_{4,3})\\ (2.0_{2,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.1_{1,3,4})\\ (0.2_{1,2})\end{matrix} \times (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (1.3_{4,3})\\ (1.2_{4,1})\end{matrix}$$

Objectal action

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.1_{1,4})\\ (1.1_{1,3,4})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.1_{4,3,1})\\ \succ (2.0_{2,1})\\ (1.3_{4,3})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(1.1_{1,3,4})\\ \succ (2.1_{1,4})\\ (3.1_{3,4})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.0_{2,1})\\ (1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (2.1_{1,4})\\ (3.1_{3,4})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.1_{4,3,1})\\ (2.0_{2,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.1_{1,4})\\ (0.2_{1,2})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (1.1_{4,3,1})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (2.1_{1,4})\\ (1.1_{1,3,4})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.1_{4,3,1})\\ \succ (1.3_{4,3})\\ (2.0_{2,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.1_{1,3,4})\\ \succ (2.1_{1,4})\\ (0.2_{1,2})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (1.3_{4,3})\\ (1.1_{4,3,1})\end{matrix}$$

Interpretative action

$$(0.2_{1,2}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(3.1_{3,4})\\(1.1_{1,3,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1})\\(2.0_{2,1})\\(1.2_{4,1})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4})\\(3.1_{3,4})\\(2.1_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(2.0_{2,1})\\(1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(0.2_{1,2})\\(3.1_{3,4})\\(2.1_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(2.0_{2,1})\\(1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(3.1_{3,4})\\(0.2_{1,2})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(2.0_{2,1})\\(1.2_{4,1})\\(1.1_{4,3,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \succ \begin{matrix}(0.2_{1,2})\\(3.1_{3,4})\\(1.1_{1,3,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1})\\(2.0_{2,1})\\(1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4})\\(3.1_{3,4})\\(0.2_{1,2})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(2.0_{2,1})\\(1.2_{4,1})\\(1.1_{4,3,1})\end{matrix}$$

3. Pre-semiotic dual system

$(3.1_{3,4}\ 2.1_{1,4}\ 1.1_{1,3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 1.1_{4,3,1}\ 1.2_{4,1}\ 1.3_{4,3})$

Qualitative action

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(0.3_{2,3})\\(2.1_{1,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(1.1_{4,3,1})\\(1.3_{4,3})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(0.3_{2,3})\\(3.1_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \quad \curlyvee \quad \succ \begin{matrix}(1.3_{4,3})\\(1.1_{4,3,1})\\(1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (1.1_{1,3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.1_{4,3,1})\\ \succ (1.2_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(1.1_{1,3,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.2_{4,1})\\ (1.1_{4,3,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.1_{1,3,4})\\ \succ (0.3_{2,3})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (1.3_{4,3})\\ (1.1_{4,3,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (0.3_{2,3})\\ (1.1_{1,3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.1_{4,3,1})\\ \succ (1.3_{4,3})\\ (1.2_{4,1})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.1_{1,3,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.1_{1,3,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (1.1_{1,3,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.2_{4,1})\\ (3.0_{3,2})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.1_{1,3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.2_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (1.1_{1,3,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (1.3_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.1_{1,3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.1_{4,3,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.3_{4,3})\\ (1.2_{4,1})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(2.1_{1,4})\\(1.1_{1,3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1})\\(3.0_{3,2})\\(1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4})\\(2.1_{1,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(3.0_{3,2})\\(1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(2.1_{1,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(3.0_{3,2})\\(1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(2.1_{1,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(1.3_{4,3})\\(1.1_{4,3,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(2.1_{1,4})\\(1.1_{1,3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1})\\(3.0_{3,2})\\(1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4})\\(2.1_{1,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(1.3_{4,3})\\(1.1_{4,3,1})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(3.1_{3,4})\\(1.1_{1,3,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1})\\(3.0_{3,2})\\(1.2_{4,1})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4})\\(3.1_{3,4})\\(2.1_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(3.0_{3,2})\\(1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(3.1_{3,4})\\(2.1_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(3.0_{3,2})\\(1.1_{4,3,1})\end{matrix}$$

$$(1.1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(3.1_{3,4})\\(0.3_{2,3})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(1.1_{4,3,1})\\(1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(3.1_{3,4})\\(1.1_{1,3,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.1_{4,3,1})\\(1.2_{4,1})\\(3.0_{3,2})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \succ \begin{matrix}(1.1_{1,3,4})\\(3.1_{3,4})\\(0.3_{2,3})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(1.2_{4,1})\\(1.1_{4,3,1})\end{matrix}$$

4. Pre-semiotic system

$(3.1_{3,4}\ 2.1_{1,4}\ 1.2_{1,4}\ 0.2_{1,2}) \times (2.0_{2,1}\ 2.1_{4,1}\ 1.2_{4,1}\ 1.3_{4,3})$

Qualitative action

$$(1.2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(0.2_{1,2})\\(2.1_{1,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(2.1_{4,1})\\(1.3_{4,3})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(0.2_{1,2})\\(3.1_{3,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(2.1_{4,1})\\(1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(0.2_{1,2})\\(1.2_{1,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(1.2_{4,1})\\(1.3_{4,3})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(0.2_{1,2})\\(3.1_{3,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{3,4})\\(1.2_{4,1})\\(2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(0.2_{1,2})\\(2.1_{1,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(1.2_{4,1})\\(1.3_{4,3})\\(2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2.1_{1,4})\\(0.2_{1,2})\\(1.2_{1,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(1.3_{4,3})\\(1.2_{4,1})\end{matrix}$$

Medial action

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.2_{1,4})\\ (2.1_{1,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (2.0_{2,1})\\ (1.3_{4,3})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.2_{1,4})\\ (3.1_{3,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.0_{2,1})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (1.2_{1,4})\\ (3.1_{3,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.2_{4,1})\\ (2.0_{2,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.2_{1,4})\\ (0.2_{1,2})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (1.2_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (1.2_{1,4})\\ (2.1_{1,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (1.3_{4,3})\\ (2.0_{2,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.2_{1,4})\\ (0.2_{1,2})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (1.3_{4,3})\\ (1.2_{4,1})\end{matrix}$$

Objectal action

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.1_{1,4})\\ (1.2_{1,4})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.0_{2,1})\\ (1.3_{4,3})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (2.1_{1,4})\\ (3.1_{3,4})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.0_{2,1})\\ (2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (2.1_{1,4})\\ (3.1_{3,4})\end{matrix} \times (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.1_{4,1})\\ (2.0_{2,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \Upsilon \begin{matrix}(3.1_{3,4})\\ \succ (2.1_{1,4})\\ (0.2_{1,2})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \Upsilon \begin{matrix}(2.0_{2,1})\\ \succ (2.1_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \Upsilon \begin{matrix}(0.2_{1,2})\\ \succ (2.1_{1,4})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \Upsilon \begin{matrix}(2.1_{4,1})\\ \succ (1.3_{4,3})\\ (2.0_{2,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \Upsilon \begin{matrix}(1.2_{1,4})\\ \succ (2.1_{1,4})\\ (0.2_{1,2})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \Upsilon \begin{matrix}(2.0_{2,1})\\ \succ (1.3_{4,3})\\ (2.1_{4,1})\end{matrix}$$

Interpretative action

$$(0.2_{1,2}) \gg \Upsilon \begin{matrix}(2.1_{1,4})\\ \succ (3.1_{3,4})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \Upsilon \begin{matrix}(2.1_{4,1})\\ \succ (2.0_{2,1})\\ (1.2_{4,1})\end{matrix}$$

$$(0.2_{1,2}) \gg \Upsilon \begin{matrix}(1.2_{1,4})\\ \succ (3.1_{3,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \Upsilon \begin{matrix}(1.2_{4,1})\\ \succ (2.0_{2,1})\\ (2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \Upsilon \begin{matrix}(0.2_{1,2})\\ \succ (3.1_{3,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \Upsilon \begin{matrix}(1.2_{4,1})\\ \succ (2.1_{4,1})\\ (2.0_{2,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \Upsilon \begin{matrix}(2.1_{1,4})\\ \succ (3.1_{3,4})\\ (0.2_{1,2})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \Upsilon \begin{matrix}(2.0_{2,1})\\ \succ (2.1_{4,1})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \Upsilon \begin{matrix}(0.2_{1,2})\\ \succ (3.1_{3,4})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \Upsilon \begin{matrix}(2.1_{4,1})\\ \succ (1.2_{4,1})\\ (2.0_{2,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \Upsilon \begin{matrix}(1.2_{1,4})\\ \succ (3.1_{3,4})\\ (0.2_{1,2})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \Upsilon \begin{matrix}(2.0_{2,1})\\ \succ (1.2_{4,1})\\ (2.1_{4,1})\end{matrix}$$

5. Pre-semiotic dual system
$(3.1_{3,4}\ 2.1_{1,4}\ 1.2_{1,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 2.1_{4,1}\ 1.2_{4,1}\ 1.3_{3,4})$

Qualitative action

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (2.1_{1,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (2.1_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.1_{4,1})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (1.2_{1,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (1.2_{4,1})\\ (1.3_{3,4})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.2_{4,1})\\ (2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (0.3_{2,3})\\ (2.1_{1,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (1.3_{4,3})\\ (2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (0.3_{2,3})\\ (1.2_{1,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (1.3_{4,3})\\ (1.2_{4,1})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.2_{1,4})\\ (2.1_{1,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.2_{1,4})\\ (3.1_{3,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (1.2_{1,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.2_{4,1})\\ (3.0_{3,2})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.2_{1,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.2_{4,1})\\ (1.3_{4})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (1.2_{1,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (1.3_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.2_{1,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.3_{4,3})\\ (1.2_{4,1})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.1_{1,4})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (2.1_{1,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.1_{1,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.1_{4,1})\\ (3.0_{3,2})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.1_{1,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.1_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.1_{1,4})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (1.2_{4,1})\\ (3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (2.1_{1,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.3_{4,3})\\ (2.1_{4,1})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (3.1_{3,4})\\ (1.2_{1,4})\end{matrix} \times (1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (3.0_{3,2})\\ (1.2_{4,1})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.1_{3,4})\\ (2.1_{1,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (3.0_{3,2})\\ (2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (2.1_{1,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (2.1_{4,1})\\ (3.0_{3,2})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.1_{4,1})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (1.2_{1,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (1.2_{4,1})\\ (3.0_{3,2})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.2_{4,1})\\ (2.1_{4,1})\end{matrix}$$

6. Pre-semiotic dual system

$(3.1_{3,4}\ 2.1_{1,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 1.2_{4,1}\ 1.3_{4,3})$

Qualitative action

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (2.1_{1,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (3.1_{4,3})\\ (1.3_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.1_{4,3})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (1.2_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.2_{4,1})\\ (3.1_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (1.3_{4,3})\\ (3.1_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (1.3_{4,3})\\ (1.2_{4,1})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.3_{3,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.3_{3,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (1.2_{4,1})\\ (3.0_{3,2})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.2_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (1.3_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.3_{4,3})\\ (1.2_{4,1})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.1_{1,4})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (1.2_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.1_{1,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.1_{1,4})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.1_{1,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{4,3})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.1_{1,4})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (1.3_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.1_{1,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.2_{4,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.3_{3,4})\\ (3.1_{3,4})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (3.1_{3,4})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (3.0_{3,2})\\ (1.2_{4,1})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.1_{3,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (1.3_{3,4}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (3.0_{3,2})\\ (3.1_{3,4})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (2.1_{1,4})\end{matrix} \quad \times \quad (1.3_{3,4}) \gg \curlyvee \begin{matrix}(1.2_{4,1})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.1_{1,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{4,3})\\ (1.2_{4,1})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (1.2_{1,4})\\ (3.0_{3,2})\end{matrix}$$

$$(2.1_{1,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.2_{4,1})\\ (3.1_{4,3})\end{matrix}$$

7. Pre-semiotic dual system

$(3.1_{3,4}\ 2.2_{1,2,4}\ 1.2_{1,4}\ 0.2_{1,2}) \times (2.0_{2,1}\ 2.1_{4,1}\ 2.2_{4,2,1}\ 1.3_{4,3})$

Qualitative action

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.2_{1,2})\\ (2.2_{1,2,4})\end{matrix} \quad \times \quad (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.1_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.2_{1,2})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (2.0_{2,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.1_{4,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.2_{1,2})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.2_{4,2,1})\\ (1.3_{4,3})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (0.2_{1,2})\\ (3.1_{3,4})\end{matrix} \quad \times \quad (2.0_{2,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.2_{4,2,1})\\ (2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (0.2_{1,2})\\ (2.2_{1,2,4})\end{matrix} \quad \times \quad (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (1.3_{4,3})\\ (2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.2_{1,2})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (1.3_{4,3})\\ (2.2_{4,2,1})\end{matrix}$$

Medial action

$$(0.2_{1,2}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(1.2_{1,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(2.0_{2,1})\\(1.3_{4,3})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(1.2_{1,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(2.0_{2,1})\\(2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(0.2_{1,2})\\(1.2_{1,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(2.2_{4,2,1})\\(2.0_{2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(1.2_{1,4})\\(0.2_{1,2})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.0_{2,1})\\(2.2_{4,2,1})\\(1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(0.2_{1,2})\\(1.2_{1,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(1.3_{4,3})\\(2.0_{2,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(1.2_{1,4})\\(0.2_{1,2})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.0_{2,1})\\(1.3_{4,3})\\(2.2_{4,2,1})\end{matrix}$$

Objectal action

$$(0.2_{1,2}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(2.2_{1,2,4})\\(1.2_{1,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(2.0_{2,1})\\(1.3_{4,3})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(2.2_{1,2,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(2.0_{2,1})\\(2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \succ \begin{matrix}(0.2_{1,2})\\(2.2_{1,2,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(2.1_{4,1})\\(2.0_{2,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.2_{1,2,4})\\ (0.2_{1,2})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (2.1_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (2.2_{1,2,4})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (1.3_{4,3})\\ (2.0_{2,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (2.2_{1,2,4})\\ (0.2_{1,2})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (1.3_{4,3})\\ (2.1_{4,1})\end{matrix}$$

Interpretative action

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.1_{3,4})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.0_{2,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.1_{3,4})\\ (2.2_{1,2,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.0_{2,1})\\ (2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (3.1_{3,4})\\ (2.2_{1,2,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.1_{4,1})\\ (2.0_{2,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.1_{3,4})\\ (0.2_{1,2})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (2.1_{4,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (3.1_{3,4})\\ (1.2_{1,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.2_{4,2,1})\\ (2.0_{2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.1_{3,4})\\ (0.2_{1,2})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (2.2_{4,2,1})\\ (2.1_{4,1})\end{matrix}$$

8. Pre-semiotic dual system

$(3.1_{3,4}\ 2.2_{1,2,4}\ 1.2_{1,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 2.1_{4,1}\ 2.2_{4,2,1}\ 1.3_{4,3})$

Qualitative action

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (2.2_{1,2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.1_{4,1})\\ (1.3_{4,3})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.1_{4,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (1.2_{1,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.2_{4,2,1})\\ (1.3_{4,3})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (2.2_{4,2,1})\\ (2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (0.3_{2,3})\\ (2.2_{1,2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (1.3_{4,3})\\ (2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.3_{2,3})\\ (1.2_{1,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (1.3_{4,3})\\ (2.2_{4,2,1})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (1.2_{1,4})\\ (2.2_{1,2,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (1.2_{1,4})\\ (3.1_{3,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(1.2_{1,4})\\(3.1_{3,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(2.2_{4,2,1})\\(3.0_{3,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(1.2_{1,4})\\(0.3_{2,3})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(2.2_{4,2,1})\\(1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(1.2_{1,4})\\(2.2_{1,2,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(1.3_{4,3})\\(3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(1.2_{1,4})\\(0.3_{2,3})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(2.2_{4,2,1})\\(1.3_{4,3})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(2.2_{1,2,4})\\(1.2_{1,4})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(3.0_{3,2})\\(1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(2.2_{1,2,4})\\(3.1_{3,4})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(3.0_{3,2})\\(2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(2.2_{1,2,4})\\(3.1_{3,4})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(3.0_{3,2})\\(2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(2.2_{1,2,4})\\(0.3_{2,3})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(1.3_{4,3})\\(2.1_{4,1})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(2.2_{1,2,4})\\(1.2_{1,4})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(3.0_{3,2})\\(1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(2.2_{1,2,4})\\(0.3_{2,3})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(1.3_{4,3})\\(2.1_{4,1})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.1_{3,4})\\ (1.2_{1,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (3.0_{3,2})\\ (2.2_{4,2,1})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.1_{3,4})\\ (2.2_{1,2,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (3.0_{3,2})\\ (2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (2.2_{1,2,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.1_{4,1})\\ (3.0_{3,2})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.1_{4,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (1.2_{1,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.2_{4,2,1})\\ (3.0_{3,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.2_{4,2,1})\\ (2.1_{4,1})\end{matrix}$$

9. Pre-semiotic dual system

$$(3.1_{3,4}\ 2.2_{1,2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 2.2_{4,2,1}\ 1.3_{4,3})$$

Qualitative action

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (2.2_{1,2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (3.1_{4,3})\\ (1.3_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.1_{4,3})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(0.3_{2,3})\\(1.3_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(2.2_{4,2,1})\\(1.3_{4,3})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(1.3_{3,4})\\(0.3_{2,3})\\(3.1_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(2.2_{4,2,1})\\(3.1_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(1.3_{3,4})\\(0.3_{2,3})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(1.3_{4,3})\\(3.1_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(0.3_{2,3})\\(1.3_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(3.1_{4,3})\\(1.3_{4,3})\\(2.2_{4,2,1})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(1.3_{3,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(3.0_{3,2})\\(1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(1.3_{3,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(3.0_{3,2})\\(2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(1.3_{3,4})\\(3.1_{3,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \succ \begin{matrix}(1.3_{4,3})\\(2.2_{4,2,1})\\(3.0_{3,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3.1_{3,4})\\(1.3_{3,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(2.2_{4,2,1})\\(1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(1.3_{3,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(1.3_{4,3})\\(3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(1.3_{3,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(1.3_{4,3})\\(2.2_{4,2,1})\end{matrix}$$

Objective action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.2_{1,2,4})\\ (1.3_{3,4})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.2_{1,2,4})\\ (3.1_{3,4})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.2_{1,2,4})\\ (3.1_{3,4})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.2_{1,2,4})\\ (0.3_{2,3})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{4,3})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.2_{1,2,4})\\ (1.3_{3,4})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (1.3_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.2_{1,2,4})\\ (0.3_{2,3})\end{matrix} \times (2.2_{4,2,1}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.3_{4,3})\\ (3.1_{4,3})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.1_{3,4})\\ (1.3_{3,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (2.2_{4,2,1})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.1_{3,4})\\ (2.2_{1,2,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (2.2_{1,2,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{4,3})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (1.3_{3,4})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (2.2_{4,2,1})\\ (3.0_{3,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \times (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.2_{4,2,1})\\ (3.1_{4,3})\end{matrix}$$

10. Pre-semiotic dual system

$(3.1_{3,4}\ 2.3_{2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 3.2_{4,2}\ 1.3_{4,3})$

Qualitative action

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (2.3_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.1_{4,3})\\ (1.3_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.1_{4,3})\\ (3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.2_{4,2})\\ (1.3_{4,3})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (3.1_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(1.3_{4,3})\\ \succ (3.2_{4,2})\\ (3.1_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (2.3_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (1.3_{4,3})\\ (3.1_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (1.3_{4,3})\\ (2.2_{4,2,1})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(3.1_{3,4})\\ \succ (1.3_{3,4})\\ (2.3_{2,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(3.2_{4,2})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(2.3_{2,4})\\ \succ (1.3_{3,4})\\ (3.1_{3,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \Upsilon \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (3.1_{3,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(1.3_{4,3})\\ \succ (3.2_{4,2})\\ (3.0_{3,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \Upsilon \begin{matrix}(3.1_{3,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(3.0_{3,2})\\ \succ (3.2_{4,2})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \Upsilon \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (2.3_{2,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(3.2_{4,2})\\ \succ (1.3_{4,3})\\ (3.0_{3,2})\end{matrix}$$

:

$$(3.1_{3,4}) \gg \Upsilon \begin{matrix}(2.3_{2,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(3.0_{3,2})\\ \succ (1.3_{4,3})\\ (3.2_{4,2})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(3.1_{3,4})\\ \succ (2.3_{2,4})\\ (1.3_{3,4})\end{matrix} \times (3.2_{4,2}) \gg \Upsilon \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (1.3_{4,3})\end{matrix}$$

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(1.3_{3,4})\\ \succ (2.3_{2,4})\\ (3.1_{3,4})\end{matrix} \times (3.2_{4,2}) \gg \Upsilon \begin{matrix}(1.3_{4,3})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \Upsilon \begin{matrix}(0.3_{2,3})\\ \succ (2.3_{2,4})\\ (3.1_{3,4})\end{matrix} \times (3.2_{4,2}) \gg \Upsilon \begin{matrix}(1.3_{4,3})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.1_{3,4})\\ \succ (2.3_{2,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{4,3})\\ (1.3_{4,3})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.3_{2,4})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (1.3_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(3.1_{3,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.3_{2,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (1.3_{3,4})\\ (3.1_{4,3})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (3.1_{3,4})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (3.2_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.1_{3,4})\\ (2.3_{2,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (2.3_{2,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{4,3})\\ (3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.1_{3,4})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.2_{4,2})\\ (3.0_{3,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.1_{3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (1.3_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.2_{4,2})\\ (3.1_{4,3})\end{matrix}$$

11. Pre-semiotic dual system

$(3.2_{2,4}\ 2.2_{1,2,4}\ 1.2_{1,4}\ 0.2_{1,2}) \times (2.0_{2,1}\ 2.1_{4,1}\ 2.2_{4,2,1}\ 2.3_{4,2})$

Qualitative action

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (0.2_{1,2})\\ (2.2_{1,2,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.1_{4,1})\\ (2.3_{4,2})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.2_{1,2})\\ (3.2_{2,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (2.1_{4,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (0.2_{1,2})\\ (1.2_{1,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.2_{4,2,1})\\ (2.3_{4,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (0.2_{1,2})\\ (3.2_{2,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (2.2_{4,2,1})\\ (2.1_{4,1})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (0.2_{1,2})\\ (2.2_{1,2,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.3_{4,2})\\ (2.1_{4,1})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.2_{1,2})\\ (1.2_{1,4})\end{matrix} \times (2.0_{2,1}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.3_{4,2})\\ (2.2_{4,2,1})\end{matrix}$$

Medial action

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (1.2_{1,4})\\ (2.2_{1,2,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.0_{2,1})\\ (2.3_{4,2})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (1.2_{1,4})\\ (3.2_{2,4})\end{matrix} \times (2.1_{4,1}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (2.0_{2,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(0.2_{1,2})\\(1.2_{1,4})\\(3.2_{2,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \Upsilon \succ \begin{matrix}(2.3_{4,2})\\(2.2_{4,2,1})\\(2.0_{2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3.2_{2,4})\\(1.2_{1,4})\\(0.2_{1,2})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \Upsilon \succ \begin{matrix}(2.0_{2,1})\\(2.2_{4,2,1})\\(2.3_{4,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \Upsilon \succ \begin{matrix}(0.2_{1,2})\\(1.2_{1,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \Upsilon \succ \begin{matrix}(2.2_{4,2,1})\\(2.3_{4,2})\\(2.0_{2,1})\end{matrix}$$

$$(3.2_{2,4}) \gg \Upsilon \succ \begin{matrix}(2.2_{1,2,4})\\(1.2_{1,4})\\(0.2_{1,2})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \Upsilon \succ \begin{matrix}(2.0_{2,1})\\(2.3_{4,2})\\(2.2_{4,2,1})\end{matrix}$$

Objectal action

$$(0.2_{1,2}) \gg \Upsilon \succ \begin{matrix}(3.2_{2,4})\\(2.2_{1,2,4})\\(1.2_{1,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2.1_{4,1})\\(2.0_{2,1})\\(2.3_{4,2})\end{matrix}$$

$$(0.2_{1,2}) \gg \Upsilon \succ \begin{matrix}(1.2_{1,4})\\(2.2_{1,2,4})\\(3.2_{2,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2.3_{4,2})\\(2.0_{2,1})\\(2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \Upsilon \succ \begin{matrix}(0.2_{1,2})\\(2.2_{1,2,4})\\(3.2_{2,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2.3_{4,2})\\(2.1_{4,1})\\(2.0_{2,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \Upsilon \succ \begin{matrix}(3.2_{2,4})\\(2.2_{1,2,4})\\(0.2_{1,2})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2.0_{2,1})\\(2.1_{4,1})\\(2.3_{4,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \Upsilon \succ \begin{matrix}(0.2_{1,2})\\(2.2_{1,2,4})\\(1.2_{1,2,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2.1_{4,1})\\(2.3_{4,2})\\(2.0_{2,1})\end{matrix}$$

$$(3.2_{2,4}) \gg \Upsilon \succ \begin{matrix}(1.2_{1,4})\\(2.2_{1,2,4})\\(0.2_{1,2})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2.0_{2,1})\\(2.3_{4,2})\\(2.1_{4,1})\end{matrix}$$

Interpretative action

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.2_{2,4})\\ (1.2_{1,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.0_{2,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(0.2_{1,2}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.2_{2,4})\\ (2.2_{1,2,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.0_{2,1})\\ (2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (3.2_{2,4})\\ (2.2_{1,2,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.1_{4,1})\\ (2.0_{2,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.2_{2,4})\\ (0.2_{1,2})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (2.1_{4,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(0.2_{1,2})\\ \succ (3.2_{2,4})\\ (1.2_{1,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.2_{4,2,1})\\ (2.0_{2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.2_{2,4})\\ (0.2_{1,2})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(2.0_{2,1})\\ \succ (2.2_{4,2,1})\\ (2.1_{4,1})\end{matrix}$$

12. Pre-semiotic dual system

$$(3.2_{2,4}\ 2.2_{1,2,4}\ 1.2_{1,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 2.1_{4,1}\ 2.2_{4,2,1}\ 2.3_{4,2})$$

Qualitative action

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (0.3_{2,3})\\ (2.2_{1,2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.1_{4,1})\\ (2.3_{4,2})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.3_{2,3})\\ (3.2_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (2.1_{4,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3.2_{2,4})\\(0.3_{2,3})\\(1.2_{1,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(2.2_{4,2,1})\\(2.3_{4,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(0.3_{2,3})\\(3.2_{2,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(2.3_{4,2})\\(2.2_{4,2,1})\\(2.1_{4,1})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(0.3_{2,3})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(2.3_{4,2})\\(2.1_{4,1})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(0.3_{2,3})\\(1.2_{1,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(2.3_{4,2})\\(2.2_{4,2,1})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(3.2_{2,4})\\(1.2_{1,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(3.0_{3,2})\\(2.3_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(1.2_{1,4})\\(3.2_{2,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.3_{4,2})\\(3.0_{3,2})\\(2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(1.2_{1,4})\\(3.2_{2,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.3_{4,2})\\(2.2_{4,2,1})\\(3.0_{3,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3.2_{2,4})\\(1.2_{1,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(2.2_{4,2,1})\\(2.3_{4,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(1.2_{1,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(2.3_{4,2})\\(3.0_{3,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(1.2_{1,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (2.1_{4,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(2.3_{4,2})\\(2.2_{4,2,1})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(3.2_{2,4})\\(2.2_{1,2,4})\\(1.2_{1,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(3.0_{3,2})\\(2.3_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(2.2_{1,2,4})\\(3.2_{2,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2.3_{4,2})\\(3.0_{3,2})\\(2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(2.2_{1,2,4})\\(3.2_{2,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2.3_{4,2})\\(2.1_{4,1})\\(3.0_{3,2})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3.2_{2,4})\\(2.2_{1,2,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(2.1_{4,1})\\(2.3_{4,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(2.2_{1,2,4})\\(1.2_{1,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(2.3_{4,2})\\(3.0_{3,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(2.2_{1,2,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(2.3_{4,2})\\(2.1_{4,1})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(3.2_{2,4})\\(1.2_{1,4})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(2.1_{4,1})\\(3.0_{3,2})\\(2.2_{4,2,1})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(1.2_{1,4})\\(3.2_{2,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(3.0_{3,2})\\(2.1_{4,1})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(3.2_{2,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(2.1_{4,1})\\(3.0_{3,2})\end{matrix}$$

$$(1.2_{1,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (3.2_{2,4})\\ (0.3_{2,3})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.1_{4,1})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.2_{2,4})\\ (1.2_{1,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(2.1_{4,1})\\ \succ (2.2_{4,2,1})\\ (3.0_{3,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.2_{1,4})\\ \succ (3.2_{2,4})\\ (0.3_{2,3})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.2_{4,2,1})\\ (2.1_{4,1})\end{matrix}$$

13. Pre-semiotic system

$$(3.2_{2,4}\ 2.2_{1,2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 2.2_{4,2,1}\ 2.3_{4,2})$$

Qualitative action

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (0.3_{2,3})\\ (2.2_{1,2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (3.1_{4,3})\\ (2.3_{4,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.3_{2,3})\\ (3.2_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (3.1_{4,3})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (2.2_{4,2,1})\\ (3.2_{4,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (3.2_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (2.2_{4,2,1})\\ (3.1_{4,3})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (2.2_{1,2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(2.2_{4,2,1})\\ \succ (2.3_{4,2})\\ (3.1_{4,3})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \begin{matrix}(2.2_{1,2,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (2.3_{4,2})\\ (2.2_{4,2,1})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(3.2_{2,4})\\ \succ (1.3_{3,4})\\ (2.2_{1,2,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(2.2_{4,2,1})\\ \succ (3.0_{3,2})\\ (2.3_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(2.2_{1,2,4})\\ \succ (1.3_{3,4})\\ (3.2_{2,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(2.3_{4,2})\\ \succ (3.0_{3,2})\\ (2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \Upsilon \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (3.2_{2,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(2.3_{4,2})\\ \succ (2.2_{4,2,1})\\ (3.0_{3,2})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \Upsilon \begin{matrix}(3.2_{2,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(3.0_{3,2})\\ \succ (2.2_{4,2,1})\\ (2.3_{4,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \Upsilon \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (2.2_{1,2,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(2.2_{4,2,1})\\ \succ (2.3_{4,2})\\ (3.0_{3,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \Upsilon \begin{matrix}(2.2_{1,2,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(3.0_{3,2})\\ \succ (2.3_{4,2})\\ (2.2_{4,2,1})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(3.2_{2,4})\\ \succ (2.2_{1,2,4})\\ (1.3_{3,4})\end{matrix} \times (2.2_{4,2,1}) \gg \Upsilon \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (2.3_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(1.3_{3,4})\\ \succ (2.2_{1,2,4})\\ (3.2_{2,4})\end{matrix} \times (2.2_{4,2,1}) \gg \Upsilon \begin{matrix}(2.3_{4,2})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \Upsilon \begin{matrix}(0.3_{2,3})\\ \succ (2.2_{1,2,4})\\ (3.2_{2,4})\end{matrix} \times (2.2_{4,2,1}) \gg \Upsilon \begin{matrix}(2.3_{4,2})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \succ \begin{matrix}(3.2_{2,4})\\(2.2_{1,2,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(3.1_{4,3})\\(2.3_{4,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(2.2_{1,2,4})\\(1.3_{3,4})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3.1_{4,3})\\(2.3_{4,2})\\(3.0_{3,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \succ \begin{matrix}(1.3_{3,4})\\(2.2_{1,2,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (2.2_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(3.1_{4,3})\\(2.3_{4,2})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(3.2_{2,4})\\(1.3_{3,4})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(3.1_{4,3})\\(3.0_{3,2})\\(2.2_{4,2,1})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \succ \begin{matrix}(1.3_{3,4})\\(3.2_{2,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(3.0_{3,2})\\(3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(3.2_{2,4})\\(2.2_{1,2,4})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(2.2_{4,2,1})\\(3.1_{4,3})\\(3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \succ \begin{matrix}(2.2_{1,2,4})\\(3.2_{2,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(3.1_{4,3})\\(2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(3.2_{2,4})\\(1.3_{3,4})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(3.1_{4,3})\\(3.0_{3,2})\\(2.2_{4,2,1})\end{matrix}$$

$$(2.2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(1.3_{3,4})\\(3.2_{2,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (2.3_{4,2}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(3.1_{4,3})\\(2.3_{4,2})\end{matrix}$$

14. Pre-semiotic dual system
$(3.2_{2,4}\ 2.3_{2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 3.2_{4,2}\ 2.3_{4,2})$

Qualitative action

$$(1.3_{3,4}) \gg \Upsilon \begin{matrix}(3.2_{2,4})\\ \succ (0.3_{2,3})\\ (2.3_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \Upsilon \begin{matrix}(3.2_{4,2})\\ \succ (3.1_{4,3})\\ (2.3_{4,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \Upsilon \begin{matrix}(2.3_{2,4})\\ \succ (0.3_{2,3})\\ (3.2_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \Upsilon \begin{matrix}(2.3_{4,2})\\ \succ (3.1_{4,3})\\ (3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \Upsilon \begin{matrix}(3.2_{2,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \Upsilon \begin{matrix}(3.1_{4,3})\\ \succ (3.2_{4,2})\\ (2.3_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \Upsilon \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (3.2_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \Upsilon \begin{matrix}(2.3_{4,2})\\ \succ (3.2_{4,2})\\ (3.1_{4,3})\end{matrix}$$

$$(3.2_{2,4}) \gg \Upsilon \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (2.3_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \Upsilon \begin{matrix}(3.2_{4,2})\\ \succ (2.3_{4,2})\\ (3.1_{4,3})\end{matrix}$$

$$(3.2_{2,4}) \gg \Upsilon \begin{matrix}(2.3_{2,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \times (3.0_{3,2}) \gg \Upsilon \begin{matrix}(3.1_{4,3})\\ \succ (2.3_{4,2})\\ (3.2_{4,2})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(3.2_{2,4})\\ \succ (1.3_{3,4})\\ (2.3_{2,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(3.2_{4,2})\\ \succ (3.0_{3,2})\\ (2.3_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \Upsilon \begin{matrix}(2.3_{2,4})\\ \succ (1.3_{3,4})\\ (3.2_{2,4})\end{matrix} \times (3.1_{4,3}) \gg \Upsilon \begin{matrix}(2.3_{4,2})\\ \succ (3.0_{3,2})\\ (3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ 1.3_{3,4})\\ (3.2_{2,4})\end{matrix} \times (3.1_{4,3}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (3.2_{4,2})\\ (3.0_{3,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \times (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.2_{4,2})\\ (2.3_{4,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (2.3_{2,4})\end{matrix} \times (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (2.3_{4,2})\\ (3.0_{3,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \times (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.3_{4,2})\\ (3.2_{4,2})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (2.3_{2,4})\\ (1.3_{3,4})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (2.3_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.3_{2,4})\\ (3.2_{2,4})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.3_{2,4})\\ (3.2_{2,4})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.2_{2,4})\\ \succ (2.3_{2,4})\\ (0.3_{2,3})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{4,3})\\ (2.3_{4,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.3_{2,4})\\ (1.3_{3,4})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (2.3_{4,2})\\ (3.0_{3,2})\end{matrix}$$

$$(3.2_{2,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.3_{2,4})\\ (0.3_{2,3})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (2.3_{4,2})\\ (3.1_{4,3})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (3.2_{2,4})\\ (1.3_{3,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (3.2_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.2_{2,4})\\ (2.3_{2,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.2_{2,4})\\ (2.3_{2,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (3.2_{2,4})\\ (0.3_{2,3})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{4,3})\\ (3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.2_{2,4})\\ (1.3_{3,4})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.2_{4,2})\\ (3.0_{3,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.2_{2,4})\\ (0.3_{2,3})\end{matrix} \times (2.3_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.2_{4,2})\\ (3.1_{4,3})\end{matrix}$$

15. Pre-semiotic dual system

$$(3.3_{2,3,4}\ 2.3_{2,4}\ 1.3_{3,4}\ 0.3_{2,3}) \times (3.0_{3,2}\ 3.1_{4,3}\ 3.2_{4,2}\ 3.3_{4,3,2})$$

Qualitative action

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.3_{2,3,4})\\ \succ (0.3_{2,3})\\ (2.3_{2,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.1_{4,3})\\ (3.3_{4,3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (0.3_{2,3})\\ (3.3_{2,3,4})\end{matrix} \times (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.3_{4,3,2})\\ \succ (3.1_{4,3})\\ (3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(3.3_{2,3,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.2_{4,2})\\ (3.3_{4,3,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (3.3_{2,3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.3_{4,3,2})\\ \succ (3.2_{4,2})\\ (3.1_{4,3})\end{matrix}$$

$$(3.3_{2,3,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (0.3_{2,3})\\ (2.3_{2,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.3_{4,3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(3.3_{2,3,4}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (0.3_{2,3})\\ (1.3_{3,4})\end{matrix} \quad \times \quad (3.0_{3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.3_{4,3,2})\\ (3.2_{4,2})\end{matrix}$$

Medial action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.3_{2,3,4})\\ \succ (1.3_{3,4})\\ (2.3_{2,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.0_{3,2})\\ (3.3_{4,3,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (1.3_{3,4})\\ (3.2_{2,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (3.0_{3,2})\\ (3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (3.2_{2,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(2.3_{4,2})\\ \succ (3.2_{4,2})\\ (3.0_{3,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \begin{matrix}(3.3_{2,3,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.2_{4,2})\\ (3.3_{4,3,2})\end{matrix}$$

$$(3.3_{2,3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (1.3_{3,4})\\ (2.3_{2,4})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.3_{4,3,2})\\ (3.0_{3,2})\end{matrix}$$

$$(3.3_{2,3,4}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (1.3_{3,4})\\ (0.3_{2,3})\end{matrix} \quad \times \quad (3.1_{4,3}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.3_{4,3,2})\\ (3.2_{4,2})\end{matrix}$$

Objectal action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(3.3_{2,3,4})\\ \succ (2.3_{2,4})\\ (1.3_{3,4})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (3.3_{4,3,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.3_{2,4})\\ (3.3_{2,3,4})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.3_{4,3,2})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.3_{2,4})\\ (3.3_{2,3,4})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.3_{4,3,2})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(3.3_{2,3,4})\\ \succ (2.3_{2,4})\\ (0.3_{2,3})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.1_{3,4})\\ (3.3_{4,3,2})\end{matrix}$$

$$(3.3_{2,3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (2.3_{2,4})\\ (1.3_{3,4})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.3_{2,3,4})\\ (3.0_{3,2})\end{matrix}$$

$$(3.3_{2,3,4}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (2.3_{2,4})\\ (0.3_{2,3})\end{matrix} \times (3.2_{4,2}) \gg \curlyvee \begin{matrix}(3.0_{3,2})\\ \succ (3.3_{4,3,2})\\ (3.1_{4,3})\end{matrix}$$

Interpretative action

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(2.3_{2,4})\\ \succ (3.3_{2,3,4})\\ (1.3_{3,4})\end{matrix} \times (3.3_{4,3,2}) \gg \curlyvee \begin{matrix}(3.1_{4,3})\\ \succ (3.0_{3,2})\\ (3.2_{4,2})\end{matrix}$$

$$(0.3_{2,3}) \gg \curlyvee \begin{matrix}(1.3_{3,4})\\ \succ (3.3_{2,3,4})\\ (2.3_{2,4})\end{matrix} \times (3.3_{4,3,2}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.0_{3,2})\\ (3.1_{4,3})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \begin{matrix}(0.3_{2,3})\\ \succ (3.3_{2,3,4})\\ (2.3_{2,4})\end{matrix} \times (3.3_{4,3,2}) \gg \curlyvee \begin{matrix}(3.2_{4,2})\\ \succ (3.1_{4,3})\\ (3.0_{3,2})\end{matrix}$$

$$(1.3_{3,4}) \gg \curlyvee \succ \begin{matrix}(2.3_{2,4})\\(3.3_{2,3,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (3.3_{4,3,2}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(3.1_{4,3})\\(3.2_{4,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \succ \begin{matrix}(0.3_{2,3})\\(3.3_{2,3,4})\\(1.3_{3,4})\end{matrix} \quad \times \quad (3.3_{4,3,2}) \gg \curlyvee \succ \begin{matrix}(3.1_{4,3})\\(3.2_{4,2})\\(3.0_{3,2})\end{matrix}$$

$$(2.3_{2,4}) \gg \curlyvee \succ \begin{matrix}(1.3_{3,4})\\(3.3_{2,3,4})\\(0.3_{2,3})\end{matrix} \quad \times \quad (3.3_{4,3,2}) \gg \curlyvee \succ \begin{matrix}(3.0_{3,2})\\(3.2_{4,2})\\(3.1_{4,3})\end{matrix}$$

Chapter Two: The Surreal Night

I. Action schemata of the 2 · 24 triadic semiotic partial relations

1. Pre-semiotic dual system
$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}}\ \{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}}\ \{0 \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \},\{3 \mid \}}\ \{ \mid \}.$
$\{0 \mid \}_{\{0 \mid \},\{2 \mid \}}) \times$
$(\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}}\ \{0 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \},\{0 \mid \}}\ \{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}}\ \{0 \mid \}.$
$\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

Qualitative action

$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}})$
$(\{0 \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \},\{3 \mid \}})$

$\times$

$(\{0 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \},\{0 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}})$
$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}})$
$(\{0 \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \},\{3 \mid \}})$

$\times$

$(\{0 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \},\{0 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{0 \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}})$
$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$

$\times$

$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}})$
$(\{0 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \},\{0 \mid \}})$

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}})$
$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$

$\times$

$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{0 \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}})$
$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$

$\times$

$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}})$
$(\{0 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \},\{0 \mid \}})$

$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}})$
$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$

$\times$

$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}})$
$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$

Medial action

$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \},\{3 \mid \}})$
$(\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}})$

$\times$

$(\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \},\{0 \mid \}})$
$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})
\end{array}
$$

$$\begin{array}{lcl} (\{\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ \quad \curlywedge \gg (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\ (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{0\,|\,\}}) \end{array}$$

Interpretative action

$$\begin{array}{lcl} (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{0\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{0\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{0\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{0\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,| & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{0\,|\,\}}) \end{array}$$

2. Pre-semiotic dual system

$$(\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}\,\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}\,\{0\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\},\{3\,|\,\}}\,\{\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\}}) \times$$
$$(\{1\,|\,\}.\{\,|\,\}_{\{1\,|\,\},\{0\,|\,\}}\,\{0\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\},\{0\,|\,\}}\,\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}\,\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}})$$

Qualitative action

$$\begin{array}{lcl} (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\}}) & \times & \quad \curlywedge \gg (\{1\,|\,\}.\{\,|\,\}_{\{1\,|\,\},\{0\,|\,\}}) \\ (\{0\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \end{array}$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

Medial action

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

Objectal action

$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

Interpretative action

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})
\end{array}
$$

3. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative Action

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})
\end{array}
$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

Medial action

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

Objectal action

$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$\curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$\curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$
$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$
$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$\curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$\curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

Interpretative action

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$\begin{array}{lcl}
(\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\},\{0\,|\,\}}) \\
\quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\
(\{0\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}})
\end{array}$$

$$\begin{array}{lcl}
(\{0\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\
\quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\
(\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\},\{0\,|\,\}})
\end{array}$$

$$\begin{array}{lcl}
(\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\
\quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\
(\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}})
\end{array}$$

4. Pre-semiotic dual system

$(\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}\,\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}\,\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}\,\{\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\}}) \times$
$(\{1\,|\,\}.\{\,|\,\}_{\{1\,|\,\},\{0\,|\,\}}\,\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}\,\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}\,\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}})$

Qualitative action

$$\begin{array}{lcl}
(\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\
\quad \curlywedge \gg (\{\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\}}) & \times & \quad \curlywedge \gg (\{1\,|\,\}.\{\,|\,\}_{\{1\,|\,\},\{0\,|\,\}}) \\
(\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}})
\end{array}$$

$$\begin{array}{lcl}
(\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\
\quad \curlywedge \gg (\{\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\}}) & \times & \quad \curlywedge \gg (\{1\,|\,\}.\{\,|\,\}_{\{1\,|\,\},\{0\,|\,\}}) \\
(\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}})
\end{array}$$

$$\begin{array}{lcl}
(\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\
\quad \curlywedge \gg (\{\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\}}) & \times & \quad \curlywedge \gg (\{1\,|\,\}.\{\,|\,\}_{\{1\,|\,\},\{0\,|\,\}}) \\
(\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}})
\end{array}$$

$$\begin{array}{lcl}
(\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\
\quad \curlywedge \gg (\{\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\}}) & \times & \quad \curlywedge \gg (\{1\,|\,\}.\{\,|\,\}_{\{1\,|\,\},\{0\,|\,\}}) \\
(\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}})
\end{array}$$

$$\begin{array}{lcl}
(\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\
\quad \curlywedge \gg (\{\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\}}) & \times & \quad \curlywedge \gg (\{1\,|\,\}.\{\,|\,\}_{\{1\,|\,\},\{0\,|\,\}}) \\
(\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}})
\end{array}$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

Medial action

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

Interpretative action

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

5. Pre-Semiotic dual system

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}} \{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}} \{0 \mid \}.\{1 \mid \}_{\{0 \mid \},\{3 \mid \}} \{ \mid \}.$
$\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \times$
$(\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}} \{1 \mid \}.\{0 \mid \}_{\{3 \mid \},\{0 \mid \}} \{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}} \{0 \mid \}.$
$\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

Qualtitative action

$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad \times$
$(\{0 \mid \}.\{1 \mid \}_{\{0 \mid \},\{3 \mid \}})$

$(\{1 \mid \}.\{0 \mid \}_{\{3 \mid \},\{0 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad \times$
$(\{0 \mid \}.\{1 \mid \}_{\{0 \mid \},\{3 \mid \}})$

$(\{1 \mid \}.\{0 \mid \}_{\{3 \mid \},\{0 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{0 \mid \}.\{1 \mid \}_{\{0 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad \times$
$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$

$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})|$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{1 \mid \}.\{0 \mid \}_{\{3 \mid \},\{0 \mid \}})$

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad \times$
$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$

$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{0 \mid \}.\{1 \mid \}_{\{0 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad \times$
$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$

$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{1 \mid \}.\{0 \mid \}_{\{3 \mid \},\{0 \mid \}})$

$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad \times$
$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$

$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$

Medial action

$(\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{1 \mid \}_{\{0 \mid \},\{3 \mid \}}) \quad \times$
$(\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$

$(\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{1 \mid \}.\{0 \mid \}_{\{3 \mid \},\{0 \mid \}})$
$(\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}})$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$\begin{array}{lcl} (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ \quad \curlywedge \gg (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\ (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \end{array}$$

Interpretative action

$$\begin{array}{lcl} (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & & (\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & & (\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{0\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & & (\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \end{array}$$

6. Pre-semiotic dual system

$(\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}\,\{1\,|\,\}.\{0\,|\,\}_{\{0\,|\,\},\{3\,|\,\}}\,\{0\,|\,\}.\{2\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}\,\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) \times$
$(\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}\,\{2\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}\,\{0\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{0\,|\,\}}\,\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}})$

Qualitative action

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

Medial action

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

Interpretative action

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

7. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times$$
$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

Medial action

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})
\end{array}
$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \curlywedge\gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad\times\quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge\gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Objectal action

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad\times\quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad\times\quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad\times\quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad\times\quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad\times\quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad\times\quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

Interpretative action

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \curlywedge\gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad\times\quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge\gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge\gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad\times\quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge\gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

8. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

Medial action

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

Interpretative action

$$\begin{array}{l} (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{lcl} (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & & (\{1\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{1\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & \times & \quad \curlywedge \gg (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ (\{1\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \end{array}$$

9. Pre-semiotic dual system

$$(\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}\,\{1\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\},\{3\,|\,\}}\,\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}\,\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) \times (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}\,\{2\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}\,\{1\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{1\,|\,\},\{0\,|\,\}}\,\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}})$$

Qualitative action

$$\begin{array}{lcl} (\{1\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ \quad \curlywedge \gg (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & \times & \quad \curlywedge \gg (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \\ (\{0\,|\,\}.\{2\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{1\,|\,\},\{0\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ \quad \curlywedge \gg (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & \times & \quad \curlywedge \gg (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \\ (\{0\,|\,\}.\{2\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{0\,|\,\}.\{2\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{1\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & \times & \quad \curlywedge \gg (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \\ (\{1\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{1\,|\,\},\{0\,|\,\}}) \\ \quad \curlywedge \gg (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & \times & \quad \curlywedge \gg (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \\ (\{1\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{0\,|\,\}.\{2\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ \quad \curlywedge \gg (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & \times & \quad \curlywedge \gg (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \\ (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{2\,|\,\}.\{0\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \end{array}$$

$$\begin{array}{lcl} (\{1\,|\,\}.\{1\,|\,\}_{\{0\,|\,\},\{1\,|\,\},\{3\,|\,\}}) & & (\{0\,|\,\}.\{2\,|\,\}_{\{3\,|\,\},\{2\,|\,\}}) \\ \quad \curlywedge \gg (\{\,|\,\}.\{2\,|\,\}_{\{1\,|\,\},\{2\,|\,\}}) & \times & \quad \curlywedge \gg (\{2\,|\,\}.\{\,|\,\}_{\{2\,|\,\},\{1\,|\,\}}) \\ (\{2\,|\,\}.\{0\,|\,\}_{\{2\,|\,\},\{3\,|\,\}}) & & (\{1\,|\,\}.\{1\,|\,\}_{\{3\,|\,\},\{1\,|\,\},\{0\,|\,\}}) \end{array}$$

Medial action

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ \curlywedge\gg(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \curlywedge\gg(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \curlywedge\gg(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \curlywedge\gg(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \curlywedge\gg(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ \curlywedge\gg(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \curlywedge\gg(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ \curlywedge\gg(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \curlywedge\gg(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \curlywedge\gg(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ \curlywedge\gg(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ \curlywedge\gg(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Objectal action

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ \curlywedge\gg(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \curlywedge\gg(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \curlywedge\gg(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \curlywedge\gg(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \curlywedge\gg(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ \curlywedge\gg(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

Interpretative action

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) & & (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

10. Pre-semiotic dual system

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}}\ \{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}}\ \{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}}\ \{ \mid \}.$
$\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \times$
$(\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}}\ \{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}}\ \{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}}\ \{0 \mid \}.$
$\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

Qualitative action

$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\times$
$(\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\times$
$(\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\times$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\times$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\times$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\times$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$

Medial action

$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$(\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$\times$
$(\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$

$(\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$(\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$\times$
$(\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\,|\,\}.\{2\mid\,\}_{\{1\mid\,\},\{2\mid\,\}}) & & (\{0\mid\,\}.\{2\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
\quad \curlywedge \gg (\{1\mid\,\}.\{2\mid\,\}_{\{1\mid\,\},\{3\mid\,\}}) & \times & \quad \curlywedge \gg (\{2\mid\,\}.\{1\mid\,\}_{\{3\mid\,\},\{1\mid\,\}}) \\
(\{2\mid\,\}.\{0\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{\,|\,\}_{\{2\mid\,\},\{1\mid\,\}})
\end{array}
$$

Interpretative action

$$
\begin{array}{lcl}
(\{1\mid\,\}.\{2\mid\,\}_{\{1\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{\,|\,\}_{\{2\mid\,\},\{1\mid\,\}}) \\
\quad \curlywedge \gg (\{2\mid\,\}.\{0\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & \times & \quad \curlywedge \gg (\{0\mid\,\}.\{2\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
(\{\,|\,\}.\{2\mid\,\}_{\{1\mid\,\},\{2\mid\,\}}) & & (\{2\mid\,\}.\{1\mid\,\}_{\{3\mid\,\},\{1\mid\,\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\,\}.\{2\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{\,|\,\}_{\{2\mid\,\},\{1\mid\,\}}) \\
\quad \curlywedge \gg (\{2\mid\,\}.\{0\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & \times & \quad \curlywedge \gg (\{0\mid\,\}.\{2\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
(\{\,|\,\}.\{2\mid\,\}_{\{1\mid\,\},\{2\mid\,\}}) & & (\{2\mid\,\}.\{0\mid\,\}_{\{3\mid\,\},\{2\mid\,\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\,\}.\{2\mid\,\}_{\{1\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{0\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
\quad \curlywedge \gg (\{2\mid\,\}.\{0\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & \times & \quad \curlywedge \gg (\{0\mid\,\}.\{2\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
(\{0\mid\,\}.\{2\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{1\mid\,\}_{\{3\mid\,\},\{1\mid\,\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\,|\,\}.\{2\mid\,\}_{\{1\mid\,\},\{2\mid\,\}}) & & (\{2\mid\,\}.\{0\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
\quad \curlywedge \gg (\{2\mid\,\}.\{0\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & \times & \quad \curlywedge \gg (\{0\mid\,\}.\{2\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
(\{0\mid\,\}.\{2\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{\,|\,\}_{\{2\mid\,\},\{1\mid\,\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\,\}.\{2\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{1\mid\,\}_{\{3\mid\,\},\{1\mid\,\}}) \\
\quad \curlywedge \gg (\{2\mid\,\}.\{0\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & \times & \quad \curlywedge \gg (\{0\mid\,\}.\{2\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
(\{1\mid\,\}.\{2\mid\,\}_{\{1\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{0\mid\,\}_{\{3\mid\,\},\{2\mid\,\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\,|\,\}.\{2\mid\,\}_{\{1\mid\,\},\{2\mid\,\}}) & & (\{2\mid\,\}.\{1\mid\,\}_{\{3\mid\,\},\{1\mid\,\}}) \\
\quad \curlywedge \gg (\{2\mid\,\}.\{0\mid\,\}_{\{2\mid\,\},\{3\mid\,\}}) & \times & \quad \curlywedge \gg (\{0\mid\,\}.\{2\mid\,\}_{\{3\mid\,\},\{2\mid\,\}}) \\
(\{1\mid\,\}.\{2\mid\,\}_{\{1\mid\,\},\{3\mid\,\}}) & & (\{2\mid\,\}.\{\,|\,\}_{\{2\mid\,\},\{1\mid\,\}})
\end{array}
$$

11. Pre-semiotic dual system

$$
(\{2\mid\,\}.\{1\mid\,\}_{\{1\mid\,\},\{3\mid\,\}}\,\{1\mid\,\}.\{1\mid\,\}_{\{0\mid\,\},\{1\mid\,\},\{3\mid\,\}}\,\{0\mid\,\}.\{1\mid\,\}_{\{0\mid\,\},\{3\mid\,\}}\,\{\,|\,\}.\{1\mid\,\}_{\{0\mid\,\},\{1\mid\,\}}) \times
$$

$$
(\{1\mid\,\}.\{\,|\,\}_{\{1\mid\,\},\{0\mid\,\}}\,\{1\mid\,\}.\{0\mid\,\}_{\{3\mid\,\},\{0\mid\,\}}\,\{1\mid\,\}.\{1\mid\,\}_{\{3\mid\,\},\{1\mid\,\},\{0\mid\,\}}\,\{1\mid\,\}.\{2\mid\,\}_{\{3\mid\,\},\{1\mid\,\}})
$$

Qualitative action

$$
\begin{array}{lcl}
(\{1\mid\,\}.\{1\mid\,\}_{\{0\mid\,\},\{1\mid\,\},\{3\mid\,\}}) & & (\{1\mid\,\}.\{0\mid\,\}_{\{3\mid\,\},\{0\mid\,\}}) \\
\quad \curlywedge \gg (\{\,|\,\}.\{1\mid\,\}_{\{0\mid\,\},\{1\mid\,\}}) & \times & \quad \curlywedge \gg (\{1\mid\,\}.\{\,|\,\}_{\{1\mid\,\},\{0\mid\,\}}) \\
(\{0\mid\,\}.\{1\mid\,\}_{\{0\mid\,\},\{3\mid\,\}}) & & (\{1\mid\,\}.\{1\mid\,\}_{\{3\mid\,\},\{1\mid\,\},\{0\mid\,\}})
\end{array}
$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge\!\gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge\!\gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge\!\gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge\!\gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \curlywedge\!\gg (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Medial action

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge\!\gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge\!\gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge\!\gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge\!\gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \curlywedge\!\gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Objectal action

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \times (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \times (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

Interpretative action

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$\curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

12. Pre-semiotic dual system

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

Qualitative action

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},})$$

$$\begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}} \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \end{array}$$

Medial action

$$\begin{array}{l} (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \end{array}$$

Objectal action

$$\begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

Interpretative action

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})
\end{array}
$$

$(\{\ |\ \}.\{2\ |\ \}_{\{1\ |\ \},\{2\ |\ \}})$
$\quad \curlywedge \gg (\{2\ |\ \}.\{1\ |\ \}_{\{1\ |\ \},\{3\ |\ \}})$
$(\{1\ |\ \}.\{1\ |\ \}_{\{0\ |\ \},\{1\ |\ \},\{3\ |\ \}})$

$\times$

$(\{1\ |\ \}.\{1\ |\ \}_{\{3\ |\ \},\{1\ |\ \},\{0\ |\ \}})$
$\quad \curlywedge \gg (\{1\ |\ \}.\{2\ |\ \}_{\{3\ |\ \},\{1\ |\ \}})$
$2\ |\ \}.\{\ |\ \}_{\{2\ |\ \},\{1\ |\ \}})$

13. Pre-semiotic dual system

$(\{2\ |\ \}.\{1\ |\ \}_{\{1\ |\ \},\{3\ |\ \}}\ \{1\ |\ \}.\{1\ |\ \}_{\{0\ |\ \},\{1\ |\ \},\{3\ |\ \}}\ \{0\ |\ \}.\{2\ |\ \}_{\{2\ |\ \},\{3\ |\ \}}\ \{\ |\ \}.$
$\{2\ |\ \}_{\{1\ |\ \},\{2\ |\ \}}) \times$
$(\{2\ |\ \}.\{\ |\ \}_{\{2\ |\ \},\{1\ |\ \}}\ \{2\ |\ \}.\{0\ |\ \}_{\{3\ |\ \},\{2\ |\ \}}\ \{1\ |\ \}.\{1\ |\ \}_{\{3\ |\ \},\{1\ |\ \},\{0\ |\ \}}\ \{1\ |\ \}.$
$\{2\ |\ \}_{\{3\ |\ \},\{1\ |\ \}})$

Qualitative action

$(\{1\ |\ \}.\{1\ |\ \}_{\{0\ |\ \},\{1\ |\ \},\{3\ |\ \}})$
$\quad \curlywedge \gg (\{\ |\ \}.\{2\ |\ \}_{\{1\ |\ \},\{2\ |\ \}})$
$(\{0\ |\ \}.\{2\ |\ \}_{\{2\ |\ \},\{3\ |\ \}})$

$\times$

$(\{2\ |\ \}.\{0\ |\ \}_{\{3\ |\ \},\{2\ |\ \}})$
$\quad \curlywedge \gg (\{2\ |\ \}.\{\ |\ \}_{\{2\ |\ \},\{1\ |\ \}})$
$(\{1\ |\ \}.\{1\ |\ \}_{\{3\ |\ \},\{1\ |\ \},\{0\ |\ \}})$

$(\{2\ |\ \}.\{1\ |\ \}_{\{1\ |\ \},\{3\ |\ \}})$
$\quad \curlywedge \gg (\{\ |\ \}.\{2\ |\ \}_{\{1\ |\ \},\{2\ |\ \}})$
$(\{0\ |\ \}.\{2\ |\ \}_{\{2\ |\ \},\{3\ |\ \}})$

$\times$

$(\{2\ |\ \}.\{0\ |\ \}_{\{3\ |\ \},\{2\ |\ \}})$
$\quad \curlywedge \gg (\{2\ |\ \}.\{\ |\ \}_{\{2\ |\ \},\{1\ |\ \}})$
$(\{1\ |\ \}.\{2\ |\ \}_{\{3\ |\ \},\{1\ |\ \}})$

$(\{0\ |\ \}.\{2\ |\ \}_{\{2\ |\ \},\{3\ |\ \}})$
$\quad \curlywedge \gg (\{\ |\ \}.\{2\ |\ \}_{\{1\ |\ \},\{2\ |\ \}})$
$(\{1\ |\ \}.\{1\ |\ \}_{\{0\ |\ \},\{1\ |\ \},\{3\ |\ \}})$

$\times$

$(\{1\ |\ \}.\{1\ |\ \}_{\{3\ |\ \},\{1\ |\ \},\{0\ |\ \}})$
$\quad \curlywedge \gg (\{2\ |\ \}.\{\ |\ \}_{\{2\ |\ \},\{1\ |\ \}})$
$(\{2\ |\ \}.\{0\ |\ \}_{\{3\ |\ \},\{2\ |\ \}})$

$(\{2\ |\ \}.\{1\ |\ \}_{\{1\ |\ \},\{3\ |\ \}})$
$\quad \curlywedge \gg (\{\ |\ \}.\{2\ |\ \}_{\{1\ |\ \},\{2\ |\ \}})$
$(\{1\ |\ \}.\{1\ |\ \}_{\{0\ |\ \},\{1\ |\ \},\{3\ |\ \}})$

$\times$

$(\{1\ |\ \}.\{1\ |\ \}_{\{3\ |\ \},\{1\ |\ \},\{0\ |\ \}})$
$\quad \curlywedge \gg (\{2\ |\ \}.\{\ |\ \}_{\{2\ |\ \},\{1\ |\ \}})$
$(\{1\ |\ \}.\{2\ |\ \}_{\{3\ |\ \},\{1\ |\ \}})$

$(\{0\ |\ \}.\{2\ |\ \}_{\{2\ |\ \},\{3\ |\ \}})$
$\quad \curlywedge \gg (\{\ |\ \}.\{2\ |\ \}_{\{1\ |\ \},\{2\ |\ \}})$
$(\{2\ |\ \}.\{1\ |\ \}_{\{1\ |\ \},\{3\ |\ \}})$

$\times$

$(\{1\ |\ \}.\{2\ |\ \}_{\{3\ |\ \},\{1\ |\ \}})$
$\quad \curlywedge \gg (\{2\ |\ \}.\{\ |\ \}_{\{2\ |\ \},\{1\ |\ \}})$
$(\{2\ |\ \}.\{0\ |\ \}_{\{3\ |\ \},\{2\ |\ \}})$

$(\{1\ |\ \}.\{1\ |\ \}_{\{0\ |\ \},\{1\ |\ \},\{3\ |\ \}})$
$\quad \curlywedge \gg (\{\ |\ \}.\{2\ |\ \}_{\{1\ |\ \},\{2\ |\ \}})$
$(\{2\ |\ \}.\{1\ |\ \}_{\{1\ |\ \},\{3\ |\ \}})$

$\times$

$(\{1\ |\ \}.\{2\ |\ \}_{\{3\ |\ \},\{1\ |\ \}})$
$\quad \curlywedge \gg (\{2\ |\ \}.\{\ |\ \}_{\{2\ |\ \},\{1\ |\ \}})$
$(\{1\ |\ \}.\{1\ |\ \}_{\{3\ |\ \},\{1\ |\ \},\{0\ |\ \}})$

Medial action

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \curlywedge\gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \curlywedge\gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge\gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \curlywedge\gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \curlywedge\gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \curlywedge\gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge\gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \curlywedge\gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \curlywedge\gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \curlywedge\gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \curlywedge\gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \curlywedge\gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Objectal action

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \curlywedge\gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

Interpretative action

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

14. Pre-semiotic dual system

$(\{2 \mid \}.\{1 \mid \}_{\{1 \mid \},\{3 \mid \}} \{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}} \{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}} \{ \mid \}.$
$\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \times$
$(\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}} \{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}} \{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}} \{1 \mid \}.$
$\{2 \mid \}_{\{3 \mid \},\{1 \mid \}})$

Qualitative action

$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\times$
$(\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$

$(\{2 \mid \}.\{1 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\times$
$(\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{1 \mid \}.\{2 \mid \}_{\{3 \mid \},\{1 \mid \}})$

$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\times$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{2 \mid \}.\{1 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\times$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{1 \mid \}.\{2 \mid \}_{\{3 \mid \},\{1 \mid \}})$

$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{2 \mid \}.\{1 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\times$
$(\{1 \mid \}.\{2 \mid \}_{\{3 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$

$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$(\{2 \mid \}.\{1 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\times$
$(\{1 \mid \}.\{2 \mid \}_{\{3 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$

Medial action

$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}})$
$\quad \curlywedge \gg (\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}})$
$(\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}})$
$\times$
$(\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$
$\quad \curlywedge \gg (\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$
$(\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$

$$
\begin{array}{lcl}
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\,|\,\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\,|\,\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

Interpretative action

$$
\begin{array}{lcl}
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\,|\,\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\,|\,\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\,|\,\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\,|\,\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\,|\,\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\,|\,\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\,|\,\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\,|\,\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

15. Pre-semiotic dual system

$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}\{\,|\,\}.$
$\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times$
$(\{2\mid\}.\{\,|\,\}_{\{2\mid\},\{1\mid\}}\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}\{2\mid\}.$
$\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$

Qualitative action

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \quad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \quad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \quad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \curlywedge \gg (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

Medial action

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \quad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \quad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & & (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})
\end{array}
$$

$$
\begin{array}{lcl}
(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) & & (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \\
\quad \curlywedge \gg (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) & \times & \quad \curlywedge \gg (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\
(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) & & (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})
\end{array}
$$

Interpretative action

$$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}}) \quad (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$$
$$\curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \},\{3 \mid \}}) \quad \times \quad \curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \},\{1 \mid \}})$$
$$(\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad (\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$$

$$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}}) \quad (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$$
$$\curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \},\{3 \mid \}}) \quad \times \quad \curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \},\{1 \mid \}})$$
$$(\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad (\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$$

$$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}}) \quad (\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$$
$$\curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \},\{3 \mid \}}) \quad \times \quad \curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \},\{1 \mid \}})$$
$$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}}) \quad (\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$$

$$(\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad (\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$$
$$\curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \},\{3 \mid \}}) \quad \times \quad \curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \},\{1 \mid \}})$$
$$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}}) \quad (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$$

$$(\{0 \mid \}.\{2 \mid \}_{\{2 \mid \},\{3 \mid \}}) \quad (\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$$
$$\curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \},\{3 \mid \}}) \quad \times \quad \curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \},\{1 \mid \}})$$
$$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}}) \quad (\{2 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \}})$$

$$(\{ \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \}}) \quad (\{2 \mid \}.\{1 \mid \}_{\{3 \mid \},\{1 \mid \}})$$
$$\curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{1 \mid \},\{2 \mid \},\{3 \mid \}}) \quad \times \quad \curlywedge \gg (\{2 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \},\{1 \mid \}})$$
$$(\{1 \mid \}.\{2 \mid \}_{\{1 \mid \},\{3 \mid \}}) \quad (\{2 \mid \}.\{ \mid \}_{\{2 \mid \},\{1 \mid \}})$$

II. Action schemata of the 2· 24 tetradic semiotic partial relations[1]

1. Pre-semiotic dual system

$$(\{2 \mid \}.\{0 \mid \}\ \{1 \mid \}.\{0 \mid \}\ \{0 \mid \}.\{0 \mid \}\ \{ \mid \}.\{0 \mid \}) \times$$
$$(\{0 \mid \}.\{ \mid \}\ \{0 \mid \}.\{0 \mid \}\ \{0 \mid \}.\{1 \mid \}\ \{0 \mid \}.\{2 \mid \})$$

Qualitative action

$$\begin{matrix} & (\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}}) & & (\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}}) \\ (\{0 \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \},\{3 \mid \}}) \gg \curlyvee \succ (\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}}) & \times & (\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}}) & \gg \curlyvee \succ (\{0 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \},\{0 \mid \}}) \\ & (\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}}) & & (\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}}) \end{matrix}$$

$$\begin{matrix} & (\{1 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \}}) & & (\{0 \mid \}.\{2 \mid \}_{\{3 \mid \},\{2 \mid \}}) \\ (\{0 \mid \}.\{0 \mid \}_{\{0 \mid \},\{3 \mid \},\{2 \mid \}}) \gg \curlyvee \succ (\{ \mid \}.\{0 \mid \}_{\{0 \mid \},\{2 \mid \}}) & \times & (\{0 \mid \}.\{ \mid \}_{\{2 \mid \},\{0 \mid \}}) & \gg \curlyvee \succ (\{0 \mid \}.\{0 \mid \}_{\{3 \mid \},\{2 \mid \},\{0 \mid \}}) \\ & (\{2 \mid \}.\{0 \mid \}_{\{2 \mid \},\{3 \mid \}}) & & (\{0 \mid \}.\{1 \mid \}_{\{3 \mid \},\{0 \mid \}}) \end{matrix}$$

[1] Technical reasons require unfortunately, that this chapter is set in 9 point.

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \times (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \times (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \times (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Medial action

$$(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \times (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})$$

Objectal action

$$(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \times (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})$$

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

Interpretative action

$$\begin{array}{l}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\curlyvee\succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{\mid\}_{\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

2. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\times(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\times\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\begin{array}{l}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\times\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Medial action

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ \{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{l}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{l}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Objectal action

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{l}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

Interpretative action

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

3. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Medial action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Objectal action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

Interpretative action

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{0\mid\}_{\{0\mid\},\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\},\{0\mid\}})\end{array}$$

4. Pre-semiotic system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

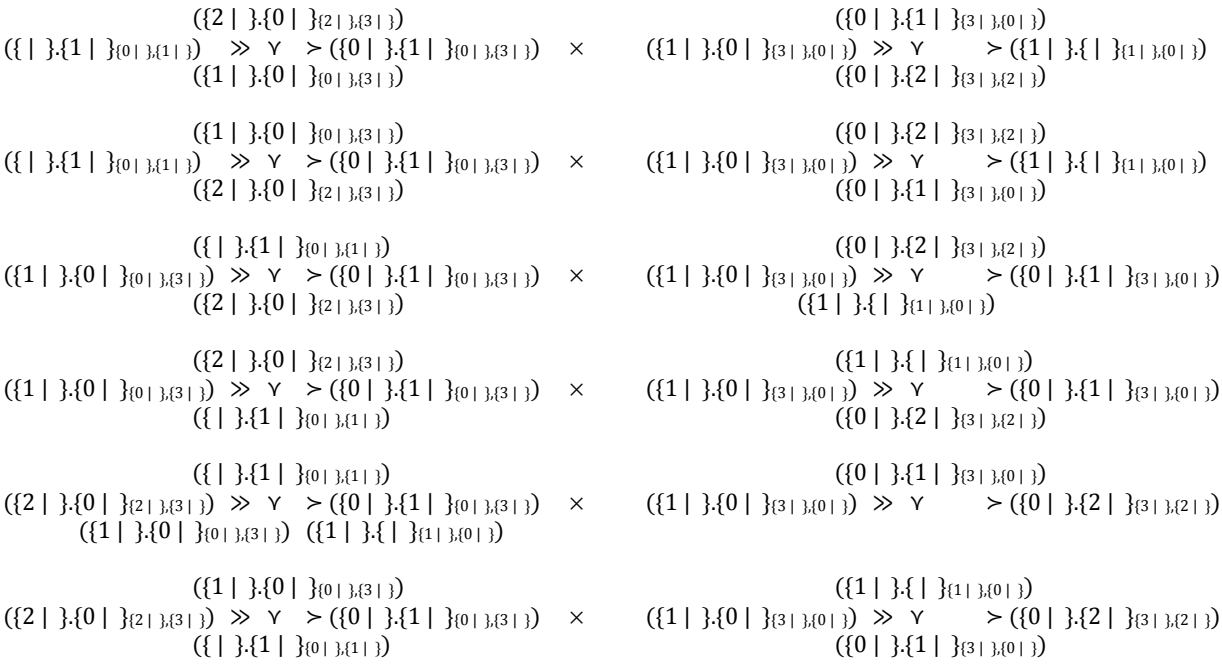
$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}\ )\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

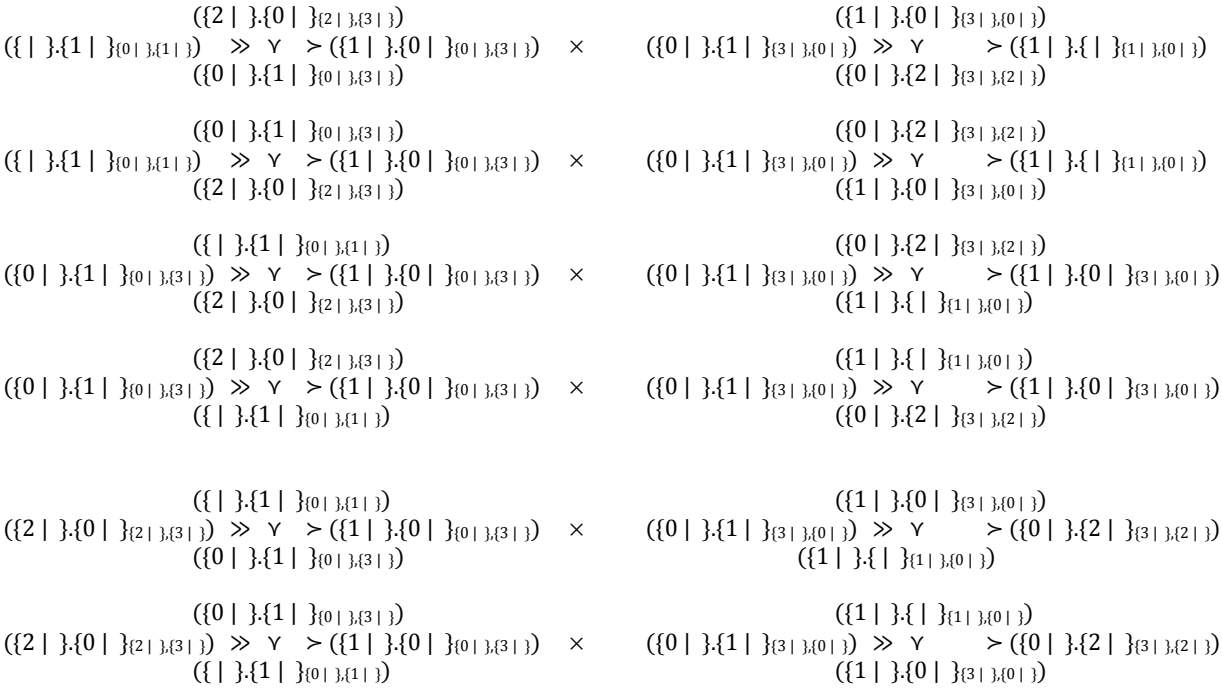
$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

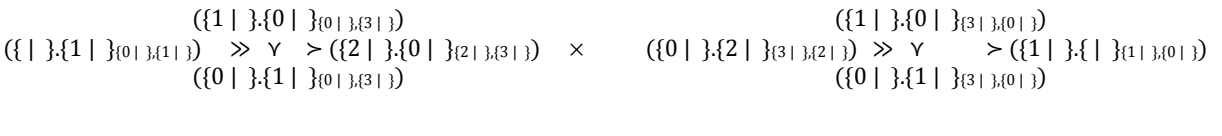
Medial action



Objectal action



Interpretative action



$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

5. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$

Qualitative action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Medial action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Objectal action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Interpretative action

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

6. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\times$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Medial action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ \gg\ \curlyvee\ \succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ \gg\ \curlyvee\ \succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

Objectal action

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array}$$

Interpretative action

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{0\mid\},\{3\mid\}})\gg\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{3\mid\},\{0\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

7. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\times(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\gg\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

Medial action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array}\times\begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

Objectal action

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

Interpretative action

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

8. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\times(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$\begin{matrix}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\succ(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{matrix}$$

$$\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\succ(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{matrix}$$

$$\begin{matrix}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

Medial action

$$\begin{matrix}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{matrix}$$

$$\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix}\times\begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{matrix}\times\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\succ(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix}\times\begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\gg\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

Objectal action

$$\begin{matrix}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{matrix}$$

$$\begin{matrix}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix} \times \begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix} \times \begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix} \times \begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix} \times \begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{matrix}$$

9. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Medial action

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Objective action

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\gg\curlyvee\succ(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

Interpretative action

$$\begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\times\begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\gg\curlyvee\succ(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

10. Pre-semiotic dual system

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\times(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

Qualitative action

$$\begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\times\\(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})\end{array}\quad\begin{array}{l}(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})\\(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\gg\curlyvee\succ(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\times\\(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})\end{array}\quad\begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})\\(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\gg\curlyvee\succ(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Medial action

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

Objectal action

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times$$
$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$

$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$

Interpretative action

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{0\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

11. Pre-semiotic dual system

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

Qualitative action

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \qquad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \qquad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \qquad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \qquad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \times (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Medial action

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$\times \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$\times \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Objectal action

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$\times \quad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$\times \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$

$$(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})$$
$$\times \quad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \qquad (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})$$

Interpretative action

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{\mid\}_{\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

12. Pre-semiotic dual system

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

Qualitative action

$$\begin{array}{c}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \qquad (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Medial action

$$\begin{matrix}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix} \times \begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix} \times \begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{matrix}$$

Objectal action

$$\begin{matrix}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix} \times \begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{matrix} \times \begin{matrix}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{matrix}$$

$$\begin{matrix}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{matrix} \times \begin{matrix}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{matrix}$$

Interpretative action

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{1\mid\}_{\{0\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{0\mid\}_{\{3\mid\},\{0\mid\}})\end{array}$$

13. Pre-semiotic system

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

Qualitative action

$$\begin{array}{c}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{c}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{c}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{c}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

Medial action

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$\times$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$\times$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$\times$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$\times$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$\times$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$\times$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

Objectal action

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$\times$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$\times$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$\times$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$\times$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$\times$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$\times$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

Interpretative action

$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$\times$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})$$
$$(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})$$
$$\times$$
$$(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid}$$

$$\begin{array}{l}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\end{array}$$

$$\begin{array}{l}(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \times \begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{1\mid\}_{\{0\mid\},\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})\end{array} \times \begin{array}{l}(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\},\{0\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

14. Pre-semiotic dual system

$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times$$
$$(\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$

Qualitative action

$$\begin{array}{l}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})\end{array} \quad \begin{array}{l}(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{array} \quad \begin{array}{l}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \quad \begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\end{array} \quad \begin{array}{l}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})\end{array} \quad \begin{array}{l}(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times\\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}})\end{array} \quad \begin{array}{l}(\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})\\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

Medial action

$$\begin{array}{l}(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times\\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})\end{array} \quad \begin{array}{l}(\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l}(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}})\\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times\end{array} \quad \begin{array}{l}(\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})\\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})\end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ \{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \end{array}$$

Objectal action

$$\begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \end{array}$$

Interpretative action

$$\begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \\ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$\begin{array}{l} (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \\ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \end{array}$$

$$\begin{array}{l} (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \\ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \end{array} \times \begin{array}{l} (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \\ (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \end{array}$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \times (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

15. Pre-semiotic dual system

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$

Qualitative action

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \times (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

Medial action

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \mathrm{Y} \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \mathrm{Y} \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{1\mid\}.\{2\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{1\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \mathrm{Y} \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \times (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \mathrm{Y} \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

Objectal action

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{2\mid\},\{3\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

Interpretative action

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

$$(\{\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\}}) \qquad (\{2\mid\}.\{0\mid\}_{\{3\mid\},\{2\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$
$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$

$$(\{0\mid\}.\{2\mid\}_{\{2\mid\},\{3\mid\}}) \qquad (\{2\mid\}.\{\mid\}_{\{2\mid\},\{1\mid\}})$$
$$(\{1\mid\}.\{2\mid\}_{\{1\mid\},\{3\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{2\mid\}_{\{1\mid\},\{2\mid\},\{3\mid\}}) \quad \times \quad (\{2\mid\}.\{2\mid\}_{\{3\mid\},\{2\mid\},\{1\mid\}}) \gg \curlyvee \succ (\{2\mid\}.\{1\mid\}_{\{3\mid\},\{1\mid\}})$$

({ | }.{2 | }{1 | },{2 | })

({2 | }.{0 | }{3 | },{2 | })

Chapter Three: The Eisenstein Night

I. Action schemata of the 2 · 24 triadic semiotic partial relations

1. Pre-semiotic dual system
$(3\omega{+}1_{3,4}\ 2\omega{+}1_{1,4}\ \omega{+}1_{1,3,4}\ \omega_{1,3}) \times (-\omega_{3,1}\ \omega{+}1_{4,3,1}\ \omega{+}2_{4,1}\ \omega{+}3_{4,3})$

Qualitative action

$$\begin{matrix}(2\omega{+}1_{1,4}) & & (\omega{+}1_{4,3,1}) \\ \quad \curlywedge \gg (\omega_{1,3}) & \times & \quad \curlywedge \gg (-\omega_{3,1}) \\ (\omega{+}1_{1,3,4}) & & (\omega{+}2_{4,1})\end{matrix}$$

$$\begin{matrix}(3\omega{+}1_{3,4}) & & (\omega{+}1_{4,3,1}) \\ \quad \curlywedge \gg (\omega_{1,3}) & \times & \quad \curlywedge \gg (-\omega_{3,1}) \\ (\omega{+}1_{1,3,4}) & & (\omega{+}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\omega{+}1_{1,3,4}) & & (\omega{+}2_{4,1}) \\ \quad \curlywedge \gg (\omega_{1,3}) & \times & \quad \curlywedge \gg (-\omega_{3,1}) \\ (2\omega{+}1_{1,4}) & & (\omega{+}1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(3\omega{+}1_{3,4}) & & (\omega{+}2_{4,1}) \\ \quad \curlywedge \gg (\omega_{1,3}) & \times & \quad \curlywedge \gg (-\omega_{3,1}) \\ (2\omega{+}1_{1,4}) & & (\omega{+}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\omega{+}1_{1,3,4}) & & (\omega{+}3_{4,3}) \\ \quad \curlywedge \gg (\omega_{1,3}) & \times & \quad \curlywedge \gg (-\omega_{3,1}) \\ (3\omega{+}1_{3,4}) & & (\omega{+}1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(2\omega{+}1_{1,4}) & & (\omega{+}3_{4,3}) \\ \quad \curlywedge \gg (\omega_{1,3}) & \times & \quad \curlywedge \gg (-\omega_{3,1}) \\ (3\omega{+}1_{3,4}) & & (\omega{+}2_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(2\omega{+}1_{1,4}) & & (-\omega_{3,1}) \\ \quad \curlywedge \gg (\omega{+}1_{1,3,4}) & \times & \quad \curlywedge \gg (\omega{+}1_{4,3,1}) \\ (\omega_{1,3}) & & (\omega{+}2_{4,1})\end{matrix}$$

$(3\omega+1_{3,4})$ $(-\omega_{3,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ × $\curlywedge \gg (\omega+1_{4,3,1})$
$(\omega_{1,3})$ $(\omega+3_{4,3})$

$(\omega_{1,3})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ × $\curlywedge \gg (\omega+1_{4,3,1})$
$(2\omega+1_{1,4})$ $(-\omega_{3,1})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ × $\curlywedge \gg (\omega+1_{4,3,1})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(\omega_{1,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+1_{1,3,4})$ × $\curlywedge \gg (\omega+1_{4,3,1})$
$(3\omega+1_{3,4})$ $(-\omega_{3,1})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+1_{1,3,4})$ × $\curlywedge \gg (\omega+1_{4,3,1})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

0bjectal action

$(\omega+1_{1,3,4})$ $(-\omega_{3,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega_{1,3})$ $(\omega+1_{4,3,1})$

$(3\omega+1_{3,4})$ $(-\omega_{3,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega_{1,3})$ $(\omega+3_{4,3})$

$(\omega_{1,3})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+1_{1,3,4})$ $(-\omega_{3,1})$

$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$

$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$

$(\omega_{1,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(-\omega_{3,1})$

Interpretative action

$(2\omega+1_{1,4})$ $(-\omega_{3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(\omega_{1,3})$ $(\omega+2_{4,1})$

$(\omega+1_{1,3,4})$ $(-\omega_{3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(\omega_{1,3})$ $(\omega+1_{4,3,1})$

$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$

$(\omega_{1,3})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+1_{1,3,4})$ $(-\omega_{3,1})$

$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$

$(\omega_{1,3})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(-\omega_{3,1})$

2. Pre-semiotic dual system
$(3\omega+1_{3,4}\ 2\omega+1_{1,4}\ \omega+1_{1,3,4}\ 2\omega_{1,2}) \times (1\text{-}\omega_{2,1}\ \omega+1_{4,3,1}\ \omega+2_{4,1}\ \omega+3_{4,3})$

Qualitative action

$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1\text{-}\omega_{2,1})$
$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$

$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1-\omega_{2,1})$
$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$

$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1-\omega_{2,1})$
$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1-\omega_{2,1})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1-\omega_{2,1})$
$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1-\omega_{2,1})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Medial action

$(2\omega+1_{1,4})$ $(1-\omega_{2,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(2\omega_{1,2})$ $(\omega+2_{4,1})$

$(3\omega+1_{3,4})$ $(1-\omega_{2,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(2\omega_{1,2})$ $(\omega+3_{4,3})$

$(2\omega_{1,2})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(2\omega+1_{1,4})$ $(1-\omega_{2,1})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(2\omega_{1,2})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(3\omega+1_{3,4})$ $(1-\omega_{2,1})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Objectal action

$(\omega+1_{1,3,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(2\omega_{1,2})$ $(\omega+1_{4,3,1})$

$(3\omega+1_{3,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(2\omega_{1,2})$ $(\omega+3_{4,3})$

$(2\omega_{1,2})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+1_{1,3,4})$ $(1\text{-}\omega_{2,1})$

$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$

$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$

$(2\omega_{1,2})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(1\text{-}\omega_{2,1})$

Interpretative action

$(2\omega+1_{1,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega_{1,2})$ $(\omega+2_{4,1})$

$(\omega+1_{1,3,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega_{1,2})$ $(2\omega_{1,2})$

$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$

$(2\omega_{1,2})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+1_{1,3,4})$ $(1\text{-}\omega_{2,1})$

$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$

$(2\omega_{1,2})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(1\text{-}\omega_{2,1})$

3. Pre-semiotic dual system
$(3\omega+1_{3,4}\ 2\omega+1_{1,4}\ \omega+1_{1,3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ \omega+1_{4,3,1}\ \omega+2_{4,1}\ \omega+3_{4,3})$

Qualitative Action

$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$

$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$

$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Medial action

$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(3\omega_{2,3})$ $(\omega+2_{4,1})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+1_{1,3,4})$ $\times$ $\curlywedge \gg (\omega+1_{4,3,1})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Objectal action

$(\omega+1_{1,3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega_{2,3})$ $(\omega+1_{4,3,1})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+1_{1,3,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+1_{1,3,4})$ $(\omega+3_{4,3})$

$(\omega+1_{1,3,4})$ $(\omega+3_{3,4})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(\omega+1_{4,3,1})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

Interpretative action

$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(\omega+2_{4,1})$

$(\omega+1_{1,3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(\omega+1_{4,3,1})$

$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$

$(3\omega_{2,3})$ $(\omega+1_{4,3,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+1_{1,3,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+1_{1,3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(\omega+1_{4,3,1})$

$(3\omega_{2,3})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$

4. Pre-semiotic dual system

$(3\omega{+}1_{3,4}\ 2\omega{+}1_{1,4}\ \omega{+}2_{1,4}\ 2\omega_{1,2}) \times (1{-}\omega_{2,1}\ 2\omega{+}1_{4,1}\ \omega{+}2_{4,1}\ \omega{+}3_{4,3})$

Qualitative action

$(2\omega{+}1_{1,4})$ $(2\omega{+}1_{4,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(\omega{+}2_{1,4})$ $(\omega{+}2_{4,1})$

$(3\omega{+}1_{3,4})$ $(2\omega{+}1_{4,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(\omega{+}2_{1,4})$ $(\omega{+}3_{4,3})$

$(\omega{+}2_{1,4})$ $(\omega{+}2_{4,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(2\omega{+}1_{1,4})$ $(2\omega{+}1_{4,1})$

$(3\omega{+}1_{3,4})$ $(\omega{+}2_{4,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(2\omega{+}1_{1,4})$ $(\omega{+}3_{4,3})$

$(\omega{+}2_{1,4})$ $(\omega{+}3_{4,3})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(3\omega{+}1_{3,4})$ $(2\omega{+}1_{4,1})$

$(2\omega{+}1_{1,4})$ $(\omega{+}3_{4,3})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(3\omega{+}1_{3,4})$ $(\omega{+}2_{4,1})$

Medial action

$(2\omega{+}1_{1,4})$ $(1{-}\omega_{2,1})$
$\curlywedge \gg (\omega{+}2_{1,4})$ $\times$ $\curlywedge \gg (2\omega{+}1_{4,1})$
$(2\omega_{1,2})$ $(\omega{+}2_{4,1})$

$(3\omega{+}1_{3,4})$ $(1{-}\omega_{2,1})$
$\curlywedge \gg (\omega{+}2_{1,4})$ $\times$ $\curlywedge \gg (2\omega{+}1_{4,1})$
$(2\omega_{1,2})$ $(\omega{+}3_{4,3})$

$(2\omega_{1,2})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+1_{1,4})$ $(1\text{-}\omega_{2,1})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(2\omega_{1,2})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+1_{3,4})$ $(1\text{-}\omega_{2,1})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Objectal action

$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(2\omega_{1,2})$ $(2\omega+1_{4,1})$

$(3\omega+1_{3,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(2\omega_{1,2})$ $(\omega+3_{4,3})$

$(2\omega_{1,2})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$

$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+2_{1,4})$ $(\omega+3_{4,3})$

$(\omega+2_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$

$(2\omega_{1,2})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(1\text{-}\omega_{2,1})$

Interpretative action

$$\begin{matrix}(2\omega+1_{1,4}) & & (1\text{-}\omega_{2,1}) \\ \curlywedge \gg (3\omega+1_{3,4}) & \times & \curlywedge \gg (\omega+3_{4,3}) \\ (2\omega_{1,2}) & & (\omega+2_{4,1})\end{matrix}$$

$$\begin{matrix}(\omega+2_{1,4}) & & (1\text{-}\omega_{2,1}) \\ \curlywedge \gg (3\omega+1_{3,4}) & \times & \curlywedge \gg (\omega+3_{4,3}) \\ (2\omega_{1,2}) & & (2\omega+1_{4,1})\end{matrix}$$

$$\begin{matrix}(2\omega+1_{1,4}) & & (2\omega+1_{4,1}) \\ \curlywedge \gg (3\omega+1_{3,4}) & \times & \curlywedge \gg (\omega+3_{4,3}) \\ (\omega+2_{1,4}) & & (\omega+2_{4,1})\end{matrix}$$

$$\begin{matrix}(2\omega_{1,2}) & & (2\omega+1_{4,1}) \\ \curlywedge \gg (3\omega+1_{3,4}) & \times & \curlywedge \gg (\omega+3_{4,3}) \\ (\omega+2_{1,4}) & & (1\text{-}\omega_{2,1})\end{matrix}$$

$$\begin{matrix}(\omega+2_{1,4}) & & (\omega+2_{4,1}) \\ \curlywedge \gg (3\omega+1_{3,4}) & \times & \curlywedge \gg (\omega+3_{4,3}) \\ (2\omega+1_{1,4}) & & (2\omega+1_{4,1})\end{matrix}$$

$$\begin{matrix}(2\omega_{1,2}) & & (\omega+2_{4,1}) \\ \curlywedge \gg (3\omega+1_{3,4}) & \times & \curlywedge \gg (\omega+3_{4,3}) \\ (2\omega+1_{1,4}) & & (1\text{-}\omega_{2,1})\end{matrix}$$

5. Pre-Semiotic dual system

$(3\omega+1_{3,4}\ 2\omega+1_{1,4}\ \omega+2_{1,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 2\omega+1_{4,1}\ \omega+2_{4,1}\ \omega+3_{4,3})$

Qualtitative action

$$\begin{matrix}(2\omega+1_{1,4}) & & (2\omega+1_{4,1}) \\ \curlywedge \gg (3\omega_{2,3}) & \times & \curlywedge \gg (2\text{-}\omega_{3,2}) \\ (\omega+2_{1,4}) & & (\omega+2_{4,1})\end{matrix}$$

$$\begin{matrix}(3\omega+1_{3,4}) & & (2\omega+1_{4,1}) \\ \curlywedge \gg (3\omega_{2,3}) & \times & \curlywedge \gg (2\text{-}\omega_{3,2}) \\ (\omega+2_{1,4}) & & (\omega+3_{4,3})\end{matrix}$$

$(\omega+2_{1,4})$ $(\omega+2_{4,1})|$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+1_{1,4})$ $(2\omega+1_{4,1})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(\omega+2_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Medial action

$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega_{2,3})$ $(\omega+2_{4,1})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge 2\omega+1_{4,1})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Objectal action

$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega_{2,3})$ $(2\omega+1_{4,1})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+2_{1,4})$ $(\omega+3_{4,3})$

$(\omega+2_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

Interpretative action

$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(\omega+2_{4,1})$

$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(2\omega+1_{4,1})$

$(2\omega+1_{1,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+2_{1,4})$ $(\omega+2_{4,1})$

$(3\omega_{2,3})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+2_{1,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(2\omega+1_{4,1})$

$(3\omega_{2,3})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$

6. Pre-semiotic dual system
$(3\omega+1_{3,4}\ 2\omega+1_{1,4}\ \omega+3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega+1_{4,3}\ \omega+2_{4,1}\ \omega+3_{4,3})$

Qualitative action

$(2\omega+1_{1,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+3_{3,4})$ $(\omega+2_{4,1})$

$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+3_{3,4})$ $(\omega+3_{4,3})$

$(\omega+3_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+1_{1,4})$ $(3\omega+1_{4,3})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(\omega+3_{3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Medial action

$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega_{2,3})$ $(\omega+2_{4,1})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+1_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+1_{3,4})$ $(\omega+2_{4,1})$

Objectal action

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ × $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(\omega+3_{3,4})$ $(\omega+3_{4,3})$

$(\omega+3_{3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+1_{1,4})$ $\times$ $\curlywedge \gg (\omega+2_{4,1})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

Interpretative action

$(2\omega+1_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(\omega+2_{4,1})$

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(2\omega+1_{1,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+3_{3,4})$ $(\omega+2_{4,1})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+3_{3,4})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+1_{1,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(\omega+2_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ $\times$ $\curlywedge \gg (\omega+3_{4,3})$
$(2\text{-}\omega_{3,2})$ $(2\text{-}\omega_{3,2})$

7. Pre-semiotic dual system

$(3\omega{+}1_{3,4}\ 2\omega{+}2_{1,2,4}\ \omega{+}2_{1,4}\ 2\omega_{1,2}) \times (1{-}\omega_{2,1}\ 2\omega{+}1_{4,1}\ 2\omega{+}2_{4,2,1}\ \omega{+}3_{4,3})$

Qualitative action

$(2\omega{+}2_{1,2,4})$ $(2\omega{+}1_{4,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(\omega{+}2_{1,4})$ $(2\omega{+}2_{4,2,1})$

$(3\omega{+}1_{3,4})$ $(2\omega{+}1_{4,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(\omega{+}2_{1,4})$ $(\omega{+}3_{4,3})$

$(\omega{+}2_{1,4})$ $(2\omega{+}2_{4,2,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(2\omega{+}2_{1,2,4})$ $(2\omega{+}1_{4,1})$

$(3\omega{+}1_{3,4})$ $(2\omega{+}2_{4,2,1})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(2\omega{+}2_{1,2,4})$ $(\omega{+}3_{4,3})$

$(\omega{+}2_{1,4})$ $(\omega{+}3_{4,3})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(3\omega{+}1_{3,4})$ $(2\omega{+}1_{4,1})$

$(2\omega{+}2_{1,2,4})$ $(\omega{+}3_{4,3})$
$\curlywedge \gg (2\omega_{1,2})$ $\times$ $\curlywedge \gg (1{-}\omega_{2,1})$
$(3\omega{+}1_{3,4})$ $(2\omega{+}2_{4,2,1})$

Medial action

$(2\omega{+}2_{1,2,4})$ $(1{-}\omega_{2,1})$
$\curlywedge \gg (\omega{+}2_{1,4})$ $\times$ $\curlywedge \gg (2\omega{+}1_{4,1})$
$(2\omega_{1,2})$ $(2\omega{+}2_{4,2,1})$

$(3\omega{+}1_{3,4})$ $(1{-}\omega_{2,1})$
$\curlywedge \gg (\omega{+}2_{1,4})$ $\times$ $\curlywedge \gg (2\omega{+}1_{4,1})$
$(2\omega_{1,2})$ $(\omega{+}3_{4,3})$

$(2\omega_{1,2})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+2_{1,2,4})$ $(1\text{-}\omega_{2,1})$

$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$

$(2\omega_{1,2})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+1_{3,4})$ $(1\text{-}\omega_{2,1})$

$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$

Objectal action

$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ $\times$ $\curlywedge \gg (2\omega+2_{4,2,1})$
$(2\omega_{1,2})$ $(2\omega+1_{4,1})$

$(3\omega+1_{3,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ $\times$ $\curlywedge \gg (2\omega+2_{4,2,1})$
$(2\omega_{1,2})$ $(\omega+3_{4,3})$

$(2\omega_{1,2})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ $\times$ $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$

$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ $\times$ $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+2_{1,4})$ $(\omega+3_{4,3})$

$(\omega+2_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ $\times$ $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$

$(2\omega_{1,2})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ $\times$ $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+1_{3,4})$ $(1\text{-}\omega_{2,1})$

Interpretative action

$(2\omega+2_{1,2,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega_{1,2})$ $(2\omega+2_{4,2,1})$

$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega_{1,2})$ $(2\omega+1_{4,1})$

$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$

$(2\omega_{1,2})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$

$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$

$(2\omega_{1,2})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+2_{1,2,4})$ $(1\text{-}\omega_{2,1})$

8. Pre-semiotic dual system
$(3\omega+1_{3,4}\ 2\omega+2_{1,2,4}\ \omega+2_{1,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 2\omega+1_{4,1}\ 2\omega+2_{4,2,1}\ \omega+3_{4,3})$

Qualitative action

$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$

$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+2_{1,4})$ $(\omega+3_{4,3})$

$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$

$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$

$(\omega+2_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$

$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$

Medial action

$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+2_{1,4})$ $\times$ $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$

Objectal action

$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega_{2,3})$ $(2\omega+1_{4,1})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+2_{1,4})$ $(\omega+3_{4,3})$

$(\omega+2_{1,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+1_{3,4})$ $(2\omega+1_{4,1})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

Interpretative action

$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$

$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(2\omega+1_{4,1})$

$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$

$(3\omega_{2,3})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$

$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$

9. Pre-semiotic dual system

$(3\omega+1_{3,4}\ 2\omega+2_{1,2,4}\ \omega+3_{4,3}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega+1_{4,3}\ 2\omega+2_{4,2,1}\ \omega+3_{4,3})$

Qualitative action

$(2\omega+2_{1,2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+3_{3,4})$ $(2\omega+2_{4,2,1})$

$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+3_{3,4})$ $(\omega+3_{4,3})$

$(\omega+3_{3,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+2_{1,2,4})$ $(3\omega+1_{4,3})$

$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$

$(\omega+3_{3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$

$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$

Medial action

$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+2_{1,2,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+1_{3,4})$ $(2\omega+2_{4,2,1})$

Objectal action

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+3_{3,4})$ $(\omega+3_{4,3})$

$(\omega+3_{3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

Interpretative action

$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(2\omega+2_{1,2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+3_{3,4})$ $(2\omega+2_{4,2,1})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+3_{3,4})$ $(2\omega+2_{1,2,4})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+2_{4,2,1})$ $(3\omega_{2,3})$

$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+1_{3,4})$ × $\curlywedge \gg (\omega+3_{4,3})$
$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$

10. Pre-semiotic dual system
$(3\omega{+}1_{3,4}\ 2\omega{+}3_{2,4}\ \omega{+}3_{3,4}\ 3\omega_{2,3}) \times (2{-}\omega_{3,2}\ 3\omega{+}1_{4,3}\ 3\omega{+}2_{4,2}\ \omega{+}3_{4,3})$

Qualitative action

$$\begin{matrix}(2\omega{+}3_{2,4}) & & (3\omega{+}1_{4,3}) \\ \curlywedge \gg (3\omega_{2,3}) & \times & \curlywedge \gg (2{-}\omega_{3,2}) \\ (\omega{+}3_{3,4}) & & (3\omega{+}2_{4,2})\end{matrix}$$

$$\begin{matrix}(3\omega{+}1_{3,4}) & & (3\omega{+}1_{4,3}) \\ \curlywedge \gg (3\omega_{2,3}) & \times & \curlywedge \gg (2{-}\omega_{3,2}) \\ (\omega{+}3_{3,4}) & & (\omega{+}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\omega{+}3_{3,4}) & & (3\omega{+}2_{4,2}) \\ \curlywedge \gg (3\omega_{2,3}) & \times & \curlywedge \gg (2{-}\omega_{3,2}) \\ (2\omega{+}3_{2,4}) & & (3\omega{+}1_{4,3})\end{matrix}$$

$$\begin{matrix}(3\omega{+}1_{3,4}) & & (3\omega{+}2_{4,2}) \\ \curlywedge \gg (3\omega_{2,3}) & \times & \curlywedge \gg (2{-}\omega_{3,2}) \\ (2\omega{+}3_{2,4}) & & (\omega{+}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\omega{+}3_{3,4}) & & (\omega{+}3_{4,3}) \\ \curlywedge \gg (3\omega_{2,3}) & \times & \curlywedge \gg (2{-}\omega_{3,2}) \\ (3\omega{+}1_{3,4}) & & (3\omega{+}1_{4,3})\end{matrix}$$

$$\begin{matrix}(2\omega{+}3_{2,4}) & & (\omega{+}3_{4,3}) \\ \curlywedge \gg (3\omega_{2,3}) & \times & \curlywedge \gg (2{-}\omega_{3,2}) \\ (3\omega{+}1_{3,4}) & & (3\omega{+}2_{4,2})\end{matrix}$$

Medial action

$$\begin{matrix}(2\omega{+}3_{2,4}) & & (2{-}\omega_{3,2}) \\ \curlywedge \gg (\omega{+}3_{3,4}) & \times & \curlywedge \gg (3\omega{+}1_{4,3}) \\ (3\omega_{2,3}) & & (3\omega{+}2_{4,2})\end{matrix}$$

$$\begin{matrix}(3\omega{+}1_{3,4}) & & (2{-}\omega_{3,2}) \\ \curlywedge \gg (\omega{+}3_{3,4}) & \times & \curlywedge \gg (3\omega{+}1_{4,3}) \\ (3\omega_{2,3}) & & (\omega{+}3_{4,3})\end{matrix}$$

$(3\omega_{2,3})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+3_{2,4})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+3_{2,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+1_{3,4})$ $(3\omega+2_{4,2})$

Objectal action

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega_{2,3})$ $(\omega+3_{4,3})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(\omega+3_{3,4})$ $(\omega+3_{4,3})$

$(\omega+3_{3,4})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega+1_{3,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(\omega+3_{4,3})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega+1_{3,4})$ $(2\text{-}\omega_{3,2})$

Interpretative action

$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$
$\quad \curlywedge \gg (3\omega+1_{3,4}) \quad \times \quad \curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(3\omega+2_{4,2})$

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\quad \curlywedge \gg (3\omega+1_{3,4}) \quad \times \quad \curlywedge \gg (\omega+3_{4,3})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$
$\quad \curlywedge \gg (3\omega+1_{3,4}) \quad \times \quad \curlywedge \gg (\omega+3_{4,3})$
$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\quad \curlywedge \gg (3\omega+1_{3,4}) \quad \times \quad \curlywedge \gg (\omega+3_{4,3})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$
$\quad \curlywedge \gg (3\omega+1_{3,4}) \quad \times \quad \curlywedge \gg (\omega+3_{4,3})$
$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(3\omega+2_{4,2})$
$\quad \curlywedge \gg (3\omega+1_{3,4}) \quad \times \quad \curlywedge \gg (\omega+3_{4,3})$
$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$

11. Pre-semiotic dual system
$(3\omega+2_{2,4}\ 2\omega+2_{1,2,4}\ \omega+2_{1,4}\ 2\omega_{1,2}) \times (1\text{-}\omega_{2,1}\ 2\omega+1_{4,1}\ 2\omega+2_{4,2,1}\ 2\omega+3_{4,2})$

Qualitative action

$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$
$\quad \curlywedge \gg (2\omega_{1,2}) \quad \times \quad \curlywedge \gg (1\text{-}\omega_{2,1})$
$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$

$(3\omega+2_{2,4})$ $(2\omega+1_{4,1})$
$\quad \curlywedge \gg (2\omega_{1,2}) \quad \times \quad \curlywedge \gg (1\text{-}\omega_{2,1})$
$(\omega+2_{1,4})$ $(2\omega+3_{4,2})$

$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (2\omega_{1,2})$ × $\curlywedge \gg (1-\omega_{2,1})$
$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$

$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (2\omega_{1,2})$ × $\curlywedge \gg (1-\omega_{2,1})$
$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$

$(\omega+2_{1,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega_{1,2})$ × $\curlywedge \gg (1-\omega_{2,1})$
$(3\omega+2_{2,4})$ $(2\omega+1_{4,1})$

$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega_{1,2})$ × $\curlywedge \gg (1-\omega_{2,1})$
$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$

Medial action

$(3\omega+2_{2,4})$ $(1-\omega_{2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega_{1,2})$ $(2\omega+3_{4,2})$

$(3\omega+2_{2,4})$ $(1-\omega_{2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega_{1,2})$ $(2\omega+3_{4,2})$

$(2\omega_{1,2})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+2_{1,2,4})$ $(1-\omega_{2,1})$

$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$

$(2\omega_{1,2})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+2_{2,4})$ $(1-\omega_{2,1})$

$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$

Objectal action

$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(2\omega_{1,2})$ $(2\omega+1_{4,1})$

$(3\omega+2_{2,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(2\omega_{1,2})$ $(2\omega+3_{4,2})$

$(2\omega_{1,2})$ $(2\omega+1_{1,4})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$

$(3\omega+2_{2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+2_{1,4})$ $(2\omega+3_{4,2})$

$(\omega+2_{1,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+2_{2,4})$ $(2\omega+1_{4,1})$

$(2\omega_{1,2})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+2_{2,4})$ $(1\text{-}\omega_{2,1})$

Interpretative action

$(2\omega+2_{1,2,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(2\omega_{1,2})$ $(2\omega+2_{4,2,1})$

$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(2\omega_{1,2})$ $(2\omega+1_{4,1})$

$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$

$(2\omega_{1,2})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ $\times$ $\curlywedge \gg (2\omega+3_{4,2})$
$(\omega+2_{1,4})$ $(1\text{-}\omega_{2,1})$

$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ $\times$ $\curlywedge \gg (2\omega+3_{4,2})$
$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$

$(2\omega_{1,2})$ $(2\omega+2_{1,2,4})$
$\curlywedge \gg (3\omega+2_{2,4})$ $\times$ $\curlywedge \gg (2\omega+3_{4,2})$
$(2\omega+2_{1,2,4})$ $(1\text{-}\omega_{2,1})$

12. Pre-semiotic dual system
$(3\omega+2_{2,4}\ 2\omega+2_{1,2,4}\ \omega+2_{1,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 2\omega+1_{4,1}\ 2\omega+2_{4,2,1}\ 2\omega+3_{4,2})$

Qualitative action

$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$

$(3\omega+2_{2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+2_{1,4})$ $(2\omega+3_{4,2})$

$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$

$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+3_{2,4})$ $(2\omega+2_{1,2,})$

$(\omega+2_{1,4})$ $(2\omega+3_{4,2}$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+2_{2,4})$ $(2\omega+1_{4,1})$

$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$

Medial action

$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$

$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega_{2,3})$ $(2\omega+3_{4,2})$

$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$

$(3\omega_{2,3})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (\omega+2_{1,4})$ × $\curlywedge \gg (2\omega+1_{4,1})$
$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$

Objectal action

$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega_{2,3})$ $(2\omega+1_{4,1})$

$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega_{2,3})$ $(2\omega+3_{4,2})$

$(3\omega_{2,3})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+2_{2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+2_{1,4})$ $(2\omega+3_{4,2})$

$(\omega+2_{1,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+2_{2,4})$ $(2\omega+1_{4,1})$

$(3\omega_{2,3})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$

Interpretative action

$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$

$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(3\omega_{2,3})$ $(2\omega+1_{4,1})$

$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$

$(3\omega_{2,3})$ $(2\omega+1_{4,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(\omega+2_{1,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+2_{1,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(2\omega+2_{1,2,4})$ $(2\omega+1_{4,1})$

$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$

13. Pre-semiotic dual system

$(3\omega{+}2_{2,4}\ 2\omega{+}2_{1,2,4}\ \omega{+}3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega{+}1_{4,3}\ 2\omega{+}2_{4,2,1}\ 2\omega{+}3_{4,2})$

Qualitative action

$(2\omega{+}2_{1,2,4})$ $(3\omega{+}1_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega{+}3_{3,4})$ $(2\omega{+}2_{4,2,1})$

$(3\omega{+}2_{2,4})$ $(3\omega{+}1_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega{+}3_{3,4})$ $(2\omega{+}3_{4,2})$

$(\omega{+}3_{3,4})$ $(2\omega{+}2_{4,2,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega{+}2_{1,2,4})$ $(3\omega{+}1_{4,3})$

$(3\omega{+}2_{2,4})$ $(2\omega{+}2_{4,2,1})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega{+}2_{1,2,4})$ $(2\omega{+}3_{4,2})$

$(\omega{+}3_{3,4})$ $(2\omega{+}3_{4,2})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega{+}2_{2,4})$ $(3\omega{+}1_{4,3})$

$(2\omega{+}2_{1,2,4})$ $(2\omega{+}3_{4,2})$
$\curlywedge \gg (3\omega_{2,3})$ $\times$ $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega{+}2_{2,4})$ $(2\omega{+}2_{4,2,1})$

Medial action

$(2\omega{+}2_{1,2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega{+}3_{3,4})$ $\times$ $\curlywedge \gg (3\omega{+}1_{4,3})$
$(3\omega_{2,3})$ $(2\omega{+}2_{4,2,1})$

$(3\omega{+}2_{2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega{+}3_{3,4})$ $\times$ $\curlywedge \gg (3\omega{+}1_{4,3})$
$(3\omega_{2,3})$ $(2\omega{+}3_{4,2})$

$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$

$(3\omega_{2,3})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+2_{1,2,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+2_{2,4})$ $(2\omega+2_{4,2,1})$

Objectal action

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega_{2,3})$ $(2\omega+3_{4,2})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+2_{2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(\omega+3_{3,4})$ $(2\omega+3_{4,2})$

$(\omega+3_{3,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+2_{2,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega+2_{1,2,4})$ × $\curlywedge \gg (2\omega+2_{4,2,1})$
$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$

Interpretative action

$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(2\omega+2_{1,2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(\omega+3_{3,4})$ $(2\omega+2_{4,2,1})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+3_{3,4})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(2\omega+2_{1,2,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(2\omega+2_{4,2,1})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(2\omega+2_{1,2,4})$ $(2\text{-}\omega_{3,2})$

14. Pre-semiotic dual system
$(3\omega+2_{2,4}\ 2\omega+3_{2,4}\ \omega+3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega+1_{4,3}\ 3\omega+2_{4,2}\ 2\omega+3_{4,2})$

Qualitative action

$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$

$(3\omega+2_{2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+3_{3,4})$ $(2\omega+3_{4,2})$

$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$

$(3\omega+2_{2,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+3_{2,4})$ $(2\omega+3_{4,2})$

$(\omega+3_{3,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+2_{2,4})$ $(3\omega+1_{4,3})$

$(2\omega+3_{2,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (3\omega_{2,3})$ × $\curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+2_{2,4})$ $(3\omega+2_{4,2})$

Medial action

$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega_{2,3})$ $(3\omega+2_{4,2})$

$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega_{2,3})$ $(2\omega+3_{4,2})$

$(3\omega_{2,3})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+2_{2,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+3_{2,4})$ $(2\omega+3_{4,2})$

$(3\omega_{2,3})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+2_{2,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+3_{2,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+2_{2,4})$ $(3\omega+2_{4,2})$

Objectal action

$(\omega+3_{3,4})$ $(2-\omega_{3,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(3\omega+2_{2,4})$ $(2-\omega_{3,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega_{2,3})$ $(2\omega+3_{4,2})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(\omega+3_{3,4})$ $(2-\omega_{3,2})$

$(3\omega+2_{2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(\omega+3_{3,4})$ $(2\omega+3_{4,2})$

$(\omega+3_{3,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega+2_{2,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega+2_{2,4})$ $(2-\omega_{3,2})$

Interpretative action

$(2\omega+3_{2,4})$ $(2-\omega_{3,2})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(3\omega_{2,3})$ $(3\omega+2_{4,2})$

$(\omega+3_{3,4})$ $(2-\omega_{3,2})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+2_{2,4})$ × $\curlywedge \gg (2\omega+3_{4,2})$
$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+2_{2,4}) \times \curlywedge \gg (2\omega+3_{4,2})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (3\omega+2_{2,4}) \times \curlywedge \gg (2\omega+3_{4,2})$
$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (3\omega+2_{2,4}) \times \curlywedge \gg (2\omega+3_{4,2})$
$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$

15. Pre-semiotic dual system
$(3\omega+3_{2,3,4}\ 2\omega+3_{2,4}\ \omega+3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega+1_{4,3}\ 3\omega+2_{4,2}\ 3\omega+3_{4,3,2})$

Qualitative action

$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega_{2,3}) \times \curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$

$(3\omega+3_{2,3,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega_{2,3}) \times \curlywedge \gg (2\text{-}\omega_{3,2})$
$(\omega+3_{3,4})$ $(3\omega+3_{4,3,2})$

$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (3\omega_{2,3}) \times \curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$

$(3\omega+2_{2,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (3\omega_{2,3}) \times \curlywedge \gg (2\text{-}\omega_{3,2})$
$(2\omega+3_{2,4})$ $(2\omega+3_{4,2})$

$(\omega+3_{3,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (3\omega_{2,3}) \times \curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+2_{2,4})$ $(3\omega+1_{4,3})$

$(2\omega+3_{2,4})$ $(2\omega+3_{4,2})$
$\curlywedge \gg (3\omega_{2,3}) \times \curlywedge \gg (2\text{-}\omega_{3,2})$
$(3\omega+2_{2,4})$ $(3\omega+2_{4,2})$

Medial action

$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega_{2,3})$ $(3\omega+2_{4,2})$

$(3\omega+3_{2,3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega_{2,3})$ $(3\omega+3_{4,3,2})$

$(3\omega_{2,3})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+3_{2,3,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(2\omega+3_{2,4})$ $(3\omega+3_{4,3,2})$

$(3\omega_{2,3})$ $(3\omega+3_{4,3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+3_{2,3,4})$ $(2\text{-}\omega_{3,2})$

$(2\omega+3_{2,4})$ $(3\omega+3_{4,3,2})$
$\curlywedge \gg (\omega+3_{3,4})$ × $\curlywedge \gg (3\omega+1_{4,3})$
$(3\omega+3_{2,3,4})$ $(3\omega+2_{4,2})$

Objectal action

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(3\omega+3_{2,3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega_{2,3})$ $(3\omega+3_{4,3,2})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+3_{2,4})$ × $\curlywedge \gg (3\omega+2_{4,2})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(3\omega+3_{2,3,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (2\omega+3_{2,4})$ $\times$ $\curlywedge \gg (3\omega+2_{4,2})$
$(\omega+3_{3,4})$ $(3\omega+3_{4,3,2})$

$(\omega+3_{3,4})$ $(3\omega+3_{4,3,2})$
$\curlywedge \gg (2\omega+3_{2,4})$ $\times$ $\curlywedge \gg (3\omega+2_{4,2})$
$(3\omega+3_{2,3,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+3_{2,3,4})$ $\times$ $\curlywedge \gg (3\omega+3_{4,3,2})$
$(3\omega_{2,3})$ $(3\omega+2_{4,2})$

$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$
$\curlywedge \gg (3\omega+3_{2,3,4})$ $\times$ $\curlywedge \gg (3\omega+3_{4,3,2})$
$(3\omega_{2,3})$ $(3\omega+1_{4,3})$

$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+3_{2,3,4})$ $\times$ $\curlywedge \gg (3\omega+3_{4,3,2})$
$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$

$(3\omega_{2,3})$ $(3\omega+1_{4,3})$
$\curlywedge \gg (3\omega+3_{2,3,4})$ $\times$ $\curlywedge \gg (3\omega+3_{4,3,2})$
$(\omega+3_{3,4})$ $(2\text{-}\omega_{3,2})$

$(\omega+3_{3,4})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (3\omega+3_{2,3,4})$ $\times$ $\curlywedge \gg (3\omega+3_{4,3,2})$
$(2\omega+3_{2,4})$ $(3\omega+1_{4,3})$

$(3\omega_{2,3})$ $(3\omega+2_{4,2})$
$\curlywedge \gg (3\omega+3_{2,3,4})$ $\times$ $\curlywedge \gg (3\omega+3_{4,3,2})$
$(2\omega+3_{2,4})$ $(2\text{-}\omega_{3,2})$

II. Action schemata of the 2 · 24 tetradic semiotic partial relations

1. Pre-semiotic dual system
$(3\omega{+}1\ 2\omega{+}1\ \omega{+}1\ \omega) \times (-\omega\ \omega{+}1\ \omega{+}2\ \omega{+}3)$

Qualitative action

$$(\omega{+}1_{1,3,4}) \quad \begin{matrix}(3\omega{+}1_{3,4})\\ \gg \curlyvee \succ (\omega_{1,3})\\ (2\omega{+}1_{1,4})\end{matrix} \quad \times \quad (-\omega_{3,1}) \gg \quad \begin{matrix}(\omega{+}2_{4,1})\\ \curlyvee \succ (\omega{+}1_{4,3,1})\\ (\omega{+}3_{4,3})\end{matrix}$$

$$(\omega{+}1_{1,4,3}) \quad \begin{matrix}(2\omega{+}1_{1,4})\\ \gg \curlyvee \succ (\omega_{1,3})\\ (3\omega{+}1_{3,4})\end{matrix} \quad \times \quad (-\omega_{3,1}) \gg \quad \begin{matrix}(\omega{+}3_{4,3})\\ \curlyvee \succ (\omega{+}1_{4,3,1})\\ (\omega{+}2_{4,1})\end{matrix}$$

$$(2\omega{+}1_{1,4}) \quad \begin{matrix}(3\omega{+}1_{3,4})\\ \gg \curlyvee \succ (\omega_{1,3})\\ (\omega{+}1_{1,3,4})\end{matrix} \quad \times \quad (-\omega_{3,1}) \gg \quad \begin{matrix}(\omega{+}1_{4,3,1})\\ \curlyvee \succ (\omega{+}2_{4,1})\\ (\omega{+}3_{4,3})\end{matrix}$$

$$(2\omega{+}1_{1,4}) \quad \begin{matrix}(\omega{+}1_{1,3,4})\\ \gg \curlyvee \succ (\omega_{1,3})\\ (3\omega{+}1_{3,4})\end{matrix} \quad \times \quad (-\omega_{3,1}) \gg \quad \begin{matrix}(\omega{+}3_{4,3})\\ \curlyvee \succ (\omega{+}2_{4,1})\\ (\omega{+}1_{4,3,1})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \quad \begin{matrix}(\omega{+}1_{1,3,4})\\ \gg \curlyvee \succ (\omega_{1,3})\\ (2\omega{+}1_{1,4})\end{matrix} \quad \times \quad (-\omega_{3,1}) \gg \quad \begin{matrix}(\omega{+}2_{4,1})\\ \curlyvee \succ (\omega{+}3_{4,3})\\ (\omega{+}1_{4,3,1})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \quad \begin{matrix}(2\omega{+}1_{1,4})\\ \gg \curlyvee \succ (\omega_{1,3})\\ (\omega{+}1_{1,3,4})\end{matrix} \quad \times \quad (-\omega_{3,1}) \gg \quad \begin{matrix}(\omega{+}1_{4,3,1})\\ \curlyvee \succ (\omega{+}3_{4,3})\\ (\omega{+}2_{4,1})\end{matrix}$$

Medial action

$$(\omega_{1,3}) \quad \begin{matrix}(3\omega{+}1_{3,4})\\ \gg \curlyvee \succ (\omega{+}1_{1,3,4})\\ (2\omega{+}1_{1,4})\end{matrix} \quad \times \quad (\omega{+}1_{4,3,1}) \quad \gg \quad \begin{matrix}(\omega{+}2_{4,1})\\ \curlyvee \succ (-\omega_{3,1})\\ (\omega{+}3_{4,3})\end{matrix}$$

$$(\omega_{1,3}) \quad \begin{matrix}(2\omega{+}1_{1,4})\\ \gg \curlyvee \succ (\omega{+}1_{1,3,4})\\ (3\omega{+}1_{3,4})\end{matrix} \quad \times \quad (\omega{+}1_{4,3,1}) \quad \gg \quad \begin{matrix}(\omega{+}3_{4,3})\\ \curlyvee \succ (-\omega_{3,1})\\ (\omega{+}2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \begin{matrix}(\omega_{1,3})\\ \gg \Upsilon \succ\\ (3\omega+1_{3,4})\end{matrix} (\omega+1_{1,3,4}) \times (\omega+1_{4,3,1}) \begin{matrix}(\omega+3_{4,3})\\ \gg \Upsilon \succ\\ (-\omega_{3,1})\end{matrix} (\omega+2_{4,1})$$

$$(2\omega+1_{1,4}) \begin{matrix}(3\omega+1_{3,4})\\ \gg \Upsilon \succ\\ (\omega_{1,3})\end{matrix} (\omega+1_{1,3,4}) \times (\omega+1_{4,3,1}) \begin{matrix}(-\omega_{3,1})\\ \gg \Upsilon \succ\\ (\omega+3_{4,3})\end{matrix} (\omega+2_{4,1})$$

$$(3\omega+1_{3,4}) \begin{matrix}(\omega_{1,3})\\ \gg \Upsilon \succ\\ (2\omega+1_{1,4})\end{matrix} (\omega+1_{1,3,4}) \times (\omega+1_{4,3,1}) \begin{matrix}(\omega+2_{4,1})\\ \gg \Upsilon \succ\\ (-\omega_{3,1})\end{matrix} (\omega+3_{4,3})$$

$$(3\omega+1_{3,4}) \begin{matrix}(2\omega+1_{1,4})\\ \gg \Upsilon \succ\\ (\omega_{1,3})\end{matrix} (\omega+1_{1,3,4}) \times (\omega+1_{4,3,1}) \begin{matrix}(-\omega_{3,1})\\ \gg \Upsilon \succ\\ (\omega+2_{4,1})\end{matrix} (\omega+3_{4,3})$$

Objectal action

$$(\omega_{1,3}) \begin{matrix}(3\omega+1_{3,4})\\ \gg \Upsilon \succ\\ (2\omega+1_{1,4})\end{matrix} (\omega+1_{1,3,4}) \times (\omega+2_{4,1}) \begin{matrix}(\omega+1_{4,3,1})\\ \gg \Upsilon \succ\\ (\omega+3_{4,3})\end{matrix} (-\omega_{3,1})$$

$$(\omega_{1,3}) \begin{matrix}(\omega+1_{1,3,4})\\ \gg \Upsilon \succ\\ (3\omega+1_{3,4})\end{matrix} (2\omega+1_{1,4}) \times (\omega+2_{4,1}) \begin{matrix}(\omega+3_{4,3})\\ \gg \Upsilon \succ\\ (\omega+1_{4,3,1})\end{matrix} (-\omega_{3,1})$$

$$(\omega+1_{1,3,4}) \begin{matrix}(\omega_{1,3})\\ \gg \Upsilon \succ\\ (3\omega+1_{3,4})\end{matrix} (2\omega+1_{1,4}) \times (\omega+2_{4,1}) \begin{matrix}(\omega+3_{4,3})\\ \gg \Upsilon \succ\\ (-\omega_{3,1})\end{matrix} (\omega+1_{4,3,1})$$

$$(\omega+1_{1,3,4}) \begin{matrix}(3\omega+1_{3,4})\\ \gg \Upsilon \succ\\ (\omega_{1,3})\end{matrix} (2\omega+1_{1,4}) \times (\omega+2_{4,1}) \begin{matrix}(-\omega_{3,1})\\ \gg \Upsilon \succ\\ (\omega+3_{4,3})\end{matrix} (\omega+1_{4,3,1})$$

$$(3\omega+1_{3,4}) \begin{matrix}(\omega_{1,3})\\ \gg \Upsilon \succ\\ (\omega+1_{1,3,4})\end{matrix} (2\omega+1_{1,4}) \times (\omega+2_{4,1}) \begin{matrix}(\omega+1_{4,3,1})\\ \gg \Upsilon \succ\\ (-\omega_{3,1})\end{matrix} (\omega+3_{4,3})$$

$$(3\omega+1_{3,4}) \begin{matrix}(\omega+1_{1,3,4})\\ \gg \Upsilon \succ\\ (\omega_{1,3})\end{matrix} (2\omega+1_{1,4}) \times (\omega+2_{4,1}) \begin{matrix}(-\omega_{3,1})\\ \gg \Upsilon \succ\\ (\omega+1_{4,3,1})\end{matrix} (\omega+3_{4,3})$$

Interpretative action

$$(\omega_{1,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega+1_{3,4})\\(\omega+1_{1,3,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\omega+1_{4,3,1})\\(-\omega_{3,1})\\(\omega+2_{4,1})\end{matrix}$$

$$(\omega_{1,3}) \gg \Upsilon \succ \begin{matrix}(\omega+1_{1,3,4})\\(3\omega+1_{3,4})\\(2\omega+1_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(-\omega_{3,1})\\(\omega+1_{4,3,1})\end{matrix}$$

$$(\omega+1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\omega_{1,3})\\(3\omega+1_{3,4})\\(2\omega+1_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(\omega+1_{4,3,1})\\(-\omega_{3,1})\end{matrix}$$

$$(\omega+1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega+1_{3,4})\\(\omega_{1,3})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-\omega_{3,1})\\(\omega+1_{4,3,1})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega_{1,3})\\(3\omega+1_{3,4})\\(\omega+1_{1,3,4})\end{matrix} \times (\omega+3_{4,3}) \Upsilon \succ \begin{matrix}(\omega+1_{4,3,1})\\(\omega+2_{4,1})\\(-\omega_{3,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega+1_{1,3,4})\\(3\omega+1_{3,4})\\(\omega_{1,3})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-\omega_{3,1})\\(\omega+2_{4,1})\\(\omega+1_{4,3,1})\end{matrix}$$

2. Pre-semiotic dual system

$(3\omega+1_{3,4}\ 2\omega+1_{1,4}\ \omega+1_{1,3,4}\ 2\omega_{1,2}) \times (1\text{-}\omega_{2,1}\ \omega+1_{4,3,1}\ \omega+2_{1,4}\ \omega+3_{4,3})$

Qualitative action

$$(\omega+1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(2\omega+1_{1,2})\\(2\omega+1_{1,4})\end{matrix} \times (1\text{-}\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(\omega+1_{4,3,1})\\(\omega+3_{4,3})\end{matrix}$$

$$(\omega+1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(2\omega_{1,2})\\(3\omega+1_{3,4})\end{matrix} \times (1\text{-}\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(\omega+1_{4,3,1})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(2\omega_{1,2})\\(\omega+1_{1,3,4})\end{matrix} \times (1-\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(\omega+1_{4,3,1})\\(\omega+2_{4,1})\\(\omega+3_{4,3})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega+1_{1,3,4})\\(2\omega_{1,2})\\(3\omega+1_{3,4})\end{matrix} \times (1-\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(\omega+2_{4,1})\\(\omega+1_{4,3,1})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(\omega+1_{1,3,4})\\(2\omega_{1,2})\\(2\omega+1_{1,4})\end{matrix} \times (1-\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(\omega+3_{4,3})\\(\omega+1_{4,3,1})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(2\omega_{1,2})\\(\omega+1_{1,3,4})\end{matrix} \times (1-\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(\omega+1_{4,3,1})\\(\omega+3_{4,3})\\(\omega+2_{4,1})\end{matrix}$$

Medial action

$$(2\omega_{1,2}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(\omega+1_{1,3,4})\\(2\omega+1_{1,4})\end{matrix} \times \begin{matrix}(\omega+2_{4,1})\\(\omega+1_{4,3,1})\\(\omega+3_{4,3})\end{matrix} \gg \Upsilon \succ (1-\omega_{2,1})$$

$$(2\omega_{1,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(\omega+1_{1,3,4})\\(3\omega+1_{3,4})\end{matrix} \times \begin{matrix}(\omega+3_{4,3})\\(\omega+1_{4,3,1})\\(\omega+2_{4,1})\end{matrix} \gg \Upsilon \succ (1-\omega_{2,1})$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega_{1,2})\\(\omega+1_{1,3,4})\\(3\omega+1_{3,4})\end{matrix} \times \begin{matrix}(\omega+3_{4,3})\\(\omega+1_{4,3,1})\\(1-\omega_{2,1})\end{matrix} \gg \Upsilon \succ (\omega+2_{4,1})$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(\omega+1_{1,3,4})\\(2\omega_{1,2})\end{matrix} \times \begin{matrix}(1-\omega_{2,1})\\(\omega+1_{4,3,1})\\(\omega+3_{4,3})\end{matrix} \gg \Upsilon \succ (\omega+2_{1,4})$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega_{1,2})\\(\omega+1_{1,3,4})\\(2\omega+1_{1,4})\end{matrix} \times \begin{matrix}(\omega+2_{4,1})\\(\omega+1_{4,3,1})\\(1-\omega_{2,1})\end{matrix} \gg \Upsilon \succ (\omega+3_{4,3})$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(\omega+1_{1,3,4})\\(2\omega_{1,2})\end{matrix} \times \begin{matrix}(1-\omega_{2,1})\\(\omega+1_{4,3,1})\\(\omega+2_{4,1})\end{matrix} \gg \Upsilon \succ (\omega+3_{4,3})$$

Objectal action

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(3\omega+1_{3,4})\\(2\omega+1_{1,4})\\(\omega+1_{1,3,4})\end{matrix} \times (\omega+2_{4,1}) \gg \curlyvee \succ \begin{matrix}(\omega+1_{4,3,1})\\(1\text{-}\omega_{2,1})\\(\omega+3_{4,3})\end{matrix}$$

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(\omega+1_{1,3,4})\\(2\omega+1_{1,4})\\(3\omega+1_{3,4})\end{matrix} \times (\omega+2_{4,1}) \gg \curlyvee \succ \begin{matrix}(\omega+3_{4,3})\\(1\text{-}\omega_{2,1})\\(\omega+1_{4,3,1})\end{matrix}$$

$$(\omega+1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega_{1,2})\\(2\omega+1_{1,4})\\(3\omega+1_{3,4})\end{matrix} \times (\omega+2_{4,1}) \gg \curlyvee \succ \begin{matrix}(\omega+3_{4,3})\\(\omega+1_{4,3,1})\\(1\text{-}\omega_{2,1})\end{matrix}$$

$$(\omega+1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(3\omega+1_{3,4})\\(2\omega+1_{1,4})\\(2\omega_{1,2})\end{matrix} \times (\omega+2_{4,1}) \gg \curlyvee \succ \begin{matrix}(1\text{-}\omega_{2,1})\\(\omega+1_{4,3,1})\\(\omega+3_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega_{1,2})\\(2\omega+1_{1,4})\\(\omega+1_{1,3,4})\end{matrix} \times (\omega+2_{4,1}) \gg \curlyvee \succ \begin{matrix}(\omega+1_{4,3,1})\\(\omega+3_{4,3})\\(1\text{-}\omega_{2,1})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \curlyvee \succ \begin{matrix}(\omega+1_{1,3,4})\\(2\omega+1_{1,4})\\(2\omega_{1,2})\end{matrix} \times (\omega+2_{4,1}) \gg \curlyvee \succ \begin{matrix}(1\text{-}\omega_{2,1})\\(\omega+3_{4,3})\\(\omega+1_{4,3,1})\end{matrix}$$

Interpretative action

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega+1_{3,4})\\(\omega+1_{1,3,4})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(\omega+1_{4,3,1})\\(1\text{-}\omega_{2,1})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(\omega+1_{1,3,4})\\(3\omega+1_{3,4})\\(2\omega+1_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(\omega+2_{4,1})\\(1\text{-}\omega_{2,1})\\(\omega+1_{4,3,1})\end{matrix}$$

$$(\omega+1_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega_{1,2})\\(3\omega+1_{3,4})\\(2\omega+1_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(\omega+2_{4,1})\\(\omega+1_{4,3,1})\\(1\text{-}\omega_{2,1})\end{matrix}$$

$$(\omega{+}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}1_{1,4})\\(3\omega{+}1_{3,4})\\(2\omega_{1,2})\end{matrix} \times (\omega{+}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1{-}\omega_{2,1})\\(\omega{+}1_{4,3,1})\\(\omega{+}2_{4,1})\end{matrix}$$

$$(2\omega{+}1_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega_{1,2})\\(3\omega{+}1_{3,4})\\(\omega{+}1_{1,3,4})\end{matrix} \times (\omega{+}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\omega{+}1_{4,3,1})\\(\omega{+}2_{4,1})\\(1{-}\omega_{2,1})\end{matrix}$$

$$(2\omega{+}1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}1_{1,3,4})\\(3\omega{+}1_{3,4})\\(2\omega_{1,2})\end{matrix} \times (\omega{+}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1{-}\omega_{2,1})\\(\omega{+}2_{4,1})\\(\omega{+}1_{4,3,1})\end{matrix}$$

3. Pre-semiotic dual system

$(3\omega{+}1_{3,4}\ 2\omega{+}1_{1,4}\ \omega{+}1_{1,3,4}\ 3\omega_{2,3}) \times (2{-}\omega_{3,2}\ \omega{+}1_{4,3,1}\ \omega{+}2_{4,1}\ \omega{+}3_{4,3})$

Qualitative action

$$(\omega{+}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}1_{1,4})\\(3\omega_{2,3})\end{matrix} \times (2{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega{+}2_{4,1})\\(\omega{+}3_{4,3})\\(\omega{+}1_{4,3,1})\end{matrix}$$

$$(\omega{+}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}1_{1,4})\\(3\omega{+}1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (2{-}\omega_{3,2}) \quad \Upsilon \quad \succ \begin{matrix}(\omega{+}3_{4,3})\\(\omega{+}2_{4,1})\\(\omega{+}1_{4,3,1})\end{matrix}$$

$$(2\omega{+}1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{3,4})\\(\omega{+}1_{1,3,4})\\(3\omega_{2,3})\end{matrix} \times (2{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega{+}1_{4,3,1})\\(\omega{+}3_{4,3})\\(\omega{+}2_{4,1})\end{matrix}$$

$$(2\omega{+}1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}1_{1,3,4})\\(3\omega{+}1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (2{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega{+}3_{4,3})\\(\omega{+}2_{4,1})\\(\omega{+}1_{4,3,1})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}1_{1,3,4})\\(2\omega{+}1_{1,4})\\(3\omega_{2,3})\end{matrix} \times (2{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega{+}2_{4,1})\\(\omega{+}3_{4,3})\\(\omega{+}1_{4,3,1})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}1_{1,4})\\(\omega{+}1_{1,3,4})\\(3\omega_{2,3})\end{matrix} \times (2{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega{+}1_{4,3,1})\\(\omega{+}3_{4,3})\\(\omega{+}2_{4,1})\end{matrix}$$

Medial action

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{3,4})\\(\omega{+}1_{1,3,4})\\(2\omega{+}1_{1,4})\end{matrix} \times \begin{matrix}(\omega{+}2_{4,1})\\(\omega{+}1_{4,3,1}) \gg \Upsilon \succ (2\text{-}\omega_{3,2})\\(\omega{+}3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}1_{1,4})\\(\omega{+}1_{1,3,4})\\(3\omega{+}1_{3,4})\end{matrix} \times \begin{matrix}(\omega{+}3_{4,3})\\(\omega{+}1_{4,3,1}) \gg \Upsilon \succ (2\text{-}\omega_{3,2})\\(\omega{+}2_{4,1})\end{matrix}$$

$$(2\omega{+}1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(\omega{+}1_{1,3,4})\\(3\omega{+}1_{3,4})\end{matrix} \times \begin{matrix}(\omega{+}3_{4,3})\\(\omega{+}1_{4,3,1}) \gg \Upsilon \succ (\omega{+}2_{4,1})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega{+}1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{3,4})\\(\omega{+}1_{1,3,4})\\(3\omega_{2,3})\end{matrix} \times \begin{matrix}(2\text{-}\omega_{3,2})\\(\omega{+}1_{4,3,1}) \gg \Upsilon \succ (\omega{+}2_{4,1})\\(\omega{+}3_{4,3})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(\omega{+}1_{1,3,4})\\(2\omega{+}1_{1,4})\end{matrix} \times \begin{matrix}(\omega{+}2_{4,1})\\(\omega{+}1_{4,3,1}) \gg \Upsilon \succ (\omega{+}3_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}1_{1,4})\\(\omega{+}1_{1,3,4})\\(3\omega_{2,3})\end{matrix} \times \begin{matrix}(2\text{-}\omega_{3,2})\\(\omega{+}1_{4,3,1}) \gg \Upsilon \succ (\omega{+}3_{4,3})\\(\omega{+}2_{4,1})\end{matrix}$$

Objectal action

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}1_{1,4})\\(\omega{+}1_{1,3,4})\end{matrix} \times \begin{matrix}(\omega{+}1_{4,3,1})\\(\omega{+}2_{4,1}) \gg \Upsilon \succ (2\text{-}\omega_{3,2})\\(\omega{+}3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(\omega{+}1_{1,3,4})\\(2\omega{+}1_{1,4})\\(3\omega{+}1_{3,4})\end{matrix} \times \begin{matrix}(\omega{+}3_{4,3})\\(\omega{+}2_{4,1}) \gg \Upsilon \succ (2\text{-}\omega_{3,2})\\(\omega{+}1_{4,3,1})\end{matrix}$$

$$(\omega{+}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(2\omega{+}1_{1,4})\\(3\omega{+}1_{3,4})\end{matrix} \times \begin{matrix}(\omega{+}3_{4,3})\\(\omega{+}2_{4,1}) \gg \Upsilon \succ (\omega{+}1_{4,3,1})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega+1_{1,3,4}) \gg^{\Upsilon} \begin{matrix}(3\omega+1_{3,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (2\omega+1_{1,4}) \times (\omega+2_{4,1}) \gg^{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (\omega+3_{4,3})\end{matrix} (\omega+1_{4,3,1})$$

$$(3\omega+1_{3,4}) \gg^{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+1_{1,3,4})\end{matrix} (2\omega+1_{1,4}) \times (\omega+2_{4,1}) \gg^{\Upsilon} \begin{matrix}(\omega+1_{4,3,1})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (\omega+3_{4,3})$$

$$(3\omega+1_{3,4}) \gg^{\Upsilon} \begin{matrix}(\omega+1_{1,3,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (2\omega+1_{1,4}) \times (\omega+2_{4,1}) \gg^{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (\omega+1_{4,3,1})\end{matrix} (\omega+3_{4,3})$$

Interpretative action

$$(3\omega_{2,3}) \gg^{\Upsilon} \begin{matrix}(2\omega+1_{1,4})\\ \succ\\ (\omega+1_{1,3,4})\end{matrix} (3\omega+1_{3,4}) \times (\omega+3_{4,3}) \gg^{\Upsilon} \begin{matrix}(\omega+1_{4,3,1})\\ \succ\\ (\omega+2_{4,1})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(3\omega_{2,3}) \gg^{\Upsilon} \begin{matrix}(\omega+1_{1,3,4})\\ \succ\\ (2\omega+1_{1,4})\end{matrix} (3\omega+1_{3,4}) \times (\omega+2_{4,1}) \gg^{\Upsilon} \begin{matrix}(\omega+1_{4,3,1})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (\omega+3_{4,3})$$

$$(\omega+1_{1,3,4}) \gg^{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (2\omega+1_{1,4})\end{matrix} (3\omega+1_{3,4}) \times (\omega+3_{4,3}) \gg^{\Upsilon} \begin{matrix}(\omega+2_{4,1})\\ \succ\\ (\omega+1_{4,3,1})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(\omega+1_{1,3,4}) \gg^{\Upsilon} \begin{matrix}(2\omega+1_{1,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (3\omega+1_{3,4}) \times (\omega+3_{4,3}) \gg^{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (\omega+2_{4,1})\end{matrix} (\omega+1_{4,3,1})$$

$$(2\omega+1_{1,4}) \gg^{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+1_{1,3,4})\end{matrix} (3\omega+1_{3,4}) \times (\omega+3_{4,3}) \gg^{\Upsilon} \begin{matrix}(\omega+1_{4,3,1})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (\omega+2_{4,1})$$

$$(2\omega+1_{1,4}) \gg^{\Upsilon} \begin{matrix}(\omega+1_{1,3,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (3\omega+1_{3,4}) \times (\omega+3_{4,3}) \gg^{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (\omega+1_{4,3,1})\end{matrix} (\omega+2_{4,1})$$

4. Pre-semiotic system

$(3\omega{+}1_{3,4}\ 2\omega{+}1_{1,4}\ \omega{+}2_{1,4}\ 2\omega_{1,2}) \times (1{-}\omega_{2,1}\ 2\omega{+}1_{4,1}\ \omega{+}2_{4,1}\ \omega{+}3_{4,3})$

Qualitative action

$$(\omega{+}2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}1_{1,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{4,1})\\(\omega{+}3_{4,3})\end{matrix} (2\omega{+}1_{4,1})$$

$$(\omega{+}2_{1,4}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}1_{1,4})\\(3\omega{+}1_{3,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{4,3})\\(\omega{+}2_{4,1})\end{matrix} (2\omega{+}1_{4,1})$$

$$(2\omega{+}1_{1,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(\omega{+}2_{1,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}1_{4,1})\\(\omega{+}3_{4,3})\end{matrix} (\omega{+}2_{4,1})$$

$$(2\omega{+}1_{1,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{1,4})\\(3\omega{+}1_{3,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{3,4})\\(2\omega{+}1_{4,1})\end{matrix} (\omega{+}2_{4,1})$$

$$(3\omega{+}1_{3,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{1,4})\\(2\omega{+}1_{1,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{4,1})\\(\omega{+}3_{4,3})\end{matrix} (2\omega{+}1_{4,1})$$

$$(3\omega{+}1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}1_{1,4})\\(\omega{+}2_{1,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}1_{4,1})\\(\omega{+}3_{4,3})\end{matrix} (\omega{+}2_{4,1})$$

Medial action

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}1_{1,4})\end{matrix} (\omega{+}2_{1,4}) \times (2\omega{+}1_{4,1}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{4,1})\\(\omega{+}3_{4,3})\end{matrix} (1{-}\omega_{2,1})$$

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}1_{1,4})\\(3\omega{+}1_{3,4})\end{matrix} (\omega{+}2_{1,4}) \times (2\omega{+}1_{4,1}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{4,3})\\(\omega{+}2_{4,1})\end{matrix} (1{-}\omega_{2,1})$$

$$(2\omega_{1,2}) \qquad\qquad (\omega+3_{4,3})$$
$$(2\omega+1_{1,4}) \gg \curlyvee \succ (\omega+2_{1,4}) \quad \times \quad (2\omega+1_{4,1}) \gg \curlyvee \succ (\omega+2_{4,1})$$
$$(3\omega+1_{3,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$

$$(3\omega+1_{3,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$
$$(2\omega+1_{1,4}) \gg \curlyvee \succ (\omega+2_{1,4}) \quad \times \quad (2\omega+1_{4,1}) \gg \curlyvee \succ (\omega+2_{4,1})$$
$$(2\omega_{1,2}) \qquad\qquad (\omega+3_{4,3})$$

$$(2\omega_{1,2}) \qquad\qquad (\omega+2_{4,1})$$
$$(3\omega+1_{3,4}) \gg \curlyvee \succ (\omega+2_{1,4}) \quad \times \quad (2\omega+1_{4,1}) \gg \curlyvee \succ (\omega+3_{4,3})$$
$$(2\omega+1_{1,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$

$$(2\omega+1_{1,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$
$$(3\omega+1_{3,4}) \gg \curlyvee \succ (\omega+2_{1,4}) \quad \times \quad (2\omega+1_{4,1}) \gg \curlyvee \succ (\omega+3_{4,3})$$
$$(2\omega_{1,2}) \qquad\qquad (\omega+2_{4,1})$$

Objectal action

$$(3\omega+1_{3,4}) \qquad\qquad (2\omega+1_{4,1})$$
$$(2\omega_{1,2}) \gg \curlyvee \succ (2\omega+1_{1,4}) \quad \times \quad (\omega+2_{4,1}) \gg \curlyvee \succ (1\text{-}\omega_{2,1})$$
$$(\omega+2_{1,4}) \qquad\qquad \omega+3_{4,3})$$

$$(\omega+2_{1,4}) \qquad\qquad (\omega+3_{4,3})$$
$$(2\omega_{1,2}) \gg \curlyvee \succ (2\omega+1_{1,4}) \quad \times \quad (\omega+2_{4,1}) \gg \curlyvee \succ (1\text{-}\omega_{2,1})$$
$$(3\omega+1_{3,4}) \qquad\qquad (2\omega+1_{4,1})$$

$$(2\omega_{1,2}) \qquad\qquad (\omega+3_{4,3})$$
$$(\omega+2_{1,4}) \gg \curlyvee \succ (2\omega+1_{1,4}) \quad \times \quad (\omega+2_{4,1}) \gg \curlyvee \succ (2\omega+1_{4,1})$$
$$(3\omega+1_{3,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$

$$(3\omega+1_{3,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$
$$(\omega+2_{1,4}) \gg \curlyvee \succ (2\omega+1_{1,4}) \quad \times \quad (\omega+2_{4,1}) \gg \curlyvee \succ (2\omega+1_{4,1})$$
$$(2\omega_{1,2}) \qquad\qquad (\omega+3_{4,3})$$

$$(2\omega_{1,2}) \qquad\qquad (2\omega+1_{4,1})$$
$$(3\omega+1_{3,4}) \gg \curlyvee \succ (2\omega+1_{1,4}) \quad \times \quad (\omega+2_{4,1}) \gg \curlyvee \succ (\omega+3_{4,3})$$
$$(\omega+2_{1,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$

$$(\omega+2_{1,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$
$$(3\omega+1_{3,4}) \gg \curlyvee \succ (2\omega+1_{1,4}) \quad \times \quad (\omega+2_{4,1}) \gg \curlyvee \succ (\omega+3_{4,3})$$
$$(2\omega_{1,2}) \qquad\qquad (2\omega+1_{4,1})$$

Interpretative action

$$(2\omega_{1,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega+1_{3,4})\\(\omega+2_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(1-\omega_{2,1})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega_{1,2}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega+1_{3,4})\\(2\omega+1_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(1-\omega_{2,1})\\(2\omega+1_{4,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega_{1,2})\\(3\omega+1_{3,4})\\(2\omega+1_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(2\omega+1_{4,1})\\(1-\omega_{2,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega+1_{3,4})\\(2\omega_{1,2})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1-\omega_{2,1})\\(2\omega+1_{4,1})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega_{1,2})\\(3\omega+1_{3,4})\\(\omega+2_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(\omega+2_{4,1})\\(1-\omega_{2,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega+1_{3,4})\\(2\omega_{1,2})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(1-\omega_{2,1})\\(2\omega+1_{4,1})\\(\omega+2_{4,1})\end{matrix}$$

5. Pre-semiotic dual system

$$(3\omega+1_{3,4}\ 2\omega+1_{1,4}\ \omega+2_{1,4}\ 3\omega_{2,3}) \times (2-\omega_{3,2}\ 2\omega+1_{4,1}\ \omega+2_{4,1}\ \omega+3_{3,4})$$

Qualitative action

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(3\omega_{2,3})\\(2\omega+1_{1,4})\end{matrix} \times (2-\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(2\omega+1_{4,1})\\(\omega+3_{4,3})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega_{2,3})\\(3\omega+1_{3,4})\end{matrix} \times (2-\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(2\omega+1_{4,1})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(3\omega_{2,3})\\(\omega+2_{1,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(\omega+2_{4,1})\\(\omega+3_{3,4})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega_{2,3})\\(3\omega+1_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(\omega+2_{4,1})\\(2\omega+1_{4,1})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega_{2,3})\\(2\omega+1_{1,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(\omega+3_{4,3})\\(2\omega+1_{4,1})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega_{2,3})\\(\omega+2_{1,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(\omega+3_{4,3})\\(\omega+2_{4,1})\end{matrix}$$

Medial action

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(\omega+2_{1,4})\\(2\omega+1_{1,4})\end{matrix} \times (2\omega+1_{4,1}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(2\text{-}\omega_{3,2})\\(\omega+3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(\omega+2_{1,4})\\(3\omega+1_{3,4})\end{matrix} \times (2\omega+1_{4,1}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(2\text{-}\omega_{3,2})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(\omega+2_{1,4})\\(3\omega+1_{3,4})\end{matrix} \times (2\omega+1_{4,1}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(\omega+2_{4,1})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(\omega+2_{1,4})\\(3\omega_{2,3})\end{matrix} \times (2\omega+1_{4,1}) \gg \Upsilon \succ \begin{matrix}(2\text{-}\omega_{3,2})\\(\omega+3_{4})\\(\omega+2_{4,1})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(\omega+2_{1,4})\\(2\omega+1_{1,4})\end{matrix} \times (2\omega+1_{4,1}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(2\text{-}\omega_{3,2})\\(\omega+3_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(\omega+2_{1,4})\\(3\omega_{2,3})\end{matrix} \times (2\omega+1_{4,1}) \gg \Upsilon \succ \begin{matrix}(2\text{-}\omega_{3,2})\\(\omega+3_{4,3})\\(\omega+2_{4,1})\end{matrix}$$

Objectal action

$$(3\omega_{2,3}) \gg_\Upsilon \begin{matrix}(3\omega+1_{3,4})\\ \succ (2\omega+1_{1,4})\\ (\omega+2_{1,4})\end{matrix} \times (\omega+2_{4,1}) \gg_\Upsilon \begin{matrix}(2\omega+1_{4,1})\\ \succ (2\text{-}\omega_{3,2})\\ (\omega+3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg_\Upsilon \begin{matrix}(\omega+2_{1,4})\\ \succ (2\omega+1_{1,4})\\ (3\omega+1_{3,4})\end{matrix} \times (\omega+2_{4,1}) \gg_\Upsilon \begin{matrix}(\omega+3_{4,3})\\ \succ (2\text{-}\omega_{3,2})\\ (2\omega+1_{4,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg_\Upsilon \begin{matrix}(3\omega_{2,3})\\ \succ (2\omega+1_{1,4})\\ (3\omega+1_{3,4})\end{matrix} \times (\omega+2_{4,1}) \gg_\Upsilon \begin{matrix}(\omega+3_{4,3})\\ \succ (2\omega+1_{4,1})\\ (2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega+2_{1,4}) \gg_\Upsilon \begin{matrix}(3\omega+1_{3,4})\\ \succ (2\omega+1_{1,4})\\ (3\omega_{2,3})\end{matrix} \times (\omega+2_{4,1}) \gg_\Upsilon \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ (2\omega+1_{4,1})\\ (\omega+3_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg_\Upsilon \begin{matrix}(3\omega_{2,3})\\ \succ (2\omega+1_{1,4})\\ (\omega+2_{1,4})\end{matrix} \times (\omega+2_{4,1}) \gg_\Upsilon \begin{matrix}(2\omega+1_{4,1})\\ \succ (\omega+2_{4,1})\\ (2\text{-}\omega_{3,2})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg_\Upsilon \begin{matrix}(\omega+2_{1,4})\\ \succ (2\omega+1_{1,4})\\ (3\omega_{2,3})\end{matrix} \times (\omega+2_{4,1}) \gg_\Upsilon \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ (\omega+3_{4,3})\\ (2\omega+1_{4,1})\end{matrix}$$

Interpretative action

$$(3\omega_{2,3}) \gg_\Upsilon \begin{matrix}(2\omega+1_{1,4})\\ \succ (3\omega+1_{3,4})\\ (\omega+2_{1,4})\end{matrix} \times (\omega+3_{3,4}) \gg_\Upsilon \begin{matrix}(2\omega+1_{4,1})\\ \succ (2\text{-}\omega_{3,2})\\ (\omega+2_{4,1})\end{matrix}$$

$$(3\omega_{2,3}) \gg_\Upsilon \begin{matrix}(\omega+2_{1,4})\\ \succ (3\omega+1_{3,4})\\ (2\omega+1_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg_\Upsilon \begin{matrix}(\omega+2_{4,1})\\ \succ (2\text{-}\omega_{3,2})\\ (2\omega+1_{4,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg_\Upsilon \begin{matrix}(3\omega_{2,3})\\ \succ (3\omega+1_{3,4})\\ (2\omega+1_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg_\Upsilon \begin{matrix}(\omega+2_{4,1})\\ \succ (2\omega+1_{4,1})\\ (2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega+1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2-\omega_{3,2})\\(2\omega+1_{4,1})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(3\omega+1_{3,4})\\(\omega+2_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(\omega+2_{4,1})\\(2-\omega_{3,2})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega+1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2-\omega_{3,2})\\(\omega+2_{4,1})\\2\omega+1_{4,1})\end{matrix}$$

6. Pre-semiotic dual system

$(3\omega+1_{3,4}\ 2\omega+1_{1,4}\ \omega+3_{3,4}\ 3\omega_{2,3}) \times (2-\omega_{3,2}\ 3\omega+1_{4,3}\ \omega+2_{4,1}\ \omega+3_{4,3})$

Qualitative action

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(3\omega_{2,3})\\(2\omega+1_{1,4})\end{matrix} \times (2-\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(3\omega+1_{4,3})\\(\omega+3_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega_{2,3})\\(3\omega+1_{3,4})\end{matrix} \times (2-\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega+1_{4,3})\\(\omega+2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(3\omega_{2,3})\\(\omega+3_{3,4})\end{matrix} \times (2-\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{4,3})\\(3\omega+1_{4,3})\\(\omega+3_{4,3})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega_{2,3})\\(3\omega+1_{3,4})\end{matrix} \times (2-\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(\omega+2_{4,1})\\(3\omega+1_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega_{2,3})\\(2\omega+1_{1,4})\end{matrix} \times (2-\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{4,1})\\(\omega+3_{4,3})\\(3\omega+1_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{1,4})\\(3\omega_{2,3})\\(\omega+3_{3,4})\end{matrix} \times (2-\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{4,3})\\(\omega+3_{4,3})\\(\omega+2_{4,1})\end{matrix}$$

Medial action

$$(3\omega_{2,3}) \gg \Upsilon \begin{matrix} (3\omega{+}1_{3,4}) \\ \succ (\omega{+}3_{3,4}) \\ (2\omega{+}1_{1,4}) \end{matrix} \times (3\omega{+}1_{4,3}) \gg \Upsilon \begin{matrix} (\omega{+}2_{4,1}) \\ \succ (2{-}\omega_{3,2}) \\ (\omega{+}3_{4,3}) \end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \begin{matrix} (2\omega{+}1_{1,4}) \\ \succ (\omega{+}3_{3,4}) \\ (3\omega{+}1_{3,4}) \end{matrix} \times (3\omega{+}1_{4,3}) \gg \Upsilon \begin{matrix} (\omega{+}3_{4,3}) \\ \succ (2{-}\omega_{3,2}) \\ (\omega{+}2_{4,1}) \end{matrix}$$

$$(2\omega{+}1_{1,4}) \begin{matrix} (3\omega_{2,3}) \\ \gg \Upsilon \succ (\omega{+}3_{3,4}) \\ (3\omega{+}1_{3,4}) \end{matrix} \times (3\omega{+}1_{3,4}) \begin{matrix} (\omega{+}3_{4,3}) \\ \gg \Upsilon \succ (\omega{+}2_{4,1}) \\ (2{-}\omega_{3,2}) \end{matrix}$$

$$(2\omega{+}1_{1,4}) \begin{matrix} (3\omega{+}1_{3,4}) \\ \gg \Upsilon \succ (\omega{+}3_{3,4}) \\ (3\omega_{2,3}) \end{matrix} \times (3\omega{+}1_{4,3}) \begin{matrix} (2{-}\omega_{3,2}) \\ \gg \Upsilon \succ (\omega{+}2_{4,1}) \\ (\omega{+}3_{4,3}) \end{matrix}$$

$$(3\omega{+}1_{3,4}) \begin{matrix} (3\omega_{2,3}) \\ \gg \Upsilon \succ (\omega{+}3_{3,4}) \\ (2\omega{+}1_{1,4}) \end{matrix} \times (3\omega{+}1_{4,3}) \begin{matrix} (\omega{+}2_{4,1}) \\ \gg \Upsilon \succ (\omega{+}3_{4,3}) \\ (2{-}\omega_{3,2}) \end{matrix}$$

$$(3\omega{+}1_{3,4}) \begin{matrix} (2\omega{+}1_{1,4}) \\ \gg \Upsilon \succ (\omega{+}3_{3,4}) \\ (3\omega_{2,3}) \end{matrix} \times (3\omega{+}1_{4,3}) \begin{matrix} (2{-}\omega_{3,2}) \\ \gg \Upsilon \succ (\omega{+}3_{4,3}) \\ (\omega{+}2_{4,1}) \end{matrix}$$

Objectal action

$$(3\omega_{2,3}) \gg \Upsilon \begin{matrix} (3\omega{+}1_{3,4}) \\ \succ (2\omega{+}1_{1,4}) \\ (\omega{+}3_{3,4}) \end{matrix} \times (\omega{+}2_{1,4}) \gg \Upsilon \begin{matrix} (3\omega{+}1_{4,3}) \\ \succ (2{-}\omega_{3,2}) \\ (\omega{+}3_{4,3}) \end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \begin{matrix} (\omega{+}3_{3,4}) \\ \succ (2\omega{+}1_{1,4}) \\ (3\omega{+}1_{3,4}) \end{matrix} \times (\omega{+}2_{4,1}) \gg \Upsilon \begin{matrix} (\omega{+}3_{4,3}) \\ \succ (2{-}\omega_{3,2}) \\ (3\omega{+}1_{4,3}) \end{matrix}$$

$$(\omega{+}3_{3,4}) \gg \Upsilon \begin{matrix} (3\omega_{2,3}) \\ \succ (2\omega{+}1_{1,4}) \\ (3\omega{+}1_{3,4}) \end{matrix} \times (\omega{+}2_{4,1}) \gg \Upsilon \begin{matrix} (\omega{+}3_{4,3}) \\ \succ (3\omega{+}1_{4,3}) \\ (2{-}\omega_{3,2}) \end{matrix}$$

$$(\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(3\omega+1_{3,4})\\ \succ (2\omega+1_{1,4})\\ (3\omega_{2,3})\end{matrix} \times (\omega+2_{4,1}) \gg_{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ (3\omega+1_{4,3})\\ (\omega+3_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ (2\omega+1_{1,4})\\ (\omega+3_{3,4})\end{matrix} \times (\omega+2_{4,1}) \gg_{\Upsilon} \begin{matrix}(3\omega+1_{4,3})\\ \succ (\omega+3_{4,3})\\ (2\text{-}\omega_{3,2})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg_{\Upsilon} \begin{matrix}(\omega+3_{3,4})\\ \succ (2\omega+1_{1,4})\\ (3\omega_{2,3})\end{matrix} \times (\omega+2_{4,1}) \gg_{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ (\omega+3_{3,4})\\ (3\omega+1_{3,4})\end{matrix}$$

Interpretative action

$$(3\omega_{2,3}) \gg_{\Upsilon} \begin{matrix}(2\omega+1_{1,4})\\ \succ (3\omega+1_{3,4})\\ (\omega+3_{3,4})\end{matrix} \times (\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(3\omega+1_{3,4})\\ \succ (2\text{-}\omega_{3,2})\\ (\omega+2_{4,1})\end{matrix}$$

$$(3\omega_{2,3}) \gg_{\Upsilon} \begin{matrix}(\omega+3_{3,4})\\ \succ (3\omega+1_{3,4})\\ (2\omega+1_{1,4})\end{matrix} \times (\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(\omega+2_{4,1})\\ \succ (2\text{-}\omega_{3,2})\\ (3\omega+1_{3,4})\end{matrix}$$

$$(\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ (3\omega+1_{3,4})\\ (2\omega+1_{1,4})\end{matrix} \times (\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(\omega+2_{4,1})\\ \succ (3\omega+1_{4,3})\\ (2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(2\omega+1_{1,4})\\ \succ (3\omega+1_{3,4})\\ (3\omega_{2,3})\end{matrix} \times (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ (3\omega+1_{4,3})\\ (\omega+2_{4,1})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ (3\omega+1_{3,4})\\ (\omega+3_{3,4})\end{matrix} \times (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(3\omega+1_{4,3})\\ \succ (\omega+2_{1,4})\\ (2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega+1_{1,4}) \gg_{\Upsilon} \begin{matrix}(\omega+3_{3,4})\\ \succ (3\omega+1_{3,4})\\ (3\omega_{2,3})\end{matrix} \times (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ (\omega+2_{4,1})\\ (3\omega+1_{4,3})\end{matrix}$$

7. Pre-semiotic dual system

$(3\omega{+}1_{3,4}\ 2\omega{+}2_{1,2,4}\ \omega{+}2_{1,4}\ 2\omega_{1,2}) \times (1{-}\omega_{2,1}\ 2\omega{+}1_{4,1}\ 2\omega{+}2_{4,2,1}\ \omega{+}3_{4,3})$

Qualitative action

$$(\omega{+}2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}2_{1,2,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(\omega{+}3_{4,3})\end{matrix} (2\omega{+}1_{4,1})$$

$$(\omega{+}2_{1,4}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega{+}1_{3,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{4,3})\\(2\omega{+}2_{4,2,1})\end{matrix} (2\omega{+}1_{4,1})$$

$$(2\omega{+}2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(\omega{+}2_{1,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}1_{4,1})\\(\omega{+}3_{4,3})\end{matrix} (2\omega{+}2_{4,2,1})$$

$$(2\omega{+}2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{1,4})\\(3\omega{+}1_{3,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}1_{4,1})\end{matrix} (2\omega{+}2_{4,2,1})$$

$$(3\omega{+}1_{3,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{1,4})\\(2\omega{+}2_{1,2,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}1_{4,1})\end{matrix} (\omega{+}3_{4,3})$$

$$(3\omega{+}1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(\omega{+}2_{1,4})\end{matrix} (2\omega_{1,2}) \times (1{-}\omega_{2,1}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}1_{4,1})\\(2\omega{+}2_{4,2,1})\end{matrix} (\omega{+}3_{4,3})$$

Medial action

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}2_{1,2,4})\end{matrix} (\omega{+}2_{1,4}) \times (2\omega{+}1_{4,1}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(\omega{+}3_{4,3})\end{matrix} (1{-}\omega_{2,1})$$

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega{+}1_{3,4})\end{matrix} (\omega{+}2_{1,4}) \times (2\omega{+}1_{4,1}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{4,3})\\(2\omega{+}2_{4,2,1})\end{matrix} (1{-}\omega_{2,1})$$

$$(2\omega_{1,2}) \qquad\qquad (\omega+3_{4,3})$$
$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ (\omega+2_{1,4}) \times (2\omega+1_{4,1}) \gg \Upsilon \succ (2\omega+2_{4,2,1})$$
$$(3\omega+1_{3,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$

$$(3\omega+1_{3,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$
$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ (\omega+2_{1,4}) \times (2\omega+1_{4,1}) \gg \Upsilon \succ (2\omega+2_{4,2,1})$$
$$(2\omega_{1,2}) \qquad\qquad (\omega+3_{4,3})$$

$$(2\omega_{1,2}) \qquad\qquad (2\omega+2_{4,2,1})$$
$$(3\omega+1_{3,4}) \gg \Upsilon \succ (\omega+2_{1,4}) \times (2\omega+1_{4,1}) \gg \Upsilon \succ (\omega+3_{4,3})$$
$$(2\omega+2_{1,2,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$

$$(2\omega+2_{1,2,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$
$$(3\omega+1_{3,4}) \gg \Upsilon \succ (\omega+2_{1,4}) \times (2\omega+1_{4,1}) \gg \Upsilon \succ (\omega+3_{4,3})$$
$$(2\omega_{1,2}) \qquad\qquad (2\omega+2_{4,2,1})$$

Objectal action

$$(3\omega+1_{3,4}) \qquad\qquad (2\omega+1_{4,1})$$
$$(2\omega_{1,2}) \gg \Upsilon \succ (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ (1\text{-}\omega_{2,1})$$
$$(\omega+2_{1,4}) \qquad\qquad (\omega+3_{4,3})$$

$$(\omega+2_{1,4}) \qquad\qquad (\omega+3_{4,3})$$
$$(2\omega_{1,2}) \gg \Upsilon \succ (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ (1\text{-}\omega_{2,1})$$
$$(3\omega+1_{3,4}) \qquad\qquad (2\omega+1_{4,1})$$

$$(2\omega_{1,2}) \qquad\qquad (\omega+3_{4,3})$$
$$(\omega+2_{1,4}) \gg \Upsilon \succ (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ (2\omega+1_{4,1})$$
$$(3\omega+1_{3,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$

$$(3\omega+1_{3,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$
$$(\omega+2_{1,4}) \gg \Upsilon \succ (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ (2\omega+1_{4,1})$$
$$(2\omega_{1,2}) \qquad\qquad (\omega+3_{4,3})$$

$$(2\omega_{1,2}) \qquad\qquad (2\omega+1_{4,1})$$
$$(3\omega+1_{3,4}) \gg \Upsilon \succ (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ (\omega+3_{4,3})$$
$$(\omega+2_{1,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$

$$(\omega+2_{1,4}) \qquad\qquad (1\text{-}\omega_{2,1})$$
$$(3\omega+1_{3,4}) \gg \Upsilon \succ (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ (\omega+3_{4,3})$$
$$(2\omega_{1,2}) \qquad\qquad (2\omega+1_{4,1})$$

Interpretative action

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega+1_{3,4})\\(\omega+2_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(2\omega+1_{4,1})\\(1-\omega_{2,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega+1_{3,4})\\(2\omega+2_{1,2,4})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(2\omega+2_{4,2,1})\\(1-\omega_{2,1})\\(2\omega+1_{4,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \curlyvee \succ \begin{matrix}(2\omega_{1,2})\\(3\omega+1_{3,4})\\(2\omega+2_{1,2,4})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(2\omega+2_{4,2,1})\\(2\omega+1_{4,1})\\(1-\omega_{2,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \curlyvee \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega+1_{3,4})\\(2\omega_{1,2})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1-\omega_{2,1})\\(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(2\omega_{1,2})\\(3\omega+1_{3,4})\\(\omega+2_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\\(1-\omega_{2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega+1_{3,4})\\(2\omega_{1,2})\end{matrix} \times (\omega+3_{4,3}) \gg \curlyvee \succ \begin{matrix}(1-\omega_{2,1})\\(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

8. Pre-semiotic dual system

$$(3\omega+1_{3,4}\ 2\omega+2_{1,2,4}\ \omega+2_{1,4}\ 3\omega_{2,3}) \times (2-\omega_{3,2}\ 2\omega+1_{4,1}\ 2\omega+2_{4,2,1}\ \omega+3_{4,3})$$

Qualitative action

$$(\omega+2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3\omega+1_{3,4})\\(3\omega_{2,3})\\(2\omega+2_{1,2,4})\end{matrix} \times (2-\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(2\omega+2_{4,2,1})\\(2\omega+1_{4,1})\\(\omega+3_{4,3})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \curlyvee \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega+1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (2-\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(\omega+3_{4,3})\\(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg_\Upsilon \begin{matrix}(3\omega+1_{3,4})\\ \succ\\ (\omega+2_{1,4})\end{matrix} (3\omega_{2,3}) \quad \times \quad (2\text{-}\omega_{3,2}) \gg_\Upsilon \begin{matrix}(2\omega+1_{4,1})\\ \succ\\ (\omega+3_{4,3})\end{matrix} (2\omega+2_{4,2,1})$$

$$(2\omega+2_{1,2,4}) \gg_\Upsilon \begin{matrix}(\omega+2_{1,4})\\ \succ\\ (3\omega+1_{3,4})\end{matrix} (3\omega_{2,3}) \quad \times \quad (2\text{-}\omega_{3,2}) \gg_\Upsilon \begin{matrix}(\omega+3_{4,3})\\ \succ\\ (2\omega+1_{4,1})\end{matrix} (2\omega+2_{4,2,1})$$

$$(3\omega+1_{3,4}) \gg_\Upsilon \begin{matrix}(\omega+2_{1,4})\\ \succ\\ (2\omega+2_{1,2,4})\end{matrix} (3\omega_{2,3}) \quad \times \quad (2\text{-}\omega_{3,2}) \gg_\Upsilon \begin{matrix}(2\omega+2_{4,2,1})\\ \succ\\ (2\omega+1_{4,1})\end{matrix} (\omega+3_{4,3})$$

$$(3\omega+1_{3,4}) \gg_\Upsilon \begin{matrix}(2\omega+2_{1,2,4})\\ \succ\\ (\omega+2_{1,4})\end{matrix} (3\omega_{2,3}) \quad \times \quad (2\text{-}\omega_{3,2}) \gg_\Upsilon \begin{matrix}(2\omega+1_{4,1})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (\omega+3_{4,3})$$

Medial action

$$(3\omega_{2,3}) \gg_\Upsilon \begin{matrix}(3\omega+1_{3,4})\\ \succ\\ (2\omega+2_{1,2,4})\end{matrix} (\omega+2_{1,4}) \quad \times \quad (2\omega+1_{4,1}) \gg_\Upsilon \begin{matrix}(2\omega+2_{4,2,1})\\ \succ\\ (\omega+3_{4,3})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(3\omega_{2,3}) \gg_\Upsilon \begin{matrix}(2\omega+2_{1,2,4})\\ \succ\\ (3\omega+1_{3,4})\end{matrix} (\omega+2_{1,4}) \quad \times \quad (2\omega+1_{4,1}) \gg_\Upsilon \begin{matrix}(\omega+3_{4,3})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(2\omega+2_{1,2,4}) \gg_\Upsilon \begin{matrix}(3\omega_{2,3})\\ \succ\\ (3\omega+1_{3,4})\end{matrix} (\omega+2_{1,4}) \quad \times \quad (2\omega+1_{4,1}) \gg_\Upsilon \begin{matrix}(\omega+3_{4,3})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (2\omega+2_{4,2,1})$$

$$(2\omega+2_{1,2,4}) \gg_\Upsilon \begin{matrix}(3\omega+1_{3,4})\\ \succ\\ (\omega+2_{1,4})\end{matrix} (3\omega_{2,3}) \quad \times \quad (2\omega+1_{4,1}) \gg_\Upsilon \begin{matrix}(\omega+3_{4,3})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(3\omega+1_{3,4}) \gg_\Upsilon \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+2_{1,4})\end{matrix} (2\omega+2_{1,2,4}) \quad \times \quad (2\omega+1_{4,1}) \gg_\Upsilon \begin{matrix}(\omega+3_{4,3})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(3\omega+1_{3,4}) \gg_\Upsilon \begin{matrix}(2\omega+2_{1,2,4})\\ \succ\\ (\omega+2_{1,4})\end{matrix} (3\omega_{2,3}) \quad \times \quad (2\omega+1_{4,1}) \gg_\Upsilon \begin{matrix}(2\omega+2_{4,2,1})\\ \succ\\ (\omega+3_{4,3})\end{matrix} (2\text{-}\omega_{3,2})$$

Objectal action

$$(3\omega_{2,3}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}2_{1,2,4})\\(\omega{+}2_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(2\omega{+}1_{4,1})\\(2\omega{+}2_{4,2,1}) \gg \curlyvee \succ (2\text{-}\omega_{3,2})\\(\omega{+}3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{1,4})\\(2\omega{+}2_{1,2,4})\\(3\omega{+}1_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\omega{+}3_{4,3})\\(2\omega{+}2_{4,2,1}) \gg \curlyvee \succ (2\text{-}\omega_{3,2})\\(2\omega{+}1_{4,1})\end{matrix}$$

$$(\omega{+}2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3\omega_{2,3})\\(2\omega{+}2_{1,2,4})\\(3\omega{+}1_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\omega{+}3_{4,3})\\(2\omega{+}2_{4,2,1}) \gg \curlyvee \succ (2\omega{+}1_{4,1})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega{+}2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(2\omega{+}2_{1,2,4})\\(3\omega_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(2\text{-}\omega_{3,2})\\(2\omega{+}2_{4,2,1}) \gg \curlyvee \succ (2\omega{+}1_{4,1})\\(\omega{+}3_{4,3})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \gg \curlyvee \succ \begin{matrix}(3\omega_{2,3})\\(2\omega{+}2_{1,2,4})\\(\omega{+}2_{1,4})\end{matrix} \times \quad \begin{matrix}(2\omega{+}1_{4,1})\\(2\omega{+}2_{4,2,1}) \gg \curlyvee \succ (\omega{+}3_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{1,4})\\(2\omega{+}2_{1,2,4})\\(3\omega_{2,3})\end{matrix} \times \quad \begin{matrix}(2\text{-}\omega_{3,2})\\(2\omega{+}2_{4,2,1}) \gg \curlyvee \succ (\omega{+}3_{4,3})\\(2\omega{+}1_{4,1})\end{matrix}$$

Interpretative action

$$(3\omega_{2,3}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega{+}1_{3,4})\\(\omega{+}2_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(2\omega{+}1_{4,1})\\(\omega{+}3_{4,3}) \gg \curlyvee \succ (2\text{-}\omega_{3,2})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

$$(3\omega_{2,3}) \gg \curlyvee \succ \begin{matrix}(\omega{+}2_{1,4})\\(3\omega{+}1_{3,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \quad \times \quad \begin{matrix}(2\omega{+}2_{4,2,1})\\(\omega{+}3_{4,3}) \gg \curlyvee \succ (2\text{-}\omega_{3,2})\\(2\omega{+}1_{4,1})\end{matrix}$$

$$(\omega{+}2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3\omega_{2,3})\\(3\omega{+}1_{3,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \quad \times \quad \begin{matrix}(2\omega{+}2_{4,2,1})\\(\omega{+}3_{4,3}) \gg \curlyvee \succ (2\omega{+}1_{4,1})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega+1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\text{-}\omega_{3,2})\\(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(3\omega+1_{3,4})\\(\omega+2_{1,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega+1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\text{-}\omega_{3,2})\\(2\omega+2_{4,2,1})\\(2\omega+1_{4,1})\end{matrix}$$

9. Pre-semiotic dual system

$(3\omega+1_{3,4}\ 2\omega+2_{1,2,4}\ \omega+3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega+1_{4,3}\ 2\omega+2_{4,2,1}\ \omega+3_{4,3})$

Qualitative action

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(3\omega_{2,3})\\(2\omega+2_{1,2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{4,2,1})\\(3\omega+1_{4,3})\\(\omega+3_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega_{2,3})\\(3\omega+1_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(3\omega+1_{4,3})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(3\omega_{2,3})\\(\omega+3_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{3,4})\\(2\omega+2_{4,2,1})\\(\omega+3_{4,3})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega_{2,3})\\(3\omega+1_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{4,3})\\(2\omega+2_{4,2,1})\\(3\omega+1_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega_{2,3})\\(2\omega+2_{1,2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{4,2,1})\\(3\omega+1_{4,3})\\(\omega+3_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega_{2,3})\\(\omega+3_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{4,3})\\(2\omega+2_{4,2,1})\\(\omega+3_{4,3})\end{matrix}$$

Medial action

$$(3\omega_{2,3}) \gg \curlyvee \begin{matrix}(3\omega+1_{3,4})\\ \succ (\omega+3_{3,4})\\ (2\omega+2_{1,2,4})\end{matrix} \times (3\omega+1_{4,3}) \gg \curlyvee \begin{matrix}(2\omega+2_{4,2,1})\\ \succ (2-\omega_{3,2})\\ (\omega+3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg \curlyvee \begin{matrix}(2\omega+2_{1,2,4})\\ \succ (\omega+3_{3,4})\\ (3\omega+1_{3,4})\end{matrix} \times (3\omega+1_{4,3}) \gg \curlyvee \begin{matrix}(\omega+3_{4,3})\\ \succ (2-\omega_{3,2})\\ (2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \curlyvee \begin{matrix}(3\omega_{2,3})\\ \succ (\omega+3_{3,4})\\ (3\omega+1_{3,4})\end{matrix} \times (3\omega+1_{4,3}) \gg \curlyvee \begin{matrix}(\omega+3_{4,3})\\ \succ (2\omega+2_{4,2,1})\\ (2-\omega_{3,2})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \curlyvee \begin{matrix}(3\omega+1_{3,4})\\ \succ (\omega+3_{3,4})\\ (3\omega_{2,3})\end{matrix} \times (3\omega+1_{4,3}) \gg \curlyvee \begin{matrix}(2-\omega_{3,2})\\ \succ (2\omega+2_{4,2,1})\\ (\omega+3_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \curlyvee \begin{matrix}(3\omega_{2,3})\\ \succ (\omega+3_{3,4})\\ (2\omega+2_{1,2,4})\end{matrix} \times (3\omega+1_{4,3}) \gg \curlyvee \begin{matrix}(2\omega+2_{4,2,1})\\ \succ (\omega+3_{4,3})\\ (2-\omega_{3,2})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg \curlyvee \begin{matrix}(2\omega+2_{1,2,4})\\ \succ (\omega+3_{3,4})\\ (3\omega_{2,3})\end{matrix} \times (3\omega+1_{4,3}) \gg \curlyvee \begin{matrix}(2-\omega_{3,2})\\ \succ (\omega+3_{4,3})\\ (2\omega+2_{4,2,1})\end{matrix}$$

Objective action

$$(3\omega_{2,3}) \gg \curlyvee \begin{matrix}(3\omega+1_{3,4})\\ \succ (2\omega+2_{1,2,4})\\ (\omega+3_{3,4})\end{matrix} \times (2\omega+2_{4,2,1}) \gg \curlyvee \begin{matrix}(3\omega+1_{4,3})\\ \succ (2-\omega_{3,2})\\ (\omega+3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg \curlyvee \begin{matrix}(\omega+3_{3,4})\\ \succ (2\omega+2_{1,2,4})\\ (3\omega+1_{3,4})\end{matrix} \times (2\omega+2_{4,2,1}) \gg \curlyvee \begin{matrix}(\omega+3_{4,3})\\ \succ (2-\omega_{3,2})\\ (3\omega+1_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \curlyvee \begin{matrix}(3\omega_{2,3})\\ \succ (2\omega+2_{1,2,4})\\ (3\omega+1_{3,4})\end{matrix} \times (2\omega+2_{4,2,1}) \gg \curlyvee \begin{matrix}(\omega+3_{4,3})\\ \succ (3\omega+1_{4,3})\\ (2-\omega_{3,2})\end{matrix}$$

$$(\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(3\omega+1_{3,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (2\omega+2_{1,2,4}) \quad \times \quad (2\omega+2_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (\omega+3_{4,3})\end{matrix} (3\omega+1_{4,3})$$

$$(3\omega+1_{3,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+3_{3,4})\end{matrix} (2\omega+2_{1,2,4}) \times \quad (2\omega+2_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(3\omega+1_{4,3})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (\omega+3_{4,3})$$

$$(3\omega+1_{3,4}) \gg_{\Upsilon} \begin{matrix}(\omega+3_{3,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (2\omega+2_{1,2,4}) \times \quad (2\omega+2_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (3\omega+1_{4,3})\end{matrix} (\omega+3_{4,3})$$

Interpretative action

$$(3\omega_{2,3}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{1,2,4})\\ \succ\\ (\omega+3_{3,4})\end{matrix} (3\omega+1_{3,4}) \quad \times \quad (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(3\omega+1_{4,3})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(3\omega_{2,3}) \gg_{\Upsilon} \begin{matrix}(\omega+3_{3,4})\\ \succ\\ (2\omega+2_{1,2,4})\end{matrix} (3\omega+1_{3,4}) \quad \times \quad (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{4,2,1})\\ \succ\\ (3\omega+1_{4,3})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (2\omega+2_{1,2,4})\end{matrix} (3\omega+1_{3,4}) \quad \times \quad (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{4,2,1})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (3\omega+1_{4,3})$$

$$(\omega+3_{3,4}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{1,2,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (3\omega+1_{3,4}) \quad \times \quad (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (3\omega+1_{4,3})$$

$$(2\omega+2_{1,2,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+3_{3,4})\end{matrix} (3\omega+1_{3,4}) \quad \times \quad (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(3\omega+1_{4,3})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(2\omega+2_{1,2,4}) \gg_{\Upsilon} \begin{matrix}(\omega+3_{3,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (3\omega+1_{3,4}) \quad \times \quad (\omega+3_{4,3}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{4,2,1})\\ \succ\\ (3\omega+1_{4,3})\end{matrix} (2\text{-}\omega_{3,2})$$

10. Pre-semiotic dual system

$(3\omega{+}1_{3,4}\ 2\omega{+}3_{2,4}\ \omega{+}3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega{+}1_{4,3}\ 3\omega{+}2_{4,2}\ \omega{+}3_{4,3})$

Qualitative action

$$(\omega{+}3_{3,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(3\omega_{2,3})\\(2\omega{+}3_{2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}2_{4,2})\\(3\omega{+}1_{4,3})\\(\omega{+}3_{4,3})\end{matrix}$$

$$(\omega{+}3_{3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}3_{2,4})\\(3\omega_{2,3})\\(3\omega{+}1_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{4,3})\\(3\omega{+}1_{4,3})\\(3\omega{+}2_{4,2})\end{matrix}$$

$$(2\omega{+}3_{2,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(3\omega_{2,3})\\(\omega{+}3_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{4,3})\\(3\omega{+}2_{4,2})\\(\omega{+}3_{4,3})\end{matrix}$$

$$(2\omega{+}3_{2,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{3,4})\\(3\omega_{2,3})\\(3\omega{+}1_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{4,3})\\(3\omega{+}2_{4,2})\\(3\omega{+}1_{4,3})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{3,4})\\(3\omega_{2,3})\\(2\omega{+}3_{2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}2_{4,2})\\(\omega{+}3_{4,3})\\(3\omega{+}1_{4,3})\end{matrix}$$

$$(3\omega{+}1_{3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega_{2,3})\\(\omega{+}3_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{4,3})\\(\omega{+}3_{4,3})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

Medial action

$$(3\omega_{2,3}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{3,4})\\(\omega{+}3_{3,4})\\(2\omega{+}3_{2,4})\end{matrix} \times (3\omega{+}1_{4,3}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}2_{4,2})\\(2\text{-}\omega_{3,2})\\(\omega{+}3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}3_{2,4})\\(\omega{+}3_{3,4})\\(3\omega{+}1_{3,4})\end{matrix} \times (3\omega{+}1_{4,3}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{4,3})\\(2\text{-}\omega_{3,2})\\(3\omega{+}2_{4,2})\end{matrix}$$

$$(2\omega+3_{2,4}) \gg\Upsilon\succ \begin{matrix}(3\omega_{2,3})\\(\omega+3_{3,4})\\(3\omega+1_{3,4})\end{matrix} \times (3\omega+1_{4,3}) \gg\Upsilon\succ \begin{matrix}(\omega+3_{4,3})\\(3\omega+2_{4,2})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega+3_{2,4}) \gg\Upsilon\succ \begin{matrix}(3\omega+1_{3,4})\\(\omega+3_{3,4})\\(3\omega_{2,3})\end{matrix} \times (3\omega+1_{4,3}) \gg\Upsilon\succ \begin{matrix}(2\text{-}\omega_{3,2})\\(3\omega+2_{4,2})\\(\omega+3_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg\Upsilon\succ \begin{matrix}(3\omega_{2,3})\\(\omega+3_{3,4})\\(2\omega+3_{2,4})\end{matrix} \times (3\omega+1_{4,3}) \gg\Upsilon\succ \begin{matrix}(3\omega+2_{4,2})\\(\omega+3_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg\Upsilon\succ \begin{matrix}(2\omega+3_{2,4})\\(\omega+3_{3,4})\\(3\omega_{2,3})\end{matrix} \times (3\omega+1_{4,3}) \gg\Upsilon\succ \begin{matrix}(2\text{-}\omega_{3,2})\\(3\omega+2_{4,2})\\(\omega+3_{4,3})\end{matrix}$$

Objectal action

$$(3\omega_{2,3}) \gg\Upsilon\succ \begin{matrix}(3\omega+1_{3,4})\\(2\omega+3_{2,4})\\(\omega+3_{3,4})\end{matrix} \times (3\omega+2_{4,2}) \gg\Upsilon\succ \begin{matrix}(3\omega+1_{4,3})\\(2\text{-}\omega_{3,2})\\(\omega+3_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg\Upsilon\succ \begin{matrix}(\omega+3_{3,4})\\(2\omega+3_{2,4})\\(3\omega+1_{3,4})\end{matrix} \times (3\omega+2_{4,2}) \gg\Upsilon\succ \begin{matrix}(\omega+3_{4,3})\\(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg\Upsilon\succ \begin{matrix}(3\omega_{2,3})\\(2\omega+3_{2,4})\\(3\omega+1_{3,4})\end{matrix} \times (3\omega+2_{4,2}) \gg\Upsilon\succ \begin{matrix}(\omega+3_{4,3})\\(3\omega+1_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega+3_{3,4}) \gg\Upsilon\succ \begin{matrix}(3\omega+1_{3,4})\\(2\omega+3_{2,4})\\(3\omega_{2,3})\end{matrix} \times (3\omega+2_{4,2}) \gg\Upsilon\succ \begin{matrix}(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\\(\omega+3_{4,3})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg\Upsilon\succ \begin{matrix}(3\omega_{2,3})\\(2\omega+3_{2,4})\\(\omega+3_{3,4})\end{matrix} \times (3\omega+2_{4,2}) \gg\Upsilon\succ \begin{matrix}(3\omega+1_{4,3})\\(\omega+3_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(3\omega+1_{3,4}) \gg\Upsilon\succ \begin{matrix}(\omega+3_{3,4})\\(2\omega+3_{2,4})\\(3\omega_{2,3})\end{matrix} \times (3\omega+2_{4,2}) \gg\Upsilon\succ \begin{matrix}(2\text{-}\omega_{3,2})\\(\omega+3_{4,3})\\(3\omega+1_{4,3})\end{matrix}$$

Interpretative action

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{2,4})\\(3\omega+1_{3,4})\\(\omega+3_{3,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{4,3})\\(2\text{-}\omega_{3,2})\\(3\omega+2_{4,2})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega+1_{3,4})\\(2\omega+3_{2,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(3\omega+2_{4,2})\\(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(3\omega+1_{3,4})\\(2\omega+3_{2,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(3\omega+2_{4,2})\\(3\omega+1_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{2,4})\\(3\omega+1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\\(3\omega+2_{4,2})\end{matrix}$$

$$(2\omega+3_{2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(3\omega+1_{3,4})\\(\omega+3_{3,4})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{4,3})\\(3\omega+2_{4,2})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega+3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega+1_{3,4})\\(3\omega_{2,3})\end{matrix} \times (\omega+3_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\\(3\omega+2_{4,2})\end{matrix}$$

11. Pre-semiotic dual system

$$(3\omega+2_{2,4}\ 2\omega+2_{1,2,4}\ \omega+2_{1,4}\ 2\omega_{1,2}) \times (1\text{-}\omega_{2,1}\ 2\omega+1_{4,1}\ 2\omega+2_{4,2,1}\ 2\omega+3_{4,2})$$

Qualitative action

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+2_{2,4})\\(2\omega_{1,2})\\(2\omega+2_{1,2,4})\end{matrix} \times (1\text{-}\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{4,2,1})\\(2\omega+1_{4,1})\\(2\omega+3_{4,2})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(2\omega_{1,2})\\(3\omega+2_{2,4})\end{matrix} \times (1\text{-}\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{4,2})\\(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega{+}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(2\omega{+}2_{1,2,4})\\(\omega{+}2_{1,4})\end{matrix} \times (1{-}\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}1_{4,1})\\(2\omega{+}2_{4,2,1})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$(2\omega{+}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}2_{1,4})\\(3\omega{+}2_{2,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \times (1{-}\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}1_{4,1})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

$$(3\omega{+}2_{2,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}2_{1,4})\\(2\omega{+}2_{1,2,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \times (1{-}\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}1_{4,1})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$(3\omega{+}2_{2,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(2\omega{+}2_{1,2,4})\\(\omega{+}2_{1,4})\end{matrix} \times (1{-}\omega_{2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}1_{4,1})\\(2\omega{+}3_{4,2})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

Medial action

$$(2\omega_{1,2}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(\omega{+}2_{1,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \times \begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}1_{4,1})\\(2\omega{+}3_{4,2})\end{matrix} \gg \Upsilon \succ (1{-}\omega_{2,1}) \quad :$$

$$(2\omega_{1,2}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(\omega{+}2_{1,4})\\(3\omega{+}2_{2,4})\end{matrix} \times \begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}1_{4,1})\\(2\omega{+}2_{4,2,1})\end{matrix} \gg \Upsilon \succ (1{-}\omega_{2,1})$$

$$(2\omega{+}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(2\omega_{1,2})\\(\omega{+}2_{1,4})\\(3\omega{+}2_{2,4})\end{matrix} \times \begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}1_{4,1})\\(1{-}\omega_{2,1})\end{matrix} \gg \Upsilon \succ (2\omega{+}2_{4,2,1})$$

$$(2\omega{+}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(\omega{+}2_{1,4})\\(2\omega_{1,2})\end{matrix} \times \begin{matrix}(1{-}\omega_{2,1})\\(2\omega{+}1_{4,1})\\(2\omega{+}3_{4,2})\end{matrix} \gg \Upsilon \succ (2\omega{+}2_{4,2,1})$$

$$(3\omega{+}2_{2,4}) \gg \Upsilon \succ \begin{matrix}(2\omega_{1,2})\\(\omega{+}2_{1,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \times \begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}1_{4,1})\\(1{-}\omega_{2,1})\end{matrix} \gg \Upsilon \succ (2\omega{+}3_{4,2})$$

$$(3\omega{+}2_{2,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(\omega{+}2_{1,4})\\(2\omega_{1,2})\end{matrix} \times \begin{matrix}(1{-}\omega_{2,1})\\(2\omega{+}1_{4,1})\\(2\omega{+}2_{4,2,1})\end{matrix} \gg \Upsilon \succ (2\omega{+}3_{4,2})$$

Objectal action

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(3\omega+2_{2,4})\\(2\omega+2_{1,2,4})\\(\omega+2_{1,4})\end{matrix} \times \begin{matrix}(2\omega+1_{4,1})\\(2\omega+2_{4,2,1}) \gg \curlyvee \succ (1\text{-}\omega_{2,1})\\(2\omega+3_{4,2})\end{matrix}$$

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(\omega+2_{1,4})\\(2\omega+2_{1,2,4})\\(3\omega+2_{2,4})\end{matrix} \times \begin{matrix}(2\omega+3_{4,2})\\(2\omega+2_{4,2,1}) \gg \curlyvee \succ (1\text{-}\omega_{2,1})\\(2\omega+1_{4,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \curlyvee \succ \begin{matrix}(2\omega_{1,2})\\(2\omega+2_{1,2,4})\\(3\omega+2_{2,4})\end{matrix} \times \begin{matrix}(2\omega+3_{4,2})\\(2\omega+2_{4,2,1}) \gg \curlyvee \succ (2\omega+1_{4,1})\\(1\text{-}\omega_{2,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \curlyvee \succ \begin{matrix}(3\omega+2_{2,4})\\(2\omega+2_{1,2,4})\\(2\omega_{1,2})\end{matrix} \times \begin{matrix}(1\text{-}\omega_{2,1})\\(2\omega+2_{4,2,1}) \gg \curlyvee \succ (2\omega+1_{4,1})\\(2\omega+3_{4,2})\end{matrix}$$

$$(3\omega+2_{2,4}) \gg \curlyvee \succ \begin{matrix}(2\omega_{1,2})\\(2\omega+2_{1,2,4})\\(\omega+2_{1,2,4})\end{matrix} \times \begin{matrix}(2\omega+1_{4,1})\\(2\omega+2_{4,2,1}) \gg \curlyvee \succ (2\omega+3_{4,2})\\(1\text{-}\omega_{2,1})\end{matrix}$$

$$(3\omega+2_{2,4}) \gg \curlyvee \succ \begin{matrix}(\omega+2_{1,4})\\(2\omega+2_{1,2,4})\\(2\omega_{1,2})\end{matrix} \times \begin{matrix}(1\text{-}\omega_{2,1})\\(2\omega+2_{4,2,1}) \gg \curlyvee \succ (2\omega+3_{4,2})\\(2\omega+1_{4,1})\end{matrix}$$

Interpretative action

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega+2_{2,4})\\(\omega+2_{1,4})\end{matrix} \times \begin{matrix}(2\omega+1_{4,1})\\(2\omega+3_{4,2}) \gg \curlyvee \succ (1\text{-}\omega_{2,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega_{1,2}) \gg \curlyvee \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega+2_{2,4})\\(2\omega+2_{1,2,4})\end{matrix} \times \begin{matrix}(2\omega+2_{4,2,1})\\(2\omega+3_{4,2}) \gg \curlyvee \succ (1\text{-}\omega_{2,1})\\(2\omega+1_{4,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \curlyvee \succ \begin{matrix}(2\omega_{1,2})\\(3\omega+2_{2,4})\\(2\omega+2_{1,2,4})\end{matrix} \times \begin{matrix}(2\omega+2_{4,2,1})\\(2\omega+3_{4,2}) \gg \curlyvee \succ (2\omega+1_{4,1})\\(1\text{-}\omega_{2,1})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega+2_{2,4})\\(2\omega_{1,2})\end{matrix} \times (2\omega+3_{4,2}) \gg \Upsilon \succ \begin{matrix}(1\text{-}\omega_{2,1})\\(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(2\omega_{1,2})\\(3\omega+2_{2,4})\\(\omega+2_{1,4})\end{matrix} \times (2\omega+3_{4,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\\(1\text{-}\omega_{2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega+2_{2,4})\\(2\omega_{1,2})\end{matrix} \times (2\omega+3_{4,2}) \gg \Upsilon \succ \begin{matrix}(1\text{-}\omega_{2,1})\\(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

12. Pre-semiotic dual system

$(3\omega+2_{2,4}\ 2\omega+2_{1,2,4}\ \omega+2_{1,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 2\omega+1_{4,1}\ 2\omega+2_{4,2,1}\ 2\omega+3_{4,2})$

Qualitative action

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+2_{2,4})\\(3\omega_{2,3})\\(2\omega+2_{1,2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{4,2,1})\\(2\omega+1_{4,1})\\(2\omega+3_{4,2})\end{matrix}$$

$$(\omega+2_{1,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega_{2,3})\\(3\omega+2_{2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{4,2})\\(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+2_{2,4})\\(3\omega_{2,3})\\(\omega+2_{1,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(2\omega+2_{4,2,1})\\(2\omega+3_{4,2})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega_{2,3})\\(3\omega+2_{2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{4,2})\\(2\omega+2_{4,2,1})\\(2\omega+1_{4,1})\end{matrix}$$

$$(3\omega+2_{2,4}) \gg \Upsilon \succ \begin{matrix}(\omega+2_{1,4})\\(3\omega_{2,3})\\(2\omega+2_{1,2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{4,2,1})\\(2\omega+3_{4,2})\\(2\omega+1_{4,1})\end{matrix}$$

$$(3\omega+2_{2,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega_{2,3})\\(\omega+2_{1,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+1_{4,1})\\(2\omega+3_{4,2})\\(2\omega+2_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(3\omega{+}2_{2,4})\\(3\omega_{2,3})\gg\curlyvee\succ(\omega{+}2_{1,4})\\(2\omega{+}2_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}1_{4,1})\ \gg\curlyvee\succ(2{-}\omega_{3,2})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$\begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega_{2,3})\gg\curlyvee\succ(\omega{+}2_{1,4})\\(3\omega{+}2_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}1_{4,1})\ \gg\curlyvee\succ(2{-}\omega_{3,2})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

$$\begin{matrix}(3\omega_{2,3})\\(2\omega{+}2_{1,2,4})\gg\curlyvee\succ(\omega{+}2_{1,4})\\(3\omega{+}2_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}1_{4,1})\ \gg\curlyvee\succ(2\omega{+}2_{4,2,1})\\(2{-}\omega_{3,2})\end{matrix}$$

$$\begin{matrix}(3\omega{+}2_{2,4})\\(2\omega{+}2_{1,2,4})\gg\curlyvee\succ(\omega{+}2_{1,4})\\(3\omega_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}1_{4,1})\ \gg\curlyvee\succ(2\omega{+}2_{4,2,1})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$\begin{matrix}(3\omega_{2,3})\\(3\omega{+}2_{2,4})\ \gg\curlyvee\succ(\omega{+}2_{1,4})\\(2\omega{+}2_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}1_{4,1})\ \gg\curlyvee\succ(2\omega{+}3_{4,2})\\(2{-}\omega_{3,2})\end{matrix}$$

$$\begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega{+}2_{2,4})\ \gg\curlyvee\succ(\omega{+}2_{1,4})\\(3\omega_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(2{-}\omega_{3,2})\\(2\omega{+}1_{4,1})\ \gg\curlyvee\ \ \succ(2\omega{+}3_{4,2})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(3\omega{+}2_{2,4})\\(3\omega_{2,3})\gg\curlyvee\succ(2\omega{+}2_{1,2,4})\\(\omega{+}2_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(2\omega{+}1_{4,1})\\(2\omega{+}2_{4,2,1})\gg\curlyvee\succ(2{-}\omega_{3,2})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$\begin{matrix}(\omega{+}2_{1,4})\\(3\omega_{2,3})\gg\curlyvee\succ(2\omega{+}2_{1,2,4})\\(3\omega{+}2_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}2_{4,2,1})\gg\curlyvee\succ(2{-}\omega_{3,2})\\(2\omega{+}1_{4,1})\end{matrix}$$

$$\begin{matrix}(3\omega_{2,3})\\(\omega{+}2_{1,4})\gg\curlyvee\succ(2\omega{+}2_{1,2,4})\\(3\omega{+}2_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}2_{4,2,1})\gg\curlyvee\succ(2\omega{+}1_{4,1})\\(2{-}\omega_{3,2})\end{matrix}$$

$$(\omega+2_{1,4}) \gg_{\Upsilon} \begin{matrix}(3\omega+2_{2,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(2-\omega_{3,2})\\ \succ\\ (2\omega+3_{4,2})\end{matrix} (2\omega+1_{4,1})$$

$$(3\omega+2_{2,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+2_{1,4})\end{matrix} (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(2\omega+1_{4,1})\\ \succ\\ (2-\omega_{3,2})\end{matrix} (2\omega+3_{4,2})$$

$$(3\omega+2_{2,4}) \gg_{\Upsilon} \begin{matrix}(\omega+2_{1,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (2\omega+2_{1,2,4}) \times (2\omega+2_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(2-\omega_{3,2})\\ \succ\\ (2\omega+1_{4,1})\end{matrix} (2\omega+3_{4,2})$$

Interpretative action

$$(3\omega_{2,3}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{1,2,4})\\ \succ\\ (\omega+2_{1,4})\end{matrix} (3\omega+2_{2,4}) \times (2\omega+3_{4,2}) \gg_{\Upsilon} \begin{matrix}(2\omega+1_{4,1})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (2-\omega_{3,2})$$

$$(3\omega_{2,3}) \gg_{\Upsilon} \begin{matrix}(\omega+2_{1,4})\\ \succ\\ (2\omega+2_{1,2,4})\end{matrix} (3\omega+2_{2,4}) \times (2\omega+3_{4,2}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{4,2,1})\\ \succ\\ (2\omega+1_{4,1})\end{matrix} (2-\omega_{3,2})$$

$$(\omega+2_{1,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (2\omega+2_{1,2,4})\end{matrix} (3\omega+2_{2,4}) \times (2\omega+3_{4,2}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{4,2,1})\\ \succ\\ (2-\omega_{3,2})\end{matrix} (2\omega+1_{4,1})$$

$$(\omega+2_{1,4}) \gg_{\Upsilon} \begin{matrix}(2\omega+2_{1,2,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (3\omega+2_{2,4}) \times (2\omega+3_{4,2}) \gg_{\Upsilon} \begin{matrix}(2-\omega_{3,2})\\ \succ\\ (2\omega+2_{4,2,1})\end{matrix} (2\omega+1_{4,1})$$

$$(2\omega+2_{1,2,4}) \gg_{\Upsilon} \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+2_{1,4})\end{matrix} (3\omega+2_{2,4}) \times (2\omega+3_{4,2}) \gg_{\Upsilon} \begin{matrix}(2\omega+1_{4,1})\\ \succ\\ (2-\omega_{3,2})\end{matrix} (2\omega+2_{4,2,1})$$

$$(2\omega+2_{1,2,4}) \gg_{\Upsilon} \begin{matrix}(\omega+2_{1,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (3\omega+2_{2,4}) \times (2\omega+3_{4,2}) \gg_{\Upsilon} \begin{matrix}(2-\omega_{3,2})\\ \succ\\ (2\omega+1_{4,1})\end{matrix} (2\omega+2_{4,2,1})$$

13. Pre-semiotic system

$(3\omega{+}2_{2,4}\ 2\omega{+}2_{1,2,4}\ \omega{+}3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega{+}1_{4,3}\ 2\omega{+}2_{4,2,1}\ 2\omega{+}3_{4,2})$

Qualitative action

$$(\omega{+}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$(\omega{+}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega{+}2_{2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

$$(2\omega{+}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(\omega{+}3_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{4,3})\\(3\omega{+}2_{4,2})\end{matrix}$$

$$(2\omega{+}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}3_{3,4})\\(3\omega{+}2_{2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}3_{4,2})\\(3\omega{+}1_{4,3})\end{matrix}$$

$$(3\omega{+}2_{2,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}3_{3,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(3\omega{+}1_{4,3})\end{matrix}$$

$$(3\omega{+}2_{2,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(\omega{+}3_{3,4})\end{matrix} \times (2\text{-}\omega_{3,2}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{4,3})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

Medial action

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \times (3\omega{+}1_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega{+}2_{2,4})\end{matrix} \times (3\omega{+}1_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}3_{4,2})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(3\omega+2_{2,4})\\(\omega+3_{3,4})\end{matrix} \times (3\omega+1_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{4,2})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega+2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+2_{2,4})\\(3\omega_{2,3})\\(\omega+3_{3,4})\end{matrix} \times (3\omega+1_{4,3}) \gg \Upsilon \succ \begin{matrix}(2-\omega_{3,2})\\(2\omega+3_{4,2})\end{matrix}$$

$$(3\omega+2_{2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(2\omega+2_{1,2,4})\\(\omega+3_{3,4})\end{matrix} \times (3\omega+1_{4,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{4,2,1})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(3\omega+2_{2,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega_{2,3})\\(\omega+3_{3,4})\end{matrix} \times (3\omega+1_{4,3}) \gg \Upsilon \succ \begin{matrix}(2-\omega_{3,2})\\(2\omega+2_{4,2,1})\end{matrix}$$

Objectal action

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(3\omega+2_{2,4})\\(2\omega+2_{1,2,4})\\(\omega+3_{3,4})\end{matrix} \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{4,3})\\(2\text{-}\omega_{3,2})\\(2\omega+3_{4,2})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(2\omega+2_{1,2,4})\\(3\omega+2_{2,4})\end{matrix} \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{4,2})\\(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(2\omega+2_{1,2,4})\\(3\omega+2_{2,4})\end{matrix} \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{4,2})\\(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega+2_{2,4})\\(2\omega+2_{1,2,4})\\(3\omega_{2,3})\end{matrix} \times (2\omega+2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{4,2})\\(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{1,2,4})\\(3\omega+2_{2,4})\\(\omega+3_{3,4})\end{matrix} \times (2\omega+3_{4,2}) \gg \Upsilon \succ \begin{matrix}(3\omega+1_{4,3})\\(2\text{-}\omega_{3,2})\\(2\omega+2_{4,2,1})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega+2_{2,4})\\(2\omega+2_{1,2,4})\end{matrix} \times (2\omega+3_{4,2}) \gg \Upsilon \succ \begin{matrix}(2\omega+2_{4,2,1})\\(2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\end{matrix}$$

$$(\omega{+}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(2\omega{+}2_{1,2,4})\end{matrix} \times \begin{matrix}(2\omega{+}2_{4,2,1})\\(2\omega{+}3_{4,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega{+}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{1,2,4})\\(3\omega{+}2_{2,4})\end{matrix} \times \begin{matrix}(2\text{-}\omega_{3,2})\\(2\omega{+}3_{4,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{4,3})\\(2\omega{+}2_{4,2,1})\end{matrix}$$

$$(2\omega{+}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(\omega{+}3_{3,4})\end{matrix} \times \begin{matrix}(3\omega{+}1_{4,3})\\(2\omega{+}3_{4,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega{+}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}3_{3,4})\\(3\omega{+}2_{2,4})\end{matrix} \times \begin{matrix}(2\text{-}\omega_{3,2})\\(2\omega{+}3_{4,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(2\omega{+}2_{4,2,1})\\(3\omega{+}1_{4,3})\end{matrix}$$

14. Pre-semiotic dual system

$(3\omega{+}2_{2,4}\ 2\omega{+}3_{2,4}\ \omega{+}3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega{+}1_{4,3}\ 3\omega{+}2_{4,2}\ 2\omega{+}3_{4,2})$

Qualitative action

$$(\omega{+}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(2\omega{+}3_{2,4})\end{matrix} \times \begin{matrix}(3\omega{+}2_{4,2})\\(2\text{-}\omega_{3,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{4,3})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$(\omega{+}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega{+}3_{2,4})\\(3\omega{+}2_{2,4})\end{matrix} \times \begin{matrix}(2\omega{+}3_{4,2})\\(2\text{-}\omega_{3,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(3\omega{+}1_{4,3})\\(3\omega{+}2_{4,2})\end{matrix}$$

$$(2\omega{+}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{2,4})\\(\omega{+}3_{3,4})\end{matrix} \times \begin{matrix}(3\omega{+}1_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{4,2})\\(2\omega{+}3_{4,2})\end{matrix}$$

$$(2\omega{+}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}3_{3,4})\\(3\omega{+}2_{2,4})\end{matrix} \times \begin{matrix}(2\omega{+}3_{4,2})\\(2\text{-}\omega_{3,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(3\omega{+}2_{4,2})\\(3\omega{+}1_{4,3})\end{matrix}$$

$$(3\omega{+}2_{2,4}) \gg \Upsilon \succ \begin{matrix}(\omega{+}3_{3,4})\\(2\omega{+}3_{2,4})\end{matrix} \times \begin{matrix}(3\omega{+}2_{4,2})\\(2\text{-}\omega_{3,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(2\omega{+}3_{4,2})\\(3\omega{+}1_{4,3})\end{matrix}$$

$$(3\omega{+}2_{2,4}) \quad \begin{matrix}(2\omega{+}3_{2,4})\\ \gg\Upsilon \succ (3\omega_{2,3})\\ (\omega{+}3_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(3\omega{+}1_{4,3})\\ (2\text{-}\omega_{3,2}) \gg\Upsilon \succ (2\omega{+}3_{4,2})\\ (3\omega{+}2_{4,2})\end{matrix}$$

Medial action

$$(3\omega_{2,3})\gg\Upsilon \quad \begin{matrix}(3\omega{+}2_{2,4})\\ \succ (\omega{+}3_{3,4})\\ (2\omega{+}3_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(3\omega{+}2_{4,2})\\ (3\omega{+}1_{4,3}) \gg\Upsilon \succ (2\text{-}\omega_{3,2})\\ (2\omega{+}3_{4,2})\end{matrix}$$

$$(3\omega_{2,3})\gg\Upsilon \quad \begin{matrix}(2\omega{+}3_{2,4})\\ \succ (\omega{+}3_{3,4})\\ (3\omega{+}2_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(2\omega{+}3_{4,2})\\ (3\omega{+}1_{4,3}) \gg\Upsilon \succ (2\text{-}\omega_{3,2})\\ (3\omega{+}2_{4,2})\end{matrix}$$

$$(2\omega{+}3_{2,4}) \quad \begin{matrix}(3\omega_{2,3})\\ \gg\Upsilon \succ \omega{+}3_{3,4})\\ (3\omega{+}2_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(2\omega{+}3_{4,2})\\ (3\omega{+}1_{4,3}) \gg\Upsilon \succ (3\omega{+}2_{4,2})\\ (2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega{+}3_{2,4}) \quad \begin{matrix}(3\omega{+}2_{2,4})\\ \gg\Upsilon \succ (\omega{+}3_{3,4})\\ (3\omega_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(2\text{-}\omega_{3,2})\\ (3\omega{+}1_{4,3}) \gg\Upsilon \succ (3\omega{+}2_{4,2})\\ (2\omega{+}3_{4,2})\end{matrix}$$

$$(3\omega{+}2_{2,4}) \quad \begin{matrix}(3\omega_{2,3})\\ \gg \quad \succ (\omega{+}3_{3,4})\\ (2\omega{+}3_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(3\omega{+}2_{4,2})\\ (3\omega{+}1_{4,3}) \gg\Upsilon \succ (2\omega{+}3_{4,2})\\ (2\text{-}\omega_{3,2})\end{matrix}$$

$$(3\omega{+}2_{2,4}) \quad \begin{matrix}(2\omega{+}3_{2,4})\\ \gg\Upsilon \succ (\omega{+}3_{3,4})\\ (3\omega_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(2\text{-}\omega_{3,2})\\ (3\omega{+}1_{4,3}) \gg\Upsilon \succ (2\omega{+}3_{4,2})\\ (3\omega{+}2_{4,2})\end{matrix}$$

Objectal action

$$(3\omega_{2,3})\gg\Upsilon \quad \begin{matrix}(3\omega{+}2_{2,4})\\ \succ (2\omega{+}3_{2,4})\\ (\omega{+}3_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(3\omega{+}1_{4,3})\\ (3\omega{+}2_{4,2}) \gg\Upsilon \succ (2\text{-}\omega_{3,2})\\ (2\omega{+}3_{4,2})\end{matrix}$$

$$(3\omega_{2,3})\gg\Upsilon \quad \begin{matrix}(\omega{+}3_{3,4})\\ \succ (2\omega{+}3_{2,4})\\ (3\omega{+}2_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(2\omega{+}3_{4,2})\\ (3\omega{+}2_{4,2}) \gg\Upsilon \succ (2\text{-}\omega_{3,2})\\ (3\omega{+}1_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg_Y \begin{matrix}(3\omega_{2,3})\\ \succ\\ (3\omega+2_{2,4})\end{matrix} (2\omega+3_{2,4}) \quad \times \quad (3\omega+2_{4,2}) \gg_Y \begin{matrix}(2\omega+3_{4,2})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (3\omega+1_{4,3})$$

$$(\omega+3_{3,4}) \gg_Y \begin{matrix}(3\omega+2_{2,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (2\omega+3_{2,4}) \quad \times \quad (3\omega+2_{4,2}) \gg_Y \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (2\omega+3_{4,2})\end{matrix} (3\omega+1_{4,3})$$

$$(3\omega+2_{2,4}) \gg_Y \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+3_{3,4})\end{matrix} (2\omega+3_{2,4}) \quad \times \quad (3\omega+2_{4,2}) \gg_Y \begin{matrix}(3\omega+1_{4,3})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (2\omega+3_{4,2})$$

$$(3\omega+2_{2,4}) \gg_Y \begin{matrix}(\omega+3_{3,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (2\omega+3_{2,4}) \quad \times \quad (3\omega+2_{4,2}) \gg_Y \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (3\omega+1_{4,3})\end{matrix} (2\omega+3_{4,2})$$

Interpretative action

$$(3\omega_{2,3}) \gg_Y \begin{matrix}(2\omega+3_{2,4})\\ \succ\\ (\omega+3_{3,4})\end{matrix} (3\omega+2_{2,4}) \quad \times \quad (2\omega+3_{4,2}) \gg_Y \begin{matrix}(3\omega+1_{4,3})\\ \succ\\ (3\omega+2_{4,2})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(3\omega_{2,3}) \gg_Y \begin{matrix}(\omega+3_{3,4})\\ \succ\\ (2\omega+3_{2,4})\end{matrix} (3\omega+2_{2,4}) \quad \times \quad (2\omega+3_{4,2}) \gg_Y \begin{matrix}(3\omega+2_{4,2})\\ \succ\\ (3\omega+1_{4,3})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(\omega+3_{3,4}) \gg_Y \begin{matrix}(3\omega_{2,3})\\ \succ\\ (2\omega+3_{2,4})\end{matrix} (3\omega+2_{2,4}) \quad \times \quad (2\omega+3_{4,2}) \gg_Y \begin{matrix}(3\omega+2_{4,2})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (3\omega+1_{4,3})$$

$$(\omega+3_{3,4}) \gg_Y \begin{matrix}(2\omega+3_{2,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (3\omega+2_{2,4}) \quad \times \quad (2\omega+3_{4,2}) \gg_Y \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (3\omega+2_{4,2})\end{matrix} (3\omega+1_{4,3})$$

$$(2\omega+3_{2,4}) \gg_Y \begin{matrix}(3\omega_{2,3})\\ \succ\\ (\omega+3_{3,4})\end{matrix} (3\omega+2_{2,4}) \quad \times \quad (2\omega+3_{4,2}) \gg_Y \begin{matrix}(3\omega+1_{4,3})\\ \succ\\ (2\text{-}\omega_{3,2})\end{matrix} (3\omega+2_{4,2})$$

$$(2\omega+3_{2,4}) \gg_Y \begin{matrix}(\omega+3_{3,4})\\ \succ\\ (3\omega_{2,3})\end{matrix} (3\omega+2_{2,4}) \quad \times \quad (2\omega+3_{4,2}) \gg_Y \begin{matrix}(2\text{-}\omega_{3,2})\\ \succ\\ (3\omega+1_{4,3})\end{matrix} (3\omega+2_{4,2})$$

15. Pre-semiotic dual system

$(3\omega{+}3_{2,3,4}\ 2\omega{+}3_{2,4}\ \omega{+}3_{3,4}\ 3\omega_{2,3}) \times (2\text{-}\omega_{3,2}\ 3\omega{+}1_{4,3}\ 3\omega{+}2_{4,2}\ 3\omega{+}3_{4,3,2})$

Qualitative action

$$(\omega{+}3_{3,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}3_{2,3,4})\\(2\omega{+}3_{2,4})\end{matrix} (3\omega_{2,3}) \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}2_{4,2})\\(3\omega{+}3_{4,3,2})\end{matrix} (3\omega{+}1_{4,3})$$

$$(\omega{+}3_{3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}3_{2,4})\\(3\omega{+}3_{2,3,4})\end{matrix} (3\omega_{2,3}) \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}3_{4,3,2})\\(3\omega{+}2_{4,2})\end{matrix} (3\omega{+}1_{4,3})$$

$$(2\omega{+}3_{2,4}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}3_{2,3,4})\\(\omega{+}3_{3,4})\end{matrix} (3\omega_{2,3}) \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{4,3})\\(3\omega{+}3_{4,3,2})\end{matrix} (3\omega{+}2_{4,2})$$

$$(2\omega{+}3_{2,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{3,4})\\(3\omega{+}3_{2,3,4})\end{matrix} (3\omega_{2,3}) \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}3_{4,3,2})\\(3\omega{+}1_{4,3})\end{matrix} (3\omega{+}2_{4,2})$$

$$(3\omega{+}3_{2,3,4}) \gg \curlyvee \succ \begin{matrix}(\omega{+}3_{3,4})\\(2\omega{+}3_{2,4})\end{matrix} (3\omega_{2,3}) \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}2_{4,2})\\(3\omega{+}1_{4,3})\end{matrix} (3\omega{+}3_{4,3,2})$$

$$(3\omega{+}3_{2,3,4}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}3_{2,4})\\(\omega{+}3_{3,4})\end{matrix} (3\omega_{2,3}) \times (2\text{-}\omega_{3,2}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}1_{4,3})\\(3\omega{+}2_{4,2})\end{matrix} (3\omega{+}3_{4,3,2})$$

Medial action

$$(3\omega_{2,3}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}3_{2,3,4})\\(2\omega{+}3_{2,4})\end{matrix} (\omega{+}3_{3,4}) \times (3\omega{+}1_{4,3}) \gg \curlyvee \succ \begin{matrix}(3\omega{+}2_{4,2})\\(3\omega{+}3_{4,3,2})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(3\omega_{2,3}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}3_{2,4})\\(3\omega{+}2_{2,4})\end{matrix} (\omega{+}3_{3,4}) \times (3\omega{+}1_{4,3}) \gg \curlyvee \succ \begin{matrix}(2\omega{+}3_{4,2})\\(3\omega{+}2_{4,2})\end{matrix} (2\text{-}\omega_{3,2})$$

$$(2\omega{+}3_{2,4}) \begin{matrix}(3\omega_{2,3})\\ \gg\Upsilon\succ\\ (3\omega{+}2_{2,4})\end{matrix} (\omega{+}3_{3,4}) \times (3\omega{+}1_{4,3}) \begin{matrix}(2\omega{+}3_{4,2})\\ \gg\Upsilon\succ\\ (2{-}\omega_{3,2})\end{matrix} (3\omega{+}2_{4,2})$$

$$(2\omega{+}3_{2,4}) \begin{matrix}(3\omega{+}3_{2,3,4})\\ \gg\Upsilon\succ\\ (3\omega_{2,3})\end{matrix} (\omega{+}3_{3,4}) \times (3\omega{+}1_{4,3}) \begin{matrix}(2{-}\omega_{3,2})\\ \gg\Upsilon\succ\\ (3\omega{+}3_{4,3,2})\end{matrix} (3\omega{+}2_{4,2})$$

$$(3\omega{+}3_{2,3,4}) \begin{matrix}(3\omega_{2,3})\\ \gg\Upsilon\succ\\ (2\omega{+}3_{2,4})\end{matrix} (\omega{+}3_{3,4}) \times (3\omega{+}1_{4,3}) \begin{matrix}(2{-}\omega_{3,2})\\ \gg\Upsilon\succ\\ (3\omega{+}3_{4,3,2})\end{matrix} (3\omega{+}2_{4,2})$$

$$(3\omega{+}3_{2,3,4}) \begin{matrix}(2\omega{+}3_{2,4})\\ \gg\Upsilon\succ\\ (3\omega_{2,3})\end{matrix} (\omega{+}3_{3,4}) \times (3\omega{+}1_{4,3}) \begin{matrix}(2{-}\omega_{3,2})\\ \gg\Upsilon\succ\\ (3\omega{+}3_{4,3,2})\end{matrix} (3\omega{+}2_{4,2})$$

Objectal action

$$(3\omega_{2,3}) \begin{matrix}(3\omega{+}3_{2,3,4})\\ \gg\Upsilon\succ\\ (\omega{+}3_{3,4})\end{matrix} (2\omega{+}3_{2,4}) \times (3\omega{+}2_{4,2}) \begin{matrix}(3\omega{+}1_{4,3})\\ \gg\Upsilon\succ\\ (3\omega{+}3_{4,3,2})\end{matrix} (2{-}\omega_{3,2})$$

$$(3\omega_{2,3}) \begin{matrix}(\omega{+}3_{3,4})\\ \gg\Upsilon\succ\\ (3\omega{+}3_{2,3,4})\end{matrix} (2\omega{+}3_{2,4}) \times (3\omega{+}2_{4,2}) \begin{matrix}(3\omega{+}3_{4,3,2})\\ \gg\Upsilon\succ\\ (3\omega{+}1_{4,3})\end{matrix} (2{-}\omega_{3,2})$$

$$(\omega{+}3_{3,4}) \begin{matrix}(3\omega_{2,3})\\ \gg\Upsilon\succ\\ (3\omega{+}3_{2,3,4})\end{matrix} (2\omega{+}3_{2,4}) \times (3\omega{+}2_{4,2}) \begin{matrix}(3\omega{+}3_{4,3,2})\\ \gg\Upsilon\succ\\ (2{-}\omega_{3,2})\end{matrix} (3\omega{+}1_{4,3})$$

$$(\omega{+}3_{3,4}) \begin{matrix}(3\omega{+}3_{2,3,4})\\ \gg\Upsilon\succ\\ (3\omega_{2,3})\end{matrix} (2\omega{+}3_{2,4}) \times (3\omega{+}2_{4,2}) \begin{matrix}(2{-}\omega_{3,2})\\ \gg\Upsilon\succ\\ (3\omega{+}3_{4,3,2})\end{matrix} (3\omega{+}1_{3,4})$$

$$(3\omega{+}3_{2,3,4}) \begin{matrix}(3\omega_{2,3})\\ \gg\Upsilon\succ\\ (\omega{+}3_{3,4})\end{matrix} (2\omega{+}3_{2,4}) \times (3\omega{+}2_{4,2}) \begin{matrix}(3\omega{+}1_{4,3})\\ \gg\Upsilon\succ\\ (2{-}\omega_{3,2})\end{matrix} (3\omega{+}3_{2,3,4})$$

$$(3\omega{+}3_{2,3,4}) \begin{matrix}(\omega{+}3_{3,4})\\ \gg\Upsilon\succ\\ (3\omega_{2,3})\end{matrix} (2\omega{+}3_{2,4}) \times (3\omega{+}2_{4,2}) \begin{matrix}(2{-}\omega_{3,2})\\ \gg\Upsilon\succ\\ (3\omega{+}3_{4,3,2})\end{matrix} (3\omega{+}1_{4,3})$$

Interpretative action

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{2,4})\\(3\omega+3_{2,3,4})\\(\omega+3_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(3\omega+1_{4,3})\\(3\omega+3_{4,3,2}) \gg \Upsilon \succ (2\text{-}\omega_{3,2})\\(3\omega+2_{4,2})\end{matrix}$$

$$(3\omega_{2,3}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega+3_{2,3,4})\\(2\omega+3_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(3\omega+2_{4,2})\\(3\omega+3_{4,3,2}) \gg \Upsilon \succ (2\text{-}\omega_{3,2})\\(3\omega+1_{4,3})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(3\omega+3_{2,3,4})\\(2\omega+3_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(3\omega+2_{4,2})\\(3\omega+3_{4,3,2}) \gg \Upsilon \succ (3\omega+1_{4,3})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(\omega+3_{3,4}) \gg \Upsilon \succ \begin{matrix}(2\omega+3_{2,4})\\(3\omega+3_{2,3,4})\\(3\omega_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(2\text{-}\omega_{3,2})\\(3\omega+3_{4,3,2}) \gg \Upsilon \succ (3\omega+1_{4,3})\\(3\omega+2_{4,2})\end{matrix}$$

$$(2\omega+3_{2,4}) \gg \Upsilon \succ \begin{matrix}(3\omega_{2,3})\\(3\omega+3_{2,3,4})\\(\omega+3_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(3\omega+1_{4,3})\\(3\omega+3_{4,3,2}) \gg \Upsilon \succ (3\omega+2_{4,2})\\(2\text{-}\omega_{3,2})\end{matrix}$$

$$(2\omega+3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\omega+3_{3,4})\\(3\omega+3_{2,3,4})\\(3\omega_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(2\text{-}\omega_{3,2})\\(3\omega+3_{4,3,2}) \gg \Upsilon \succ (3\omega+2_{4,2})\\(3\omega+1_{4,3})\end{matrix}$$

Chapter Four: The Quadralectic Night

Notation:

oS	↔	Q (.0.)	↔	oI	↔	⌊
sO	↔	M (.1.)	↔	iO	↔	⌋
oO	↔	O (.2.)	↔	oO	↔	⌈
sS	↔	I (.3.)	↔	iI	↔	⌉

I. Action schemata of the 2 · 24 triadic semiotic partial relations

1. Pre-semiotic dual system

$(\urcorner\ \lrcorner_{3,4}\ \ulcorner\lrcorner_{1,4}\ \lrcorner\ \lrcorner_{1,3,4}\ \llcorner\lrcorner_{1,3}) \times (\urcorner\ \llcorner_{3,1}\ \lrcorner\ \lrcorner_{4,3,1}\ \lrcorner\ \ulcorner_{4,1}\ \lrcorner\ \urcorner_{4,3})$

Qualitative action

$(\ \ulcorner\lrcorner_{1,4})$ $(\lrcorner\ \lrcorner_{4,3,1})$
$\curlywedge \gg (\ \llcorner\lrcorner_{1,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,1})$
$(\lrcorner\ \lrcorner_{1,3,4})$ $(\lrcorner\ \ulcorner_{4,1})$

$(\urcorner\ \lrcorner_{3,4})$ $(\lrcorner\ \lrcorner_{4,3,1})$
$\curlywedge \gg (\ \llcorner\lrcorner_{1,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,1})$
$(\lrcorner\ \lrcorner_{1,3,4})$ $(\lrcorner\ \urcorner_{4,3})$

$(\lrcorner\ \lrcorner_{1,3,4})$ $(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\ \llcorner\lrcorner_{1,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,1})$
$(\ \ulcorner\lrcorner_{1,4})$ $(\lrcorner\ \lrcorner_{4,3,1})$

$(\urcorner\ \lrcorner_{3,4})$ $(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\ \llcorner\lrcorner_{1,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,1})$
$(\ \ulcorner\lrcorner_{1,4})$ $(\lrcorner\ \urcorner_{4,3})$

$(\lrcorner\ \lrcorner_{1,3,4})$ $(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\ \llcorner\lrcorner_{1,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,1})$
$(\urcorner\ \lrcorner_{3,4})$ $(\lrcorner\ \lrcorner_{4,3,1})$

$(\ \ulcorner\lrcorner_{1,4})$ $(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\ \llcorner\lrcorner_{1,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,1})$
$(\urcorner\ \lrcorner_{3,4})$ $(\lrcorner\ \ulcorner_{4,1})$

Medial action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge\gg(\lrcorner\lrcorner_{1,3,4}) \\ (\ \llcorner\lrcorner_{1,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,1}) \\ \curlywedge\gg(\lrcorner\lrcorner_{4,3,1}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge\gg(\lrcorner\lrcorner_{1,3,4}) \\ (\ \llcorner\lrcorner_{1,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,1}) \\ \curlywedge\gg(\lrcorner\lrcorner_{4,3,1}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\lrcorner_{1,3}) \\ \curlywedge\gg(\lrcorner\lrcorner_{1,3,4}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1}) \\ \curlywedge\gg(\lrcorner\lrcorner_{4,3,1}) \\ (\urcorner\ \llcorner_{3,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge\gg(\lrcorner\lrcorner_{1,3,4}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1}) \\ \curlywedge\gg(\lrcorner\lrcorner_{4,3,1}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\lrcorner_{1,3}) \\ \curlywedge\gg(\lrcorner\lrcorner_{1,3,4}) \\ (\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3}) \\ \curlywedge\gg(\lrcorner\lrcorner_{4,3,1}) \\ (\urcorner\ \llcorner_{3,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge\gg(\lrcorner\lrcorner_{1,3,4}) \\ (\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3}) \\ \curlywedge\gg(\lrcorner\lrcorner_{4,3,1}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4}) \\ \curlywedge\gg(\ulcorner\lrcorner_{1,4}) \\ (\ \llcorner\lrcorner_{1,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,1}) \\ \curlywedge\gg(\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge\gg(\ulcorner\lrcorner_{1,4}) \\ (\ \llcorner\lrcorner_{1,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,1}) \\ \curlywedge\gg(\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\lrcorner_{1,3}) \\ \curlywedge\gg(\ulcorner\lrcorner_{1,4}) \\ (\lrcorner\lrcorner_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\lrcorner_{4,3,1}) \\ \curlywedge\gg(\lrcorner\ \ulcorner_{4,1}) \\ (\urcorner\ \llcorner_{3,1})\end{matrix}$$

(⏋ ⏌ $_{3,4}$)		(⏌ ⏌ $_{4,3,1}$)
人 ≫ (⎾⏌ $_{1,4}$)	×	人 ≫ (⏌ ⎾ $_{4,1}$)
(⏌ ⏌ $_{1,3,4}$)		(⏌ ⏋ $_{4,3}$)

(⏌ ⏌ $_{1,3,4}$)		(⏌ ⏋ $_{4,3}$)
人 ≫ (⎾⏌ $_{1,4}$)	×	人 ≫ (⏌ ⎾ $_{4,1}$)
(⏋ ⏌ $_{3,4}$)		(⏌ ⏌ $_{4,3,1}$)

(⎿⏌ $_{1,3}$)		(⏌ ⏋ $_{4,3}$)
人 ≫ (⎾⏌ $_{1,4}$)	×	人 ≫ (⏌ ⎾ $_{4,1}$)
(⏋ ⏌ $_{3,4}$)		(⏋ ⎿ $_{3,1}$)

Interpretative action

(⎾⏌ $_{1,4}$)		(⏋ ⎿ $_{3,1}$)
人 ≫ (⏋ ⏌ $_{3,4}$)	×	人 ≫ (⏌ ⏋ $_{4,3}$)
(⎿⏌ $_{1,3}$)		(⏌ ⎾ $_{4,1}$)

(⏌ ⏌ $_{1,3,4}$)		(⏋ ⎿ $_{3,1}$)
人 ≫ (⏋ ⏌ $_{3,4}$)	×	人 ≫ (⏌ ⏋ $_{4,3}$)
(⎿⏌ $_{1,3}$)		(⏌ ⏌ $_{4,3,1}$)

(⎾⏌ $_{1,4}$)		(⏌ ⏌ $_{4,3,1}$)
人 ≫ (⏋ ⏌ $_{3,4}$)	×	人 ≫ (⏌ ⏋ $_{4,3}$)
(⏌ ⏌ $_{1,3,4}$)		(⏌ ⎾ $_{4,1}$)

(⎿⏌ $_{1,3}$)		(⏌ ⏌ $_{4,3,1}$)
人 ≫ (⏋ ⏌ $_{3,4}$)	×	人 ≫ (⏌ ⏋ $_{4,3}$)
(⏌ ⏌ $_{1,3,4}$)		(⏋ ⎿ $_{3,1}$)

(⏌ ⏌ $_{1,3,4}$)		(⏌ ⎾ $_{4,1}$)
人 ≫ (⏋ ⏌ $_{3,4}$)	×	人 ≫ (⏌ ⏋ $_{4,3}$)
(⎾⏌ $_{1,4}$)		(⏌ ⏌ $_{4,3,1}$)

(⎿⏌ $_{1,3}$)		(⏌ ⎾ $_{4,1}$)
人 ≫ (⏋ ⏌ $_{3,4}$)	×	人 ≫ (⏌ ⏋ $_{4,3}$)
(⎾⏌ $_{1,4}$)		(⏋ ⎿ $_{3,1}$)

2. Pre-semiotic dual system

(⌝⌟$_{3,4}$ ⌜⌟$_{1,4}$⌟⌟$_{1,3,4}$ ⌞⌜$_{1,2}$) × (⌜⌞$_{2,1}$⌟⌟$_{4,3,1}$⌟ ⌜$_{4,1}$⌟⌝$_{4,3}$)

Qualitative action

(⌜⌟$_{1,4}$) (⌟⌟$_{4,3,1}$)
≯≫(⌞⌜$_{1,2}$) × ≯≫(⌜⌞$_{2,1}$)
(⌟⌟$_{1,3,4}$) (⌟⌜$_{4,1}$)

(⌝⌟$_{3,4}$) (⌟⌟$_{4,3,1}$)
≯≫(⌞⌜$_{1,2}$) × ≯≫(⌜⌞$_{2,1}$)
(⌟⌟$_{1,3,4}$) (⌟⌝$_{4,3}$)

(⌟⌟$_{1,3,4}$) (⌟⌜$_{4,1}$)
≯≫(⌞⌜$_{1,2}$) × ≯≫(⌜⌞$_{2,1}$)
(⌜⌟$_{1,4}$) (⌟⌟$_{4,3,1}$)

(⌝⌟$_{3,4}$) (⌟⌜$_{4,1}$)
≯≫(⌞⌜$_{1,2}$) × ≯≫(⌜⌞$_{2,1}$)
(⌜⌟$_{1,4}$) (⌟⌝$_{4,3}$)

(⌟⌟$_{1,3,4}$) (⌟⌝$_{4,3}$)
≯≫(⌞⌜$_{1,2}$) × ≯≫(⌜⌞$_{2,1}$)
(⌝⌟$_{3,4}$) (⌟⌟$_{4,3,1}$)

(⌜⌟$_{1,4}$) (⌟⌝$_{4,3}$)
≯≫(⌞⌜$_{1,2}$) × ≯≫(⌜⌞$_{2,1}$)
(⌝⌟$_{3,4}$) (⌟⌜$_{4,1}$)

Medial action

(⌜⌟$_{1,4}$) (⌜⌞$_{2,1}$)
≯≫(⌟⌟$_{1,3,4}$) × ≯≫(⌟⌟$_{4,3,1}$)
(⌞⌜$_{1,2}$) (⌟⌜$_{4,1}$)

(⌝⌟$_{3,4}$) (⌜⌞$_{2,1}$)
≯≫(⌟⌟$_{1,3,4}$) × ≯≫(⌟⌟$_{4,3,1}$)
(⌞⌜$_{1,2}$) (⌟⌝$_{4,3}$)

$$
\begin{array}{ccc}
(\,\llcorner\,\ulcorner_{1,2}) & & (\lrcorner\;\ulcorner_{4,1}) \\
\quad \curlywedge \gg (\lrcorner\;\lrcorner_{1,3,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\lrcorner_{4,3,1}) \\
(\,\ulcorner\lrcorner_{1,4}) & & (\,\ulcorner\,\llcorner_{2,1})
\end{array}
$$

$$
\begin{array}{ccc}
(\urcorner\;\lrcorner_{3,4}) & & (\lrcorner\;\ulcorner_{4,1}) \\
\quad \curlywedge \gg (\lrcorner\;\lrcorner_{1,3,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\lrcorner_{4,3,1}) \\
(\,\ulcorner\lrcorner_{1,4}) & & (\lrcorner\;\urcorner_{4,3})
\end{array}
$$

$$
\begin{array}{ccc}
(\,\llcorner\,\ulcorner_{1,2}) & & (\lrcorner\;\urcorner_{4,3}) \\
\quad \curlywedge \gg (\lrcorner\;\lrcorner_{1,3,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\lrcorner_{4,3,1}) \\
(\urcorner\;\lrcorner_{3,4}) & & (\,\ulcorner\,\llcorner_{2,1})
\end{array}
$$

$$
\begin{array}{ccc}
(\,\ulcorner\lrcorner_{1,4}) & & (\lrcorner\;\urcorner_{4,3}) \\
\quad \curlywedge \gg (\lrcorner\;\lrcorner_{1,3,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\lrcorner_{4,3,1}) \\
(\urcorner\;\lrcorner_{3,4}) & & (\lrcorner\;\ulcorner_{4,1})
\end{array}
$$

Objectal action

$$
\begin{array}{ccc}
(\lrcorner\;\lrcorner_{1,3,4}) & & (\,\ulcorner\,\llcorner_{2,1}) \\
\quad \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\ulcorner_{4,1}) \\
(\,\llcorner\,\ulcorner_{1,2}) & & (\lrcorner\;\lrcorner_{4,3,1})
\end{array}
$$

$$
\begin{array}{ccc}
(\urcorner\;\lrcorner_{3,4}) & & (\,\ulcorner\,\llcorner_{2,1}) \\
\quad \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\ulcorner_{4,1}) \\
(\,\llcorner\,\ulcorner_{1,2}) & & (\lrcorner\;\urcorner_{4,3})
\end{array}
$$

$$
\begin{array}{ccc}
(\,\llcorner\,\ulcorner_{1,2}) & & (\lrcorner\;\lrcorner_{4,3,1}) \\
\quad \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\ulcorner_{4,1}) \\
(\lrcorner\;\lrcorner_{1,3,4}) & & (\,\ulcorner\,\llcorner_{2,1})
\end{array}
$$

$$
\begin{array}{ccc}
(\urcorner\;\lrcorner_{3,4}) & & (\lrcorner\;\lrcorner_{4,3,1}) \\
\quad \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\ulcorner_{4,1}) \\
(\lrcorner\;\lrcorner_{1,3,4}) & & (\lrcorner\;\urcorner_{4,3})
\end{array}
$$

$$
\begin{array}{ccc}
(\lrcorner\;\lrcorner_{1,3,4}) & & (\lrcorner\;\urcorner_{4,3}) \\
\quad \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\ulcorner_{4,1}) \\
(\urcorner\;\lrcorner_{3,4}) & & (\lrcorner\;\lrcorner_{4,3,1})
\end{array}
$$

$$
\begin{array}{ccc}
(\,\llcorner\,\ulcorner_{1,2}) & & (\lrcorner\;\urcorner_{4,3}) \\
\quad \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) & \times & \quad \curlywedge \gg (\lrcorner\;\ulcorner_{4,1}) \\
(\urcorner\;\lrcorner_{3,4}) & & (\,\ulcorner\,\llcorner_{2,1})
\end{array}
$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\llcorner_{2,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\lrcorner_{4,3,1}) \\ \curlywedge \gg (\urcorner\lrcorner_{4,3}) \\ (\llcorner\ulcorner_{1,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\lrcorner\lrcorner_{1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\lrcorner_{4,3,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\lrcorner\lrcorner_{1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\lrcorner_{4,3,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ulcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ulcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\llcorner_{2,1})\end{matrix}$$

3. Pre-semiotic dual system

$$(\urcorner\lrcorner_{3,4}\ \ulcorner\lrcorner_{1,4}\lrcorner\lrcorner_{1,3,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\lrcorner\lrcorner_{4,3,1}\lrcorner\ \ulcorner_{4,1}\lrcorner\urcorner_{4,3})$$

Qualitative Action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\llcorner\urcorner_{2,3}) \\ (\lrcorner\lrcorner_{1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\lrcorner_{4,3,1}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\llcorner\urcorner_{2,3}) \\ (\lrcorner\lrcorner_{1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\lrcorner_{4,3,1}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$(\lrcorner\ \lrcorner_{1,3,4})$
$\curlywedge \gg (\ \llcorner\urcorner_{2,3})$
$(\ \ulcorner\lrcorner_{1,4})$
$\times$
$(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\lrcorner\ \lrcorner_{4,3,1})$

$(\urcorner\ \lrcorner_{3,4})$
$\curlywedge \gg (\ \llcorner\urcorner_{2,3})$
$(\ \ulcorner\lrcorner_{1,4})$
$\times$
$(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\lrcorner\ \urcorner_{4,3})$

$(\lrcorner\ \lrcorner_{1,3,4})$
$\curlywedge \gg (\ \llcorner\urcorner_{2,3})$
$(\urcorner\ \lrcorner_{3,4})$
$\times$
$(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\lrcorner\ \lrcorner_{4,3,1})$

$(\ \ulcorner\lrcorner_{1,4})$
$\curlywedge \gg (\ \llcorner\urcorner_{2,3})$
$(\urcorner\ \lrcorner_{3,4})$
$\times$
$(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\lrcorner\ \ulcorner_{4,1})$

Medial action

$(\ \ulcorner\lrcorner_{1,4})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{1,3,4})$
$(\ \llcorner\urcorner_{2,3})$
$\times$
$(\urcorner\ \llcorner_{3,2})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{4,3,1})$
$(\lrcorner\ \ulcorner_{4,1})$

$(\urcorner\ \lrcorner_{3,4})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{1,3,4})$
$(\ \llcorner\urcorner_{2,3})$
$\times$
$(\urcorner\ \llcorner_{3,2})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{4,3,1})$
$(\lrcorner\ \urcorner_{4,3})$

$(\ \llcorner\urcorner_{2,3})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{1,3,4})$
$(\ \ulcorner\lrcorner_{1,4})$
$\times$
$(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{4,3,1})$
$(\urcorner\ \llcorner_{3,2})$

$(\urcorner\ \lrcorner_{3,4})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{1,3,4})$
$(\ \ulcorner\lrcorner_{1,4})$
$\times$
$(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{4,3,1})$
$(\lrcorner\ \urcorner_{4,3})$

$(\ \llcorner\urcorner_{2,3})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{1,3,4})$
$(\urcorner\ \lrcorner_{3,4})$
$\times$
$(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{4,3,1})$
$(\urcorner\ \llcorner_{3,2})$

$(\ \ulcorner\lrcorner_{1,4})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{1,3,4})$
$(\urcorner\ \lrcorner_{3,4})$
$\times$
$(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\lrcorner\ \lrcorner_{4,3,1})$
$(\lrcorner\ \ulcorner_{4,1})$

Objectal action

$$\begin{matrix}(\lrcorner\ \lrcorner_{1,3,4}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\ \lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\lrcorner\ \lrcorner_{1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \lrcorner_{4,3,1}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\lrcorner\ \lrcorner_{1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \lrcorner_{4,3,1}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \lrcorner_{1,3,4}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\urcorner\ \lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \urcorner_{3,4}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\ \lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\urcorner\ \lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \urcorner_{4,3}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{3,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\ \urcorner_{4,3}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \lrcorner_{1,3,4}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{3,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\ \urcorner_{4,3}) \\ (\lrcorner\ \lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{3,4}) \\ (\lrcorner\ \lrcorner_{1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \lrcorner_{4,3,1}) \\ \curlywedge \gg (\lrcorner\ \urcorner_{4,3}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

(└┐ $_{2,3}$) (┘┘ $_{4,3,1}$)
人 ≫ (┐┘ $_{3,4}$) × 人 ≫ (┘┐ $_{4,3}$)
(┘┘ $_{1,3,4}$) (┐ └$_{3,2}$)

(┘┘ $_{1,3,4}$) (┘ ┌$_{4,1}$)
人 ≫ (┐┘ $_{3,4}$) × 人 ≫ (┘┐ $_{4,3}$)
(┌┘ $_{1,4}$) (┘┘ $_{4,3,1}$)

(└┐ $_{2,3}$) (┘ ┌$_{4,1}$)
人 ≫ (┐┘ $_{3,4}$) × 人 ≫ (┘┐ $_{4,3}$)
(┌┘ $_{1,4}$) (┐ └$_{3,2}$)

4. Pre-semiotic dual system

(┐┘ $_{3,4}$ ┌┘ $_{1,4}$ ┘ ┌$_{1,4}$ └ ┌$_{1,2}$) × (┌ └$_{2,1}$ ┌┘ $_{4,1}$ ┘ ┌$_{4,1}$ ┘┐ $_{4,3}$)

Qualitative action

(┌┘ $_{1,4}$) (┌┘ $_{4,1}$)
人 ≫ (└ ┌$_{1,2}$) × 人 ≫ (┌ └$_{2,1}$)
(┘ ┌$_{1,4}$) (┘ ┌$_{4,1}$)

(┐┘ $_{3,4}$) (┌┘ $_{4,1}$)
人 ≫ (└ ┌$_{1,2}$) × 人 ≫ (┌ └$_{2,1}$)
(┘ ┌$_{1,4}$) (┘┐ $_{4,3}$)

(┘ ┌$_{1,4}$) (┘ ┌$_{4,1}$)
人 ≫ (└ ┌$_{1,2}$) × 人 ≫ (┌ └$_{2,1}$)
(┌┘ $_{1,4}$) (┌┘ $_{4,1}$)

(┐┘ $_{3,4}$) (┘ ┌$_{4,1}$)
人 ≫ (└ ┌$_{1,2}$) × 人 ≫ (┌ └$_{2,1}$)
(┌┘ $_{1,4}$) (┘┐ $_{4,3}$)

(┘ ┌$_{1,4}$) (┘┐ $_{4,3}$)
人 ≫ (└ ┌$_{1,2}$) × 人 ≫ (┌ └$_{2,1}$)
(┐┘ $_{3,4}$) (┌┘ $_{4,1}$)

(┌┘ $_{1,4}$) (┘┐ $_{4,3}$)
人 ≫ (└ ┌$_{1,2}$) × 人 ≫ (┌ └$_{2,1}$)
(┐┘ $_{3,4}$) (┘ ┌$_{4,1}$)

Medial action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\ \llcorner_{2,1}) \\ \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\ \llcorner_{2,1}) \\ \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \ulcorner_{4,1}) \\ \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \ulcorner_{4,1}) \\ \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) \\ (\urcorner\lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \urcorner_{4,3}) \\ \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) \\ (\urcorner\lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\ \urcorner_{4,3}) \\ \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\ \llcorner_{2,1}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\ \llcorner_{2,1}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\ulcorner\ \llcorner_{2,1})\end{matrix}$$

(⌉ ⌋ $_{3,4}$)		(⌈⌋ $_{4,1}$)
人 ≫ (⌈⌋ $_{1,4}$)	×	人 ≫ (⌋ ⌈$_{4,1}$)
(⌋ ⌈$_{1,4}$)		(⌋ ⌉ $_{4,3}$)

(⌋ ⌈$_{1,4}$)		(⌋ ⌉ $_{4,3}$)
人 ≫ (⌈⌋ $_{1,4}$)	×	人 ≫ (⌋ ⌈$_{4,1}$)
(⌉ ⌋ $_{3,4}$)		(⌈⌋ $_{4,1}$)

(⌊⌈$_{1,2}$)		(⌋ ⌉ $_{4,3}$)
人 ≫ (⌈⌋ $_{1,4}$)	×	人 ≫ (⌋ ⌈$_{4,1}$)
(⌉ ⌋ $_{3,4}$)		(⌈⌊$_{2,1}$)

Interpretative action

(⌈⌋ $_{1,4}$)		(⌈⌊$_{2,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)	×	人 ≫ (⌋ ⌉ $_{4,3}$)
(⌊⌈$_{1,2}$)		(⌋ ⌈$_{4,1}$)

(⌋ ⌈$_{1,4}$)		(⌈⌊$_{2,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)	×	人 ≫ (⌋ ⌉ $_{4,3}$)
(⌊⌈$_{1,2}$)		(⌈⌋ $_{4,1}$)

(⌈⌋ $_{1,4}$)		(⌈⌋ $_{4,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)	×	人 ≫ (⌋ ⌉ $_{4,3}$)
(⌋ ⌈$_{1,4}$)		(⌋ ⌈$_{4,1}$)

(⌊⌈$_{1,2}$)		(⌈⌋ $_{4,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)	×	人 ≫ (⌋ ⌉ $_{4,3}$)
(⌋ ⌈$_{1,4}$)		(⌈⌊$_{2,1}$)

(⌋ ⌈$_{1,4}$)		(⌋ ⌈$_{4,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)	×	人 ≫ (⌋ ⌉ $_{4,3}$)
(⌈⌋ $_{1,4}$)		(⌈⌋ $_{4,1}$)

(⌊⌈$_{1,2}$)		(⌋ ⌈$_{4,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)	×	人 ≫ (⌋ ⌉ $_{4,3}$)
(⌈⌋ $_{1,4}$)		(⌈⌊$_{2,1}$)

5. Pre-Semiotic dual system

$(\urcorner\llcorner_{3,4}\ \ulcorner\llcorner_{1,4}\ \llcorner\ \ulcorner_{1,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\ \ulcorner\llcorner_{4,1}\ \llcorner\ \ulcorner_{4,1}\ \llcorner\urcorner_{4,3})$

Qualtitative action

$(\ulcorner\llcorner_{1,4})$ $(\ulcorner\llcorner_{4,1})$
$\curlywedge \gg (\llcorner\urcorner_{2,3}) \times \curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\llcorner\ \ulcorner_{1,4})$ $(\llcorner\ \ulcorner_{4,1})$

$(\urcorner\llcorner_{3,4})$ $(\ulcorner\llcorner_{4,1})$
$\curlywedge \gg (\llcorner\urcorner_{2,3}) \times \curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\llcorner\ \ulcorner_{1,4})$ $(\llcorner\urcorner_{4,3})$

$(\llcorner\ \ulcorner_{1,4})$ $(\llcorner\ \ulcorner_{4,1})|$
$\curlywedge \gg (\llcorner\urcorner_{2,3}) \times \curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\ulcorner\llcorner_{1,4})$ $(\ulcorner\llcorner_{4,1})$

$(\urcorner\llcorner_{3,4})$ $(\llcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\llcorner\urcorner_{2,3}) \times \curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\ulcorner\llcorner_{1,4})$ $(\llcorner\urcorner_{4,3})$

$(\llcorner\ \ulcorner_{1,4})$ $(\llcorner\urcorner_{4,3})$
$\curlywedge \gg (\llcorner\urcorner_{2,3}) \times \curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\urcorner\llcorner_{3,4})$ $(\ulcorner\llcorner_{4,1})$

$(\ulcorner\llcorner_{1,4})$ $(\llcorner\urcorner_{4,3})$
$\curlywedge \gg (\llcorner\urcorner_{2,3}) \times \curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\urcorner\llcorner_{3,4})$ $(\llcorner\ \ulcorner_{4,1})$

Medial action

$(\ulcorner\llcorner_{1,4})$ $(\urcorner\ \llcorner_{3,2})$
$\curlywedge \gg (\llcorner\ \ulcorner_{1,4}) \times \curlywedge \gg (\ulcorner\llcorner_{4,1})$
$(\llcorner\urcorner_{2,3})$ $(\llcorner\ \ulcorner_{4,1})$

$(\urcorner\llcorner_{3,4})$ $(\urcorner\ \llcorner_{3,2})$
$\curlywedge \gg (\llcorner\ \ulcorner_{1,4}) \times \curlywedge \gg (\ulcorner\llcorner_{4,1})$
$(\llcorner\urcorner_{2,3})$ $(\llcorner\urcorner_{4,3})$

$$\begin{matrix}(\,\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{1,4}) \\ (\,\ulcorner\lrcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\,\ulcorner_{4,1}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{4,1}) \\ (\urcorner\,\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{1,4}) \\ (\,\ulcorner\lrcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\,\ulcorner_{4,1}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{4,1}) \\ (\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{1,4}) \\ (\urcorner\,\lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\,\urcorner_{4,3}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{4,1}) \\ (\urcorner\,\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\,\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{1,4}) \\ (\urcorner\,\lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\,\urcorner_{4,3}) \\ \curlywedge (\,\ulcorner\lrcorner_{4,1}) \\ (\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\lrcorner\,\ulcorner_{1,4}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) \\ (\,\llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\,\llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{4,1}) \\ (\,\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) \\ (\,\llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\,\llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{4,1}) \\ (\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) \\ (\lrcorner\,\ulcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\,\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{4,1}) \\ (\urcorner\,\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) \\ (\lrcorner\,\ulcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\,\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{4,1}) \\ (\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\ulcorner_{1,4}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) \\ (\urcorner\,\lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\,\urcorner_{4,3}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{4,1}) \\ (\,\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\,\ulcorner\lrcorner_{1,4}) \\ (\urcorner\,\lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\,\urcorner_{4,3}) \\ \curlywedge \gg (\lrcorner\,\ulcorner_{4,1}) \\ (\urcorner\,\llcorner_{3,2})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\lrcorner\ \ulcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\lrcorner\ \ulcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

6. Pre-semiotic dual system

$$(\urcorner\lrcorner_{3,4}\ \ulcorner\lrcorner_{1,4}\lrcorner\urcorner_{3,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\urcorner\lrcorner_{4,3}\lrcorner\ \ulcorner_{4,1}\lrcorner\urcorner_{4,3})$$

Qualitative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ \curlywedge \gg (\llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$(\lrcorner\ \urcorner_{3,4})$ $(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\ \llcorner\urcorner_{2,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\ulcorner\lrcorner_{1,4})$ $(\urcorner\ \lrcorner_{4,3})$

$(\urcorner\ \lrcorner_{3,4})$ $(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\ \llcorner\urcorner_{2,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\ulcorner\lrcorner_{1,4})$ $(\lrcorner\ \urcorner_{4,3})$

$(\lrcorner\ \urcorner_{3,4})$ $(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\ \llcorner\urcorner_{2,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\urcorner\ \lrcorner_{3,4})$ $(\urcorner\ \lrcorner_{4,3})$

$(\ulcorner\lrcorner_{1,4})$ $(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\ \llcorner\urcorner_{2,3})$ $\times$ $\curlywedge \gg (\urcorner\ \llcorner_{3,2})$
$(\urcorner\ \lrcorner_{3,4})$ $(\lrcorner\ \ulcorner_{4,1})$

Medial action

$(\ulcorner\lrcorner_{1,4})$ $(\urcorner\ \llcorner_{3,2})$
$\curlywedge \gg (\lrcorner\ \urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\ \lrcorner_{4,3})$
$(\ \llcorner\urcorner_{2,3})$ $(\lrcorner\ \ulcorner_{4,1})$

$(\urcorner\ \lrcorner_{3,4})$ $(\urcorner\ \llcorner_{3,2})$
$\curlywedge \gg (\lrcorner\ \urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\ \lrcorner_{4,3})$
$(\ \llcorner\urcorner_{2,3})$ $(\lrcorner\ \urcorner_{4,3})$

$(\ \llcorner\urcorner_{2,3})$ $(\lrcorner\ \ulcorner_{4,1})$
$\gg (\lrcorner\ \urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\ \lrcorner_{4,3})$
$(\ulcorner\lrcorner_{1,4})$ $(\urcorner\ \llcorner_{3,2})$

$(\urcorner\ \lrcorner_{3,4})$ $(\lrcorner\ \ulcorner_{4,1})$
$\curlywedge \gg (\lrcorner\ \urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\ \lrcorner_{4,3})$
$(\ulcorner\lrcorner_{1,4})$ $(\lrcorner\ \urcorner_{4,3})$

$(\ \llcorner\urcorner_{2,3})$ $(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\lrcorner\ \urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\ \lrcorner_{4,3})$
$(\urcorner\ \lrcorner_{3,4})$ $(\urcorner\ \llcorner_{3,2})$

$(\ulcorner\lrcorner_{1,4})$ $(\lrcorner\ \urcorner_{4,3})$
$\curlywedge \gg (\lrcorner\ \urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\ \lrcorner_{4,3})$
$(\urcorner\ \lrcorner_{3,4})$ $(\lrcorner\ \ulcorner_{4,1})$

Objectal action

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) & \times & \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\llcorner\urcorner_{2,3}) & & (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) & \times & \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\llcorner\urcorner_{2,3}) & & (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) & & (\urcorner\ \lrcorner_{4,3}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) & \times & \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\ \urcorner_{3,4}) & & (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4}) & & (\urcorner\ \lrcorner_{4,3}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) & \times & \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\ \urcorner_{3,4}) & & (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4}) & & (\lrcorner\ \urcorner_{4,3}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) & \times & \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\urcorner\ \lrcorner_{3,4}) & & (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) & & (\lrcorner\ \urcorner_{4,3}) \\ \curlywedge \gg (\ulcorner\lrcorner_{1,4}) & \times & \curlywedge \gg (\lrcorner\ \ulcorner_{4,1}) \\ (\urcorner\ \lrcorner_{3,4}) & & (\urcorner\ \llcorner_{3,2})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{3,4}) & \times & \curlywedge \gg (\lrcorner\ \urcorner_{4,3}) \\ (\llcorner\urcorner_{2,3}) & & (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{3,4}) & \times & \curlywedge \gg (\lrcorner\ \urcorner_{4,3}) \\ (\llcorner\urcorner_{2,3}) & & (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) & & (\urcorner\ \lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{3,4}) & \times & \curlywedge \gg (\lrcorner\ \urcorner_{4,3}) \\ (\lrcorner\ \urcorner_{3,4}) & & (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

(└┐$_{2,3}$)   (┐┘$_{4,3}$)
人 ≫ (┐┘$_{3,4}$)   ×   人 ≫ (┘┐$_{4,3}$)
(┘┐$_{3,4}$)   (┐└$_{3,2}$)

(┘┐$_{3,4}$)   (┘┌$_{4,1}$)
人 ≫ (┐┘$_{3,4}$)   ×   人 ≫ (┘┐$_{4,3}$)
(┌┘$_{1,4}$)   (┐┘$_{4,3}$)

(└┐$_{2,3}$)   (┘┌$_{4,1}$)
人 ≫ (┐┘$_{3,4}$)   ×   人 ≫ (┘┐$_{4,3}$)
(┌┘$_{1,4}$)   (┐└$_{3,2}$)

7. Pre-semiotic dual system
(┐┘$_{3,4}$ ┌┌$_{1,2,4}$┘ ┌$_{1,4}$ └┌$_{1,2}$) × (┌└$_{2,1}$ ┌┘$_{4,1}$ ┌┌$_{4,2,1}$┘┐$_{4,3}$)

Qualitative action

(┌┌$_{1,2,4}$)   (┌┘$_{4,1}$)
人 ≫ (└┌$_{1,2}$)   ×   人 ≫ (┌└$_{2,1}$)
(┘┌$_{1,4}$)   (┌┌$_{4,2,1}$)

(┐┘$_{3,4}$)   (┌┘$_{4,1}$)
人 ≫ (└┌$_{1,2}$)   ×   人 ≫ (┌└$_{2,1}$)
(┘┌$_{1,4}$)   (┘┐$_{4,3}$)

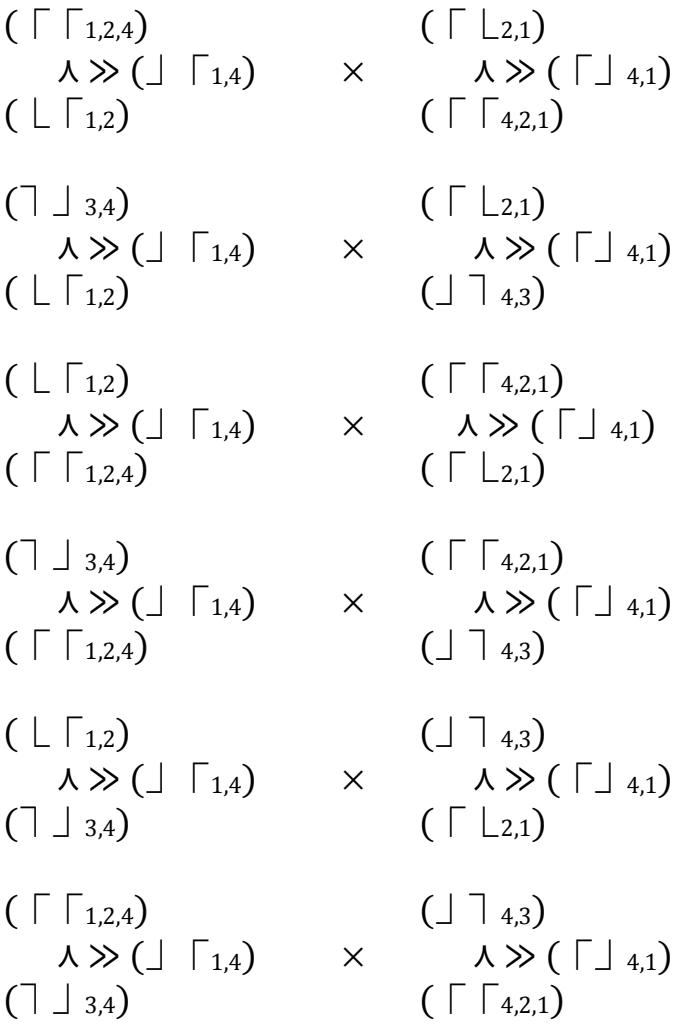
(┘┌$_{1,4}$)   (┌┌$_{4,2,1}$)
人 ≫ (└┌$_{1,2}$)   ×   人 ≫ (┌└$_{2,1}$)
(┌┌$_{1,2,4}$)   (┌┘$_{4,1}$)

(┐┘$_{3,4}$)   (┌┌$_{4,2,1}$)
人 ≫ (└┌$_{1,2}$)   ×   人 ≫ (┌└$_{2,1}$)
(┌┌$_{1,2,4}$)   (┘┐$_{4,3}$)

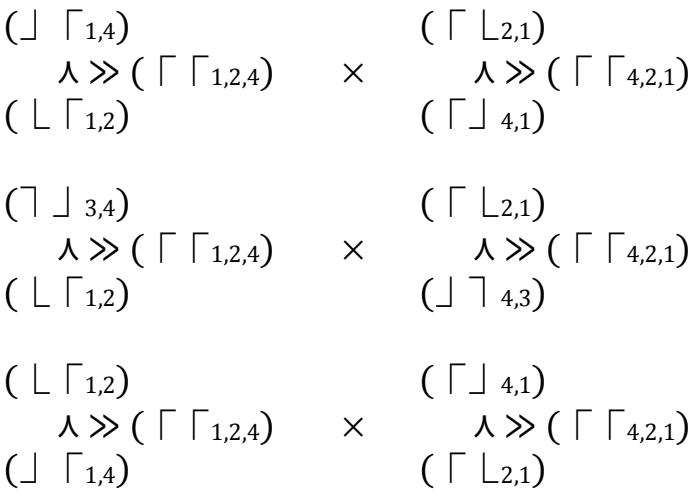
(┘┌$_{1,4}$)   (┘┐$_{4,3}$)
人 ≫ (└┌$_{1,2}$)   ×   人 ≫ (┌└$_{2,1}$)
(┐┘$_{3,4}$)   (┌┘$_{4,1}$)

(┌┌$_{1,2,4}$)   (┘┐$_{4,3}$)
人 ≫ (└┌$_{1,2}$)   ×   人 ≫ (┌└$_{2,1}$)
(┐┘$_{3,4}$)   (┌┌$_{4,2,1}$)

Medial action



Objectal action



(⌉ ⌋ $_{3,4}$)   (⌈⌋ $_{4,1}$)
人 ≫ (⌈ ⌈$_{1,2,4}$)   ×   人 ≫ (⌈ ⌈$_{4,2,1}$)
(⌋ ⌈$_{1,4}$)   (⌋ ⌉ $_{4,3}$)

(⌋ ⌈$_{1,4}$)   (⌋ ⌉ $_{4,3}$)
人 ≫ (⌈ ⌈$_{1,2,4}$)   ×   人 ≫ (⌈ ⌈$_{4,2,1}$)
(⌉ ⌋ $_{3,4}$)   (⌈⌋ $_{4,1}$)

(⌊ ⌈$_{1,2}$)   (⌋ ⌉ $_{4,3}$)
人 ≫ (⌈ ⌈$_{1,2,4}$)   ×   人 ≫ (⌈ ⌈$_{4,2,1}$)
(⌉ ⌋ $_{3,4}$)   (⌈ ⌊$_{2,1}$)

Interpretative action

(⌈ ⌈$_{1,2,4}$)   (⌈ ⌊$_{2,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)   ×   人 ≫ (⌋ ⌉ $_{4,3}$)
(⌊ ⌈$_{1,2}$)   (⌈ ⌈$_{4,2,1}$)

(⌋ ⌈$_{1,4}$)   (⌈ ⌊$_{2,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)   ×   人 ≫ (⌋ ⌉ $_{4,3}$)
(⌊ ⌈$_{1,2}$)   (⌈⌋ $_{4,1}$)

(⌈ ⌈$_{1,2,4}$)   (⌈⌋ $_{4,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)   ×   人 ≫ (⌋ ⌉ $_{4,3}$)
(⌋ ⌈$_{1,4}$)   (⌈ ⌈$_{4,2,1}$)

(⌊ ⌈$_{1,2}$)   (⌈⌋ $_{4,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)   ×   人 ≫ (⌋ ⌉ $_{4,3}$)
(⌋ ⌈$_{1,4}$)   (⌈ ⌊$_{2,1}$)

(⌋ ⌈$_{1,4}$)   (⌈ ⌈$_{4,2,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)   ×   人 ≫ (⌋ ⌉ $_{4,3}$)
(⌈ ⌈$_{1,2,4}$)   (⌈⌋ $_{4,1}$)

(⌊ ⌈$_{1,2}$)   (⌈ ⌈$_{4,2,1}$)
人 ≫ (⌉ ⌋ $_{3,4}$)   ×   人 ≫ (⌋ ⌉ $_{4,3}$)
(⌈ ⌈$_{1,2,4}$)   (⌈ ⌊$_{2,1}$)

8. Pre-semiotic dual system

(⌝⌟$_{3,4}$ ⌜⌜$_{1,2,4}$⌟ ⌜$_{1,4}$ ⌞⌝$_{2,3}$) × (⌝ ⌞$_{3,2}$ ⌜⌟$_{4,1}$ ⌜⌜$_{4,2,1}$⌟⌝$_{4,3}$)

Qualitative action

(⌜⌜$_{1,2,4}$) (⌜⌟$_{4,1}$)
ʌ ≫ (⌞⌝$_{2,3}$) × ʌ ≫ (⌝ ⌞$_{3,2}$)
(⌟ ⌜$_{1,4}$) (⌜⌜$_{4,2,1}$)

(⌝⌟$_{3,4}$) (⌜⌟$_{4,1}$)
ʌ ≫ (⌞⌝$_{2,3}$) × ʌ ≫ (⌝ ⌞$_{3,2}$)
(⌟ ⌜$_{1,4}$) (⌟⌝$_{4,3}$)

(⌟ ⌜$_{1,4}$) (⌜⌜$_{4,2,1}$)
ʌ ≫ (⌞⌝$_{2,3}$) × ʌ ≫ (⌝ ⌞$_{3,2}$)
(⌜⌜$_{1,2,4}$) (⌜⌟$_{4,1}$)

(⌝⌟$_{3,4}$) (⌜⌜$_{4,2,1}$)
ʌ ≫ (⌞⌝$_{2,3}$) × ʌ ≫ (⌝ ⌞$_{3,2}$)
(⌜⌜$_{1,2,4}$) (⌟⌝$_{4,3}$)

(⌟ ⌜$_{1,4}$) (⌟⌝$_{4,3}$)
ʌ ≫ (⌞⌝$_{2,3}$) × ʌ ≫ (⌝ ⌞$_{3,2}$)
(⌝⌟$_{3,4}$) (⌜⌟$_{4,1}$)

(⌜⌜$_{1,2,4}$) (⌟⌝$_{4,3}$)
ʌ ≫ (⌞⌝$_{2,3}$) × ʌ ≫ (⌝ ⌞$_{3,2}$)
(⌝⌟$_{3,4}$) (⌜⌜$_{4,2,1}$)

Medial action

(⌜⌜$_{1,2,4}$) (⌝ ⌞$_{3,2}$)
ʌ ≫ (⌟ ⌜$_{1,4}$) × ʌ ≫ (⌜⌟$_{4,1}$)
(⌞⌝$_{2,3}$) (⌜⌜$_{4,2,1}$)

(⌝⌟$_{3,4}$) (⌝ ⌞$_{3,2}$)
ʌ ≫ (⌟ ⌜$_{1,4}$) × ʌ ≫ (⌜⌟$_{4,1}$)
(⌞⌝$_{2,3}$) (⌟⌝$_{4,3}$)

$$
\begin{array}{lcl}
(\,\lfloor\rceil_{2,3}) & & (\lceil\,\lceil_{4,2,1}) \\
\quad \curlywedge \gg (\lrcorner\,\lceil_{1,4}) & \times & \quad \curlywedge \gg (\lceil\lrcorner_{4,1}) \\
(\lceil\,\lceil_{1,2,4}) & & (\rceil\,\lfloor_{3,2})
\end{array}
$$

$$
\begin{array}{lcl}
(\rceil\,\lrcorner_{3,4}) & & (\lceil\,\lceil_{4,2,1}) \\
\quad \curlywedge \gg (\lrcorner\,\lceil_{1,4}) & \times & \quad \curlywedge \gg (\lceil\lrcorner_{4,1}) \\
(\lceil\,\lceil_{1,2,4}) & & (\lrcorner\,\rceil_{4,3})
\end{array}
$$

$$
\begin{array}{lcl}
(\,\lfloor\rceil_{2,3}) & & (\lrcorner\,\rceil_{4,3}) \\
\quad \curlywedge \gg (\lrcorner\,\lceil_{1,4}) & \times & \quad \curlywedge \gg (\lceil\lrcorner_{4,1}) \\
(\rceil\,\lrcorner_{3,4}) & & (\rceil\,\lfloor_{3,2})
\end{array}
$$

$$
\begin{array}{lcl}
(\lceil\,\lceil_{1,2,4}) & & (\lrcorner\,\rceil_{4,3}) \\
\quad \curlywedge \gg (\lrcorner\,\lceil_{1,4}) & \times & \quad \curlywedge \gg (\lceil\lrcorner_{4,1}) \\
(\rceil\,\lrcorner_{3,4}) & & (\lceil\,\lceil_{4,2,1})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\lrcorner\,\lceil_{1,4}) & & (\rceil\,\lfloor_{3,2}) \\
\quad \curlywedge \gg (\lceil\,\lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil\,\lceil_{4,2,1}) \\
(\,\lfloor\rceil_{2,3}) & & (\lceil\lrcorner_{4,1})
\end{array}
$$

$$
\begin{array}{lcl}
(\rceil\,\lrcorner_{3,4}) & & (\rceil\,\lfloor_{3,2}) \\
\quad \curlywedge \gg (\lceil\,\lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil\,\lceil_{4,2,1}) \\
(\,\lfloor\rceil_{2,3}) & & (\lrcorner\,\rceil_{4,3})
\end{array}
$$

$$
\begin{array}{lcl}
(\,\lfloor\rceil_{2,3}) & & (\lceil\lrcorner_{4,1}) \\
\quad \curlywedge \gg (\lceil\,\lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil\,\lceil_{4,2,1}) \\
(\lrcorner\,\lceil_{1,4}) & & (\rceil\,\lfloor_{3,2})
\end{array}
$$

$$
\begin{array}{lcl}
(\rceil\,\lrcorner_{3,4}) & & (\lceil\lrcorner_{4,1}) \\
\quad \curlywedge \gg (\lceil\,\lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil\,\lceil_{4,2,1}) \\
(\lrcorner\,\lceil_{1,4}) & & (\lrcorner\,\rceil_{4,3})
\end{array}
$$

$$
\begin{array}{lcl}
(\lrcorner\,\lceil_{1,4}) & & (\lrcorner\,\rceil_{4,3}) \\
\quad \curlywedge \gg (\lceil\,\lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil\,\lceil_{4,2,1}) \\
(\rceil\,\lrcorner_{3,4}) & & (\lceil\lrcorner_{4,1})
\end{array}
$$

$$
\begin{array}{lcl}
(\,\lfloor\rceil_{2,3}) & & (\lrcorner\,\rceil_{4,3}) \\
\quad \curlywedge \gg (\lceil\,\lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil\,\lceil_{4,2,1}) \\
(\rceil\,\lrcorner_{3,4}) & & (\rceil\,\lfloor_{3,2})
\end{array}
$$

Interpretative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ulcorner_{1,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\lrcorner\ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\lrcorner\ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ulcorner_{1,4}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\urcorner\lrcorner_{3,4}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ \curlywedge \gg (\lrcorner\urcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

9. Pre-semiotic dual system

$$(\urcorner\lrcorner_{3,4}\ \ulcorner\ulcorner_{1,2,4}\lrcorner\urcorner_{4,3}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\urcorner\lrcorner_{4,3}\ \ulcorner\ulcorner_{4,2,1}\lrcorner\urcorner_{4,3})$$

Qualitative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$(\lrcorner\,\urcorner_{3,4})$ $(\ulcorner\,\ulcorner_{4,2,1})$
$\curlywedge \gg (\,\llcorner\urcorner_{2,3})$ $\times$ $\curlywedge \gg (\urcorner\;\llcorner_{3,2})$
$(\ulcorner\,\ulcorner_{1,2,4})$ $(\urcorner\,\lrcorner_{4,3})$

$(\urcorner\,\lrcorner_{3,4})$ $(\ulcorner\,\ulcorner_{4,2,1})$
$\curlywedge \gg (\,\llcorner\urcorner_{2,3})$ $\times$ $\curlywedge \gg (\urcorner\;\llcorner_{3,2})$
$(\ulcorner\,\ulcorner_{1,2,4})$ $(\lrcorner\,\urcorner_{4,3})$

$(\lrcorner\,\urcorner_{3,4})$ $(\lrcorner\,\urcorner_{4,3})$
$\curlywedge \gg (\,\llcorner\urcorner_{2,3})$ $\times$ $\curlywedge \gg (\urcorner\;\llcorner_{3,2})$
$(\urcorner\,\lrcorner_{3,4})$ $(\urcorner\,\lrcorner_{4,3})$

$(\ulcorner\,\ulcorner_{1,2,4})$ $(\lrcorner\,\urcorner_{4,3})$
$\curlywedge \gg (\,\llcorner\urcorner_{2,3})$ $\times$ $\curlywedge \gg (\urcorner\;\llcorner_{3,2})$
$(\urcorner\,\lrcorner_{3,4})$ $(\ulcorner\,\ulcorner_{4,2,1})$

Medial action

$(\ulcorner\,\ulcorner_{1,2,4})$ $(\urcorner\;\llcorner_{3,2})$
$\curlywedge \gg (\lrcorner\,\urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\,\lrcorner_{4,3})$
$(\,\llcorner\urcorner_{2,3})$ $(\ulcorner\,\ulcorner_{4,2,1})$

$(\urcorner\,\lrcorner_{3,4})$ $(\urcorner\;\llcorner_{3,2})$
$\curlywedge \gg (\lrcorner\,\urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\,\lrcorner_{4,3})$
$(\,\llcorner\urcorner_{2,3})$ $(\lrcorner\,\urcorner_{4,3})$

$(\,\llcorner\urcorner_{2,3})$ $(\ulcorner\,\ulcorner_{4,2,1})$
$\curlywedge \gg (\lrcorner\,\urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\,\lrcorner_{4,3})$
$(\ulcorner\,\ulcorner_{1,2,4})$ $(\urcorner\;\llcorner_{3,2})$

$(\urcorner\,\lrcorner_{3,4})$ $(\ulcorner\,\ulcorner_{4,2,1})$
$\curlywedge \gg (\lrcorner\,\urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\,\lrcorner_{4,3})$
$(\ulcorner\,\ulcorner_{1,2,4})$ $(\lrcorner\,\urcorner_{4,3})$

$(\,\llcorner\urcorner_{2,3})$ $(\lrcorner\,\urcorner_{4,3})$
$\curlywedge \gg (\lrcorner\,\urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\,\lrcorner_{4,3})$
$(\urcorner\,\lrcorner_{3,4})$ $(\urcorner\;\llcorner_{3,2})$

$(\ulcorner\,\ulcorner_{1,2,4})$ $(\lrcorner\,\urcorner_{4,3})$
$\curlywedge \gg (\lrcorner\,\urcorner_{3,4})$ $\times$ $\curlywedge \gg (\urcorner\,\lrcorner_{4,3})$
$(\urcorner\,\lrcorner_{3,4})$ $(\ulcorner\,\ulcorner_{4,2,1})$

Objectal action

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ \curlywedge\gg(\ulcorner\ulcorner_{1,2,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\llcorner_{3,2}) \\ \curlywedge\gg(\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge\gg(\ulcorner\ulcorner_{1,2,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\llcorner_{3,2}) \\ \curlywedge\gg(\ulcorner\ulcorner_{4,2,1}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge\gg(\ulcorner\ulcorner_{1,2,4}) \\ (\lrcorner\urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge\gg(\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge\gg(\ulcorner\ulcorner_{1,2,4}) \\ (\lrcorner\urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge\gg(\ulcorner\ulcorner_{4,2,1}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ \curlywedge\gg(\ulcorner\ulcorner_{1,2,4}) \\ (\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3}) \\ \curlywedge\gg(\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge\gg(\ulcorner\ulcorner_{1,2,4}) \\ (\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3}) \\ \curlywedge\gg(\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\llcorner_{3,2})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge\gg(\urcorner\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\llcorner_{3,2}) \\ \curlywedge\gg(\lrcorner\urcorner_{4,3}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ \curlywedge\gg(\urcorner\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\llcorner_{3,2}) \\ \curlywedge\gg(\lrcorner\urcorner_{4,3}) \\ (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge\gg(\urcorner\lrcorner_{3,4}) \\ (\lrcorner\urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge\gg(\lrcorner\urcorner_{4,3}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

(⌊⌉ 2,3)   (⌉ ⌋ 4,3)
   人 ≫ (⌉ ⌋ 3,4)   ×   人 ≫ (⌋ ⌉ 4,3)
(⌋ ⌉ 3,4)   (⌉ ⌊3,2)

(⌋ ⌉ 3,4)   (⌈ ⌈1,2,4)
   人 ≫ (⌉ ⌋ 3,4)   ×   人 ≫ (⌉ ⌋ 4,3)
(⌈ ⌈4,2,1)   (⌊⌉ 2,3)

(⌊⌉ 2,3)   (⌈ ⌈4,2,1)
   人 ≫ (⌉ ⌋ 3,4)   ×   人 ≫ (⌋ ⌉ 4,3)
(⌈ ⌈1,2,4)   (⌉ ⌊3,2)

10. Pre-semiotic dual system

(⌉ ⌋ 3,4 ⌈⌉ 2,4 ⌋ ⌉ 3,4 ⌊⌉ 2,3) × (⌉ ⌊3,2 ⌉ ⌋ 4,3 ⌉ ⌈4,2 ⌋ ⌉ 4,3)

Qualitative action

(⌈⌉ 2,4)   (⌉ ⌋ 4,3)
   人 ≫ (⌊⌉ 2,3)   ×   人 ≫ (⌉ ⌊3,2)
(⌋ ⌉ 3,4)   (⌉ ⌈4,2)

(⌉ ⌋ 3,4)   (⌉ ⌋ 4,3)
   人 ≫ (⌊⌉ 2,3)   ×   人 ≫ (⌉ ⌊3,2)
(⌋ ⌉ 3,4)   (⌋ ⌉ 4,3)

(⌋ ⌉ 3,4)   (⌉ ⌈4,2)
   人 ≫ (⌊⌉ 2,3)   ×   人 ≫ (⌉ ⌊3,2)
(⌈⌉ 2,4)   (⌉ ⌋ 4,3)

(⌉ ⌋ 3,4)   (⌉ ⌈4,2)
   人 ≫ (⌊⌉ 2,3)   ×   人 ≫ (⌉ ⌊3,2)
(⌈⌉ 2,4)   (⌋ ⌉ 4,3)

(⌋ ⌉ 3,4)   (⌋ ⌉ 4,3)
   人 ≫ (⌊⌉ 2,3)   ×   人 ≫ (⌉ ⌊3,2)
(⌉ ⌋ 3,4)   (⌉ ⌋ 4,3)

(⌈⌉ 2,4)   (⌋ ⌉ 4,3)
   人 ≫ (⌊⌉ 2,3)   ×   人 ≫ (⌉ ⌊3,2)
(⌉ ⌋ 3,4)   (⌉ ⌈4,2)

Medial action

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\urcorner\lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\urcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\urcorner\lrcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\lrcorner\urcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

(┐ ┘ $_{3,4}$)		(┐ ┘ $_{4,3}$)
人 ≫ (┌┐ $_{2,4}$)	×	人 ≫ (┐ ┌$_{4,2}$)
(┘ ┐ $_{3,4}$)		(┘ ┐ $_{4,3}$)

(┘ ┐ $_{3,4}$)		(┘ ┐ $_{4,3}$)
人 ≫ (┌┐ $_{2,4}$)	×	人 ≫ (┐ ┌$_{4,2}$)
(┐ ┘ $_{3,4}$)		(┐ ┘ $_{4,3}$)

(└┐ $_{2,3}$)		(┘ ┐ $_{4,3}$)
人 ≫ (┌┐ $_{2,4}$)	×	人 ≫ (┐ ┌$_{4,2}$)
(┐ ┘ $_{3,4}$)		(┐ └$_{3,2}$)

Interpretative action

(┌┐ $_{2,4}$)		(┐ └$_{3,2}$)
人 ≫ (┐ ┘ $_{3,4}$)	×	人 ≫ (┘ ┐ $_{4,3}$)
(└┐ $_{2,3}$)		(┐ ┌$_{4,2}$)

(┘ ┐ $_{3,4}$)		(┐ └$_{3,2}$)
人 ≫ (┐ ┘ $_{3,4}$)	×	人 ≫ (┘ ┐ $_{4,3}$)
(└┐ $_{2,3}$)		(┐ ┘ $_{4,3}$)

(┌┐ $_{2,4}$)		(┐ ┘ $_{4,3}$)
人 ≫ (┐ ┘ $_{3,4}$)	×	人 ≫ (┘ ┐ $_{4,3}$)
(┘ ┐ $_{3,4}$)		(┐ ┌$_{4,2}$)

(└┐ $_{2,3}$)		(┐ ┘ $_{4,3}$)
人 ≫ (┐ ┘ $_{3,4}$)	×	人 ≫ (┘ ┐ $_{4,3}$)
(┘ ┐ $_{3,4}$)		(┐ └$_{3,2}$)

(┘ ┐ $_{3,4}$)		(┐ ┌$_{4,2}$)
人 ≫ (┐ ┘ $_{3,4}$)	×	人 ≫ (┘ ┐ $_{4,3}$)
(┌┐ $_{2,4}$)		(┐ ┘ $_{4,3}$)

(└┐ $_{2,3}$)		(┐ ┌$_{4,2}$)
人 ≫ (┐ ┘ $_{3,4}$)	×	人 ≫ (┘ ┐ $_{4,3}$)
(┌┐ $_{2,4}$)		(┐ └$_{3,2}$)

11. Pre-semiotic dual system

$(\urcorner\ \ulcorner_{2,4}\ \ulcorner\ulcorner_{1,2,4}\ \lrcorner\ \ulcorner_{1,4}\ \llcorner\ulcorner_{1,2}) \times (\ulcorner\llcorner_{2,1}\ \ulcorner\lrcorner_{4,1}\ \ulcorner\ulcorner_{4,2,1}\ \ulcorner\urcorner_{4,2})$

Qualitative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\llcorner\ulcorner_{1,2}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\llcorner\ulcorner_{1,2}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ \curlywedge \gg (\llcorner\ulcorner_{1,2}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ \curlywedge \gg (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\llcorner\ulcorner_{1,2}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ \curlywedge \gg (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ \curlywedge \gg (\llcorner\ulcorner_{1,2}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\llcorner\ulcorner_{1,2}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \times \begin{matrix}(\ulcorner\llcorner_{2,1}) \\ \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \times \begin{matrix}(\ulcorner\llcorner_{2,1}) \\ \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$
\begin{array}{lcl}
(\lfloor \lceil_{1,2}) & & (\lceil \lceil_{4,2,1}) \\
\quad \curlywedge \gg (\rfloor \lceil_{1,4}) & \times & \quad \curlywedge \gg (\lceil \rfloor_{4,1}) \\
(\lceil \lceil_{1,2,4}) & & (\lceil \lfloor_{2,1})
\end{array}
$$

$$
\begin{array}{lcl}
(\urcorner \lceil_{2,4}) & & (\lceil \lceil_{4,2,1}) \\
\quad \curlywedge \gg (\rfloor \lceil_{1,4}) & \times & \quad \curlywedge \gg (\lceil \rfloor_{4,1}) \\
(\lceil \lceil_{1,2,4}) & & (\lceil \urcorner_{4,2})
\end{array}
$$

$$
\begin{array}{lcl}
(\lfloor \lceil_{1,2}) & & (\lceil \urcorner_{4,2}) \\
\quad \curlywedge \gg (\rfloor \lceil_{1,4}) & \times & \quad \curlywedge \gg (\lceil \rfloor_{4,1}) \\
(\urcorner \lceil_{2,4}) & & (\lceil \lfloor_{2,1})
\end{array}
$$

$$
\begin{array}{lcl}
(\lceil \lceil_{1,2,4}) & & (\lceil \urcorner_{4,2}) \\
\quad \curlywedge \gg (\rfloor \lceil_{1,4}) & \times & \quad \curlywedge \gg (\lceil \rfloor_{4,1}) \\
(\urcorner \lceil_{2,4}) & & (\lceil \lceil_{4,2,1})
\end{array}
$$

Objectal action

$$
\begin{array}{lcl}
(\rfloor \lceil_{1,4}) & & (\lceil \lfloor_{2,1}) \\
\quad \curlywedge \gg (\lceil \lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil \lceil_{4,2,1}) \\
(\lfloor \lceil_{1,2}) & & (\lceil \rfloor_{4,1})
\end{array}
$$

$$
\begin{array}{lcl}
(\urcorner \lceil_{2,4}) & & (\lceil \lfloor_{2,1}) \\
\quad \curlywedge \gg (\lceil \lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil \lceil_{4,2,1}) \\
(\lfloor \lceil_{1,2}) & & (\lceil \urcorner_{4,2})
\end{array}
$$

$$
\begin{array}{lcl}
(\lfloor \lceil_{1,2}) & & (\lceil \rfloor_{1,4}) \\
\quad \curlywedge \gg (\lceil \lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil \lceil_{4,2,1}) \\
(\rfloor \lceil_{1,4}) & & (\lceil \lfloor_{2,1})
\end{array}
$$

$$
\begin{array}{lcl}
(\urcorner \lceil_{2,4}) & & (\lceil \rfloor_{4,1}) \\
\quad \curlywedge \gg (\lceil \lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil \lceil_{4,2,1}) \\
(\rfloor \lceil_{1,4}) & & (\lceil \urcorner_{4,2})
\end{array}
$$

$$
\begin{array}{lcl}
(\rfloor \lceil_{1,4}) & & (\lceil \urcorner_{4,2}) \\
\quad \curlywedge \gg (\lceil \lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil \lceil_{4,2,1}) \\
(\urcorner \lceil_{2,4}) & & (\lceil \rfloor_{4,1})
\end{array}
$$

$$
\begin{array}{lcl}
(\lfloor \lceil_{1,2}) & & (\lceil \urcorner_{4,2}) \\
\quad \curlywedge \gg (\lceil \lceil_{1,2,4}) & \times & \quad \curlywedge \gg (\lceil \lceil_{4,2,1}) \\
(\urcorner \lceil_{2,4}) & & (\lceil \lfloor_{2,1})
\end{array}
$$

Interpretative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\llcorner_{2,1}) \\ \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\llcorner_{2,1}) \\ \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\llcorner_{2,1})\end{matrix}$$

12. Pre-semiotic dual system

$$(\urcorner\ \ulcorner_{2,4}\ \ulcorner\ulcorner_{1,2,4}\lrcorner\ \ulcorner_{1,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\ \ulcorner\lrcorner_{4,1}\ \ulcorner\ulcorner_{4,2,1}\ \ulcorner\urcorner_{4,2})$$

Qualitative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ \curlywedge \gg (\llcorner\urcorner_{2,3}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\llcorner\urcorner_{2,3}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{array}{lcl} (\lrcorner\ \ulcorner_{1,4}) & & (\ulcorner\ulcorner_{4,2,1}) \\ \quad \curlywedge \gg (\ \llcorner\urcorner_{2,3}) & \times & \quad \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\ulcorner_{1,2,4}) & & (\ulcorner\lrcorner_{4,1}) \end{array}$$

$$\begin{array}{lcl} (\urcorner\ \ulcorner_{2,4}) & & (\ulcorner\ulcorner_{4,2,1}) \\ \quad \curlywedge \gg (\ \llcorner\urcorner_{2,3}) & \times & \quad \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\urcorner_{2,4}) & & (\ulcorner\ulcorner_{1,2,}\ ) \end{array}$$

$$\begin{array}{lcl} (\lrcorner\ \ulcorner_{1,4}) & & (\ulcorner\urcorner_{4,2} \\ \quad \curlywedge \gg (\ \llcorner\urcorner_{2,3}) & \times & \quad \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\urcorner\ \ulcorner_{2,4}) & & (\ulcorner\lrcorner_{4,1}) \end{array}$$

$$\begin{array}{lcl} (\ulcorner\ulcorner_{1,2,4}) & & (\ulcorner\urcorner_{4,2}) \\ \quad \curlywedge \gg (\ \llcorner\urcorner_{2,3}) & \times & \quad \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\urcorner\ \ulcorner_{2,4}) & & (\ulcorner\ulcorner_{4,2,1}) \end{array}$$

Medial action

$$\begin{array}{lcl} (\ulcorner\ulcorner_{1,2,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \quad \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) & \times & \quad \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\ \llcorner\urcorner_{2,3}) & & (\ulcorner\ulcorner_{4,2,1}) \end{array}$$

$$\begin{array}{lcl} (\urcorner\ \ulcorner_{2,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \quad \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) & \times & \quad \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\ \llcorner\urcorner_{2,3}) & & (\ulcorner\urcorner_{4,2}) \end{array}$$

$$\begin{array}{lcl} (\ \llcorner\urcorner_{2,3}) & & (\ulcorner\ulcorner_{4,2,1}) \\ \quad \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) & \times & \quad \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ulcorner_{1,2,4}) & & (\urcorner\ \llcorner_{3,2}) \end{array}$$

$$\begin{array}{lcl} (\urcorner\ \ulcorner_{2,4}) & & (\ulcorner\ulcorner_{4,2,1}) \\ \quad \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) & \times & \quad \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ulcorner_{1,2,4}) & & (\ulcorner\urcorner_{4,2}) \end{array}$$

$$\begin{array}{lcl} (\ \llcorner\urcorner_{2,3}) & & (\ulcorner\urcorner_{4,2}) \\ \quad \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) & \times & \quad \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\urcorner\ \ulcorner_{2,4}) & & (\urcorner\ \llcorner_{3,2}) \end{array}$$

$$\begin{array}{lcl} (\ulcorner\ulcorner_{1,2,4}) & & (\ulcorner\urcorner_{4,2}) \\ \quad \curlywedge \gg (\lrcorner\ \ulcorner_{1,4}) & \times & \quad \curlywedge \gg (\ulcorner\lrcorner_{4,1}) \\ (\urcorner\ \ulcorner_{2,4}) & & (\ulcorner\ulcorner_{4,2,1}) \end{array}$$

Objectal action

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\ulcorner\ \ulcorner_{1,2,4}) & \times & \curlywedge \gg (\ulcorner\ \ulcorner_{4,2,1}) \\ (\llcorner\urcorner_{2,3}) & & (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\ulcorner\ \ulcorner_{1,2,4}) & \times & \curlywedge \gg (\ulcorner\ \ulcorner_{4,2,1}) \\ (\llcorner\urcorner_{2,3}) & & (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) & & (\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\ulcorner\ \ulcorner_{1,2,4}) & \times & \curlywedge \gg (\ulcorner\ \ulcorner_{4,2,1}) \\ (\lrcorner\ \ulcorner_{1,4}) & & (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) & & (\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\ulcorner\ \ulcorner_{1,2,4}) & \times & \curlywedge \gg (\ulcorner\ \ulcorner_{4,2,1}) \\ (\lrcorner\ \ulcorner_{1,4}) & & (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) & & (\ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\ulcorner\ \ulcorner_{1,2,4}) & \times & \curlywedge \gg (\ulcorner\ \ulcorner_{4,2,1}) \\ (\urcorner\ \ulcorner_{2,4}) & & (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3}) & & (\ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\ulcorner\ \ulcorner_{1,2,4}) & \times & \curlywedge \gg (\ulcorner\ \ulcorner_{4,2,1}) \\ (\urcorner\ \ulcorner_{2,4}) & & (\urcorner\ \llcorner_{3,2})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) & \times & \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\llcorner\urcorner_{2,3}) & & (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) & \times & \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\llcorner\urcorner_{2,3}) & & (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4}) & & (\ulcorner\lrcorner_{4,1}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{2,4}) & \times & \curlywedge \gg (\ulcorner\urcorner_{4,2}) \\ (\lrcorner\ \ulcorner_{1,4}) & & (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

(└┐ $_{2,3}$) (┌┘ $_{4,1}$)
人 ≫ (┐ ┌$_{2,4}$) × 人 ≫ (┌┐ $_{4,2}$)
(┘ ┌$_{1,4}$) (┐ └$_{3,2}$)

(┘ ┌$_{1,4}$) (┌ ┌$_{4,2,1}$)
人 ≫ (┐ ┌$_{2,4}$) × 人 ≫ (┌┐ $_{4,2}$)
(┌ ┌$_{1,2,4}$) (┌┘ $_{4,1}$)

(└┐ $_{2,3}$) (┌ ┌$_{4,2,1}$)
人 ≫ (┐ ┌$_{2,4}$) × 人 ≫ (┌┐ $_{4,2}$)
(┌ ┌$_{1,2,4}$) (┐ └$_{3,2}$)

13. Pre-semiotic dual system
(┐ ┌$_{2,4}$ ┌ ┌$_{1,2,4}$ ┘┐ $_{3,4}$ └┐ $_{2,3}$) × (┐ └$_{3,2}$ ┐┘ $_{4,3}$ ┌ ┌$_{4,2,1}$ ┌┐ $_{4,2}$)

Qualitative action

(┌ ┌$_{1,2,4}$) (┐ ┘ $_{4,3}$)
人 ≫ (└┐ $_{2,3}$) × 人 ≫ (┐ └$_{3,2}$)
(┘ ┐ $_{3,4}$) (┌ ┌$_{4,2,1}$)

(┐ ┌$_{2,4}$) (┐ ┘ $_{4,3}$)
人 ≫ (└┐ $_{2,3}$) × 人 ≫ (┐ └$_{3,2}$)
(┘ ┐ $_{3,4}$) (┌┐ $_{4,2}$)

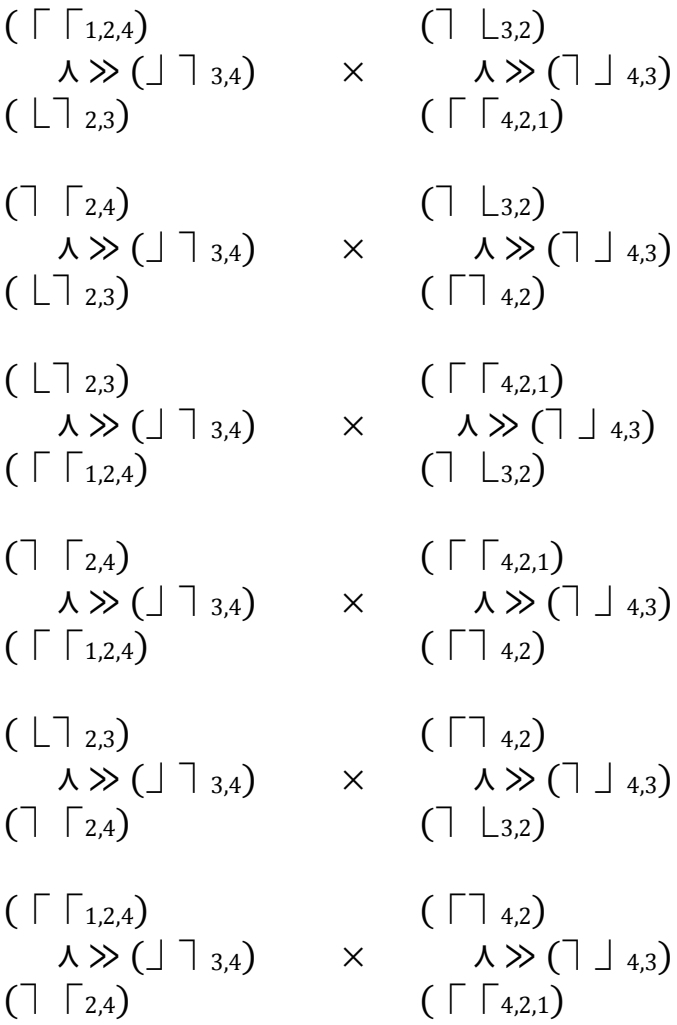
(┘ ┐ $_{3,4}$) (┌ ┌$_{4,2,1}$)
人 ≫ (└┐ $_{2,3}$) × 人 ≫ (┐ └$_{3,2}$)
(┌ ┌$_{1,2,4}$) (┐ ┘ $_{4,3}$)

(┐ ┌$_{2,4}$) (┌ ┌$_{4,2,1}$)
人 ≫ (└┐ $_{2,3}$) × 人 ≫ (┐ └$_{3,2}$)
(┌ ┌$_{1,2,4}$) (┌┐ $_{4,2}$)

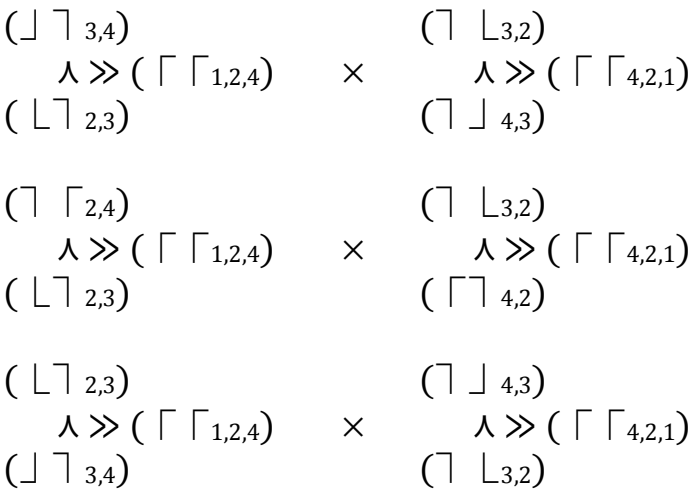
(┘ ┐ $_{3,4}$) (┌┐ $_{4,2}$)
人 ≫ (└┐ $_{2,3}$) × 人 ≫ (┐ └$_{3,2}$)
(┐ ┌$_{2,4}$) (┐ ┘ $_{4,3}$)

(┌ ┌$_{1,2,4}$) (┌┐ $_{4,2}$)
人 ≫ (└┐ $_{2,3}$) × 人 ≫ (┐ └$_{3,2}$)
(┐ ┌$_{2,4}$) (┌ ┌$_{4,2,1}$)

Medial action



Objectal action



(⅂ ⌜$_{2,4}$)　　(⅂ ⌟$_{4,3}$)
　　ʌ ≫ (⌜ ⌜$_{1,2,4}$)　　×　　ʌ ≫ (⌜ ⌜$_{4,2,1}$)
(⌟ ⅂$_{3,4}$)　　(⌜⅂ $_{4,2}$)

(⌟ ⅂$_{3,4}$)　　(⌜⅂ $_{4,2}$)
　　ʌ ≫ (⌜ ⌜$_{1,2,4}$)　　×　　ʌ ≫ (⌜ ⌜$_{4,2,1}$)
(⅂ ⌜$_{2,4}$)　　(⅂ ⌟$_{4,3}$)

(⌞⅂ $_{2,3}$)　　(⌜⅂ $_{4,2}$)
　　ʌ ≫ (⌜ ⌜$_{1,2,4}$)　　×　　ʌ ≫ (⌜ ⌜$_{4,2,1}$)
(⅂ ⌜$_{2,4}$)　　(⅂ ⌞$_{3,2}$)

Interpretative action

(⌜ ⌜$_{1,2,4}$)　　(⅂ ⌞$_{3,2}$)
　　ʌ ≫ (⅂ ⌜$_{2,4}$)　　×　　ʌ ≫ (⌜⅂ $_{4,2}$)
(⌞⅂ $_{2,3}$)　　(⌜ ⌜$_{4,2,1}$)

(⌟ ⅂$_{3,4}$)　　(⅂ ⌞$_{3,2}$)
　　ʌ ≫ (⅂ ⌜$_{2,4}$)　　×　　ʌ ≫ (⌜⅂ $_{4,2}$)
(⌞⅂ $_{2,3}$)　　(⅂ ⌟$_{4,3}$)

(⌜ ⌜$_{1,2,4}$)　　(⅂ ⌟$_{4,3}$)
　　ʌ ≫ (⅂ ⌜$_{2,4}$)　　×　　ʌ ≫ (⌜⅂ $_{4,2}$)
(⌟ ⅂$_{3,4}$)　　(⌜ ⌜$_{4,2,1}$)

(⌞⅂ $_{2,3}$)　　(⌜ ⌜$_{4,2,1}$)
　　ʌ ≫ (⅂ ⌜$_{2,4}$)　　×　　ʌ ≫ (⌜⅂ $_{4,2}$)
(⌜ ⌜$_{1,2,4}$)　　(⅂ ⌟$_{4,3}$)

(⌞⅂ $_{2,3}$)　　(⌜ ⌜$_{4,2,1}$)
　　ʌ ≫ (⅂ ⌜$_{2,4}$)　　×　　ʌ ≫ (⌜⅂ $_{4,2}$)
(⌜ ⌜$_{1,2,4}$)　　(⅂ ⌞$_{3,2}$)

14. Pre-semiotic dual system

$(\urcorner\ \ulcorner_{2,4}\ \ulcorner\urcorner_{2,4}\ \lrcorner\urcorner_{3,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\urcorner\lrcorner_{4,3}\urcorner\ \ulcorner_{4,2}\ \ulcorner\urcorner_{4,2})$

Qualitative action

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) \\ \curlywedge \gg (\ \llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\ \llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ \curlywedge \gg (\ \llcorner\urcorner_{2,3}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \times \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\ \llcorner\urcorner_{2,3}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \times \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ \curlywedge \gg (\ \llcorner\urcorner_{2,3}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) \\ \curlywedge \gg (\ \llcorner\urcorner_{2,3}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \llcorner_{3,2}) \\ (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

Medial action

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\lrcorner_{4,3}) \\ (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\lrcorner_{4,3}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\ \ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\ \ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\ \ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\ \ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ \ulcorner\urcorner_{2,4}) \\ \curlywedge \gg (\lrcorner\urcorner_{3,4}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\ \ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ \curlywedge \gg (\ \ulcorner\urcorner_{2,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\ \ulcorner\urcorner_{2,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\ \ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\ \ulcorner\urcorner_{2,4}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ \curlywedge \gg (\ \ulcorner\urcorner_{2,4}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\ \ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ \curlywedge \gg (\ \ulcorner\urcorner_{2,4}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\ \ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\ \ulcorner\urcorner_{2,4}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\ \ulcorner\urcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

Interpretative action

$$(\ulcorner\urcorner_{2,4}) \quad (\urcorner\ \llcorner_{3,2})$$
$$\curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \quad \times \quad \curlywedge \gg (\ulcorner\urcorner_{4,2})$$
$$(\llcorner\urcorner_{2,3}) \quad (\urcorner\ \ulcorner_{4,2})$$

$$(\lrcorner\urcorner_{3,4}) \quad (\urcorner\ \llcorner_{3,2})$$
$$\curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \quad \times \quad \curlywedge \gg (\ulcorner\urcorner_{4,2})$$
$$(\llcorner\urcorner_{2,3}) \quad (\urcorner\ \lrcorner_{4,3})$$

$$(\ulcorner\urcorner_{2,4}) \quad (\urcorner\ \lrcorner_{4,3})$$
$$\curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \quad \times \quad \curlywedge \gg (\ulcorner\urcorner_{4,2})$$
$$(\lrcorner\urcorner_{3,4}) \quad (\urcorner\ \ulcorner_{4,2})$$

$$(\llcorner\urcorner_{2,3}) \quad (\urcorner\ \lrcorner_{4,3})$$
$$\curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \quad \times \quad \curlywedge \gg (\ulcorner\urcorner_{4,2})$$
$$(\lrcorner\urcorner_{3,4}) \quad (\urcorner\ \llcorner_{3,2})$$

$$(\lrcorner\urcorner_{3,4}) \quad (\urcorner\ \ulcorner_{4,2})$$
$$\curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \quad \times \quad \curlywedge \gg (\ulcorner\urcorner_{4,2})$$
$$(\ulcorner\urcorner_{2,4}) \quad (\urcorner\ \lrcorner_{4,3})$$

$$(\llcorner\urcorner_{2,3}) \quad (\urcorner\ \ulcorner_{4,2})$$
$$\curlywedge \gg (\urcorner\ \ulcorner_{2,4}) \quad \times \quad \curlywedge \gg (\ulcorner\urcorner_{4,2})$$
$$(\ulcorner\urcorner_{2,4}) \quad (\urcorner\ \llcorner_{3,2})$$

15. Pre-semiotic dual system

$$(\urcorner\urcorner_{2,3,4}\ \ulcorner\urcorner_{2,4}\ \lrcorner\urcorner_{3,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\urcorner\ \lrcorner_{4,3}\urcorner\ \ulcorner_{4,2}\urcorner\urcorner_{4,3,2})$$

Qualitative action

$$(\ulcorner\urcorner_{2,4}) \quad (\urcorner\ \lrcorner_{4,3})$$
$$\curlywedge \gg (\llcorner\urcorner_{2,3}) \quad \times \quad \curlywedge \gg (\urcorner\ \llcorner_{3,2})$$
$$(\lrcorner\urcorner_{3,4}) \quad (\urcorner\ \ulcorner_{4,2})$$

$$(\urcorner\urcorner_{2,3,4}) \quad (\urcorner\ \lrcorner_{4,3})$$
$$\curlywedge \gg (\llcorner\urcorner_{2,3}) \quad \times \quad \curlywedge \gg (\urcorner\ \llcorner_{3,2})$$
$$(\lrcorner\urcorner_{3,4}) \quad (\urcorner\urcorner_{4,3,2})$$

$$\begin{array}{l} (\lrcorner\,\urcorner_{3,4}) \\ \quad \curlywedge \gg (\,\llcorner\urcorner_{2,3}) \\ (\,\lceil\urcorner_{2,4}) \end{array} \quad \times \quad \begin{array}{l} (\urcorner\,\lceil_{4,2}) \\ \quad \curlywedge \gg (\urcorner\,\llcorner_{3,2}) \\ (\urcorner\,\lrcorner_{4,3}) \end{array}$$

$$\begin{array}{l} (\urcorner\,\lceil_{2,4}) \\ \quad \curlywedge \gg (\,\llcorner\urcorner_{2,3}) \\ (\,\lceil\urcorner_{2,4}) \end{array} \quad \times \quad \begin{array}{l} (\urcorner\,\lceil_{4,2}) \\ \quad \curlywedge \gg (\urcorner\,\llcorner_{3,2}) \\ (\,\lceil\urcorner_{4,2}) \end{array}$$

$$\begin{array}{l} (\lrcorner\,\urcorner_{3,4}) \\ \quad \curlywedge \gg (\,\llcorner\urcorner_{2,3}) \\ (\urcorner\,\lceil_{2,4}) \end{array} \quad \times \quad \begin{array}{l} (\,\lceil\urcorner_{4,2}) \\ \quad \curlywedge \gg (\urcorner\,\llcorner_{3,2}) \\ (\urcorner\,\lrcorner_{4,3}) \end{array}$$

$$\begin{array}{l} (\,\lceil\urcorner_{2,4}) \\ \quad \curlywedge \gg (\,\llcorner\urcorner_{2,3}) \\ (\urcorner\,\lceil_{2,4}) \end{array} \quad \times \quad \begin{array}{l} (\,\lceil\urcorner_{4,2}) \\ \quad \curlywedge \gg (\urcorner\,\llcorner_{3,2}) \\ (\urcorner\,\lceil_{4,2}) \end{array}$$

Medial action

$$\begin{array}{l} (\,\lceil\urcorner_{2,4}) \\ \quad \curlywedge \gg (\lrcorner\,\urcorner_{3,4}) \\ (\,\llcorner\urcorner_{2,3}) \end{array} \quad \times \quad \begin{array}{l} (\urcorner\,\llcorner_{3,2}) \\ \quad \curlywedge \gg (\urcorner\,\lrcorner_{4,3}) \\ (\urcorner\,\lceil_{4,2}) \end{array}$$

$$\begin{array}{l} (\urcorner\,\urcorner_{2,3,4}) \\ \quad \curlywedge \gg (\lrcorner\,\urcorner_{3,4}) \\ (\,\llcorner\urcorner_{2,3}) \end{array} \quad \times \quad \begin{array}{l} (\urcorner\,\llcorner_{3,2}) \\ \quad \curlywedge \gg (\urcorner\,\lrcorner_{4,3}) \\ (\urcorner\,\urcorner_{4,3,2}) \end{array}$$

$$\begin{array}{l} (\,\llcorner\urcorner_{2,3}) \\ \quad \curlywedge \gg (\lrcorner\,\urcorner_{3,4}) \\ (\,\lceil\urcorner_{2,4}) \end{array} \quad \times \quad \begin{array}{l} (\urcorner\,\lceil_{4,2}) \\ \quad \curlywedge \gg (\urcorner\,\lrcorner_{4,3}) \\ (\urcorner\,\llcorner_{3,2}) \end{array}$$

$$\begin{array}{l} (\urcorner\,\urcorner_{2,3,4}) \\ \quad \curlywedge \gg (\lrcorner\,\urcorner_{3,4}) \\ (\,\lceil\urcorner_{2,4}) \end{array} \quad \times \quad \begin{array}{l} (\urcorner\,\lceil_{4,2}) \\ \quad \curlywedge \gg (\urcorner\,\lrcorner_{4,3}) \\ (\urcorner\,\urcorner_{4,3,2}) \end{array}$$

$$\begin{array}{l} (\,\llcorner\urcorner_{2,3}) \\ \quad \curlywedge \gg (\lrcorner\,\urcorner_{3,4}) \\ (\urcorner\,\urcorner_{2,3,4}) \end{array} \quad \times \quad \begin{array}{l} (\urcorner\,\urcorner_{4,3,2}) \\ \quad \curlywedge \gg (\urcorner\,\lrcorner_{4,3}) \\ (\urcorner\,\llcorner_{3,2}) \end{array}$$

$$\begin{array}{l} (\,\lceil\urcorner_{2,4}) \\ \quad \curlywedge \gg (\lrcorner\,\urcorner_{3,4}) \\ (\urcorner\,\urcorner_{2,3,4}) \end{array} \quad \times \quad \begin{array}{l} (\urcorner\,\urcorner_{4,3,2}) \\ \quad \curlywedge \gg (\urcorner\,\lrcorner_{4,3}) \\ (\urcorner\,\lceil_{4,2}) \end{array}$$

Objectal action

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) & \times & \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\ \llcorner\urcorner_{2,3}) & & (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\urcorner\urcorner_{2,3,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) & \times & \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\ \llcorner\urcorner_{2,3}) & & (\urcorner\urcorner_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) & & (\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) & \times & \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\lrcorner\urcorner_{3,4}) & & (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\urcorner_{2,3,4}) & & (\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) & \times & \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\lrcorner\urcorner_{3,4}) & & (\urcorner\urcorner_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) & & (\urcorner\urcorner_{4,3,2}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) & \times & \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\urcorner_{2,3,4}) & & (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) & & (\urcorner\urcorner_{4,3,2}) \\ \curlywedge \gg (\ulcorner\urcorner_{2,4}) & \times & \curlywedge \gg (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\urcorner_{2,3,4}) & & (\urcorner\ \llcorner_{3,2})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\urcorner_{2,3,4}) & \times & \curlywedge \gg (\urcorner\urcorner_{4,3,2}) \\ (\ \llcorner\urcorner_{2,3}) & & (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) & & (\urcorner\ \llcorner_{3,2}) \\ \curlywedge \gg (\urcorner\urcorner_{2,3,4}) & \times & \curlywedge \gg (\urcorner\urcorner_{4,3,2}) \\ (\ \llcorner\urcorner_{2,3}) & & (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) & & (\urcorner\lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\urcorner_{2,3,4}) & \times & \curlywedge \gg (\urcorner\urcorner_{4,3,2}) \\ (\lrcorner\urcorner_{3,4}) & & (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\urcorner\ \urcorner_{2,3,4}) \\ (\lrcorner\ \urcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \lrcorner_{4,3}) \\ \curlywedge \gg (\urcorner\ \urcorner_{4,3,2}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4}) \\ \curlywedge \gg (\urcorner\ \urcorner_{2,3,4}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \urcorner_{4,3,2}) \\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ \curlywedge \gg (\urcorner\ \urcorner_{2,3,4}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ \curlywedge \gg (\urcorner\ \urcorner_{4,3,2}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

II. Action schemata of the 2 · 24 tetradic semiotic partial relations

1. Pre-semiotic dual system
$(\urcorner\lrcorner\ \ulcorner\lrcorner\ \lrcorner\lrcorner\ \llcorner\lrcorner) \times (\urcorner\ \llcorner\lrcorner\lrcorner\ \lrcorner\ \ulcorner\lrcorner\urcorner)$

Qualitative action

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ (\lrcorner\lrcorner_{1,3,4}) \gg \curlyvee \succ (\llcorner\lrcorner_{1,3}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,1}) \gg \begin{matrix}(\lrcorner\ \ulcorner_{4,1}) \\ \curlyvee \succ (\lrcorner\lrcorner_{4,3,1}) \\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4}) \\ (\lrcorner\lrcorner_{1,4,3}) \gg \curlyvee \succ (\llcorner\lrcorner_{1,3}) \\ (\urcorner\lrcorner_{3,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,1}) \gg \begin{matrix}(\lrcorner\ \urcorner_{4,3}) \\ \curlyvee \succ (\lrcorner\lrcorner_{4,3,1}) \\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4}) \\ (\ulcorner\lrcorner_{1,4}) \gg \curlyvee \succ (\llcorner\lrcorner_{1,3}) \\ (\lrcorner\lrcorner_{1,3,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,1}) \gg \begin{matrix}(\lrcorner\lrcorner_{4,3,1}) \\ \curlyvee \succ (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4}) \\ (\ulcorner\lrcorner_{1,4}) \gg \curlyvee \succ (\llcorner\lrcorner_{1,3}) \\ (\urcorner\lrcorner_{3,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,1}) \gg \begin{matrix}(\lrcorner\ \urcorner_{4,3}) \\ \curlyvee \succ (\lrcorner\ \ulcorner_{4,1}) \\ (\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4}) \\ (\urcorner\lrcorner_{3,4}) \gg \curlyvee \succ (\llcorner\lrcorner_{1,3}) \\ (\ulcorner\lrcorner_{1,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,1}) \gg \begin{matrix}(\lrcorner\ \ulcorner_{4,1}) \\ \curlyvee \succ (\lrcorner\ \urcorner_{4,3}) \\ (\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\urcorner\lrcorner_{3,4}) \gg \curlyvee \succ (\llcorner\lrcorner_{1,3})\\(\lrcorner\lrcorner_{1,3,4})\end{matrix} \times \begin{matrix}(\lrcorner\lrcorner_{4,3,1})\\(\urcorner\llcorner_{3,1}) \gg \curlyvee \succ (\lrcorner\urcorner_{4,3})\\(\lrcorner\ulcorner_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\llcorner\lrcorner_{1,3}) \gg \curlyvee \succ (\lrcorner\lrcorner_{1,3,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\lrcorner\ulcorner_{4,1})\\(\lrcorner\lrcorner_{4,3,1}) \gg \curlyvee \succ (\urcorner\llcorner_{3,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\llcorner\lrcorner_{1,3}) \gg \curlyvee \succ (\lrcorner\lrcorner_{1,3,4})\\(\urcorner\lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\urcorner_{4,3})\\(\lrcorner\lrcorner_{4,3,1}) \gg \curlyvee \succ (\urcorner\llcorner_{3,1})\\(\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\lrcorner_{1,3})\\(\ulcorner\lrcorner_{1,4}) \gg \curlyvee \succ (\lrcorner\lrcorner_{1,3,4})\\(\urcorner\lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\urcorner_{4,3})\\(\lrcorner\lrcorner_{4,3,1}) \gg \curlyvee \succ (\lrcorner\ulcorner_{4,1})\\(\urcorner\llcorner_{3,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\ulcorner\lrcorner_{1,4}) \gg \curlyvee \succ (\lrcorner\lrcorner_{1,3,4})\\(\llcorner\lrcorner_{1,3})\end{matrix} \times \begin{matrix}(\urcorner\llcorner_{3,1})\\(\lrcorner\lrcorner_{4,3,1}) \gg \curlyvee \succ (\lrcorner\ulcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\lrcorner_{1,3})\\(\urcorner\lrcorner_{3,4}) \gg \curlyvee \succ (\lrcorner\lrcorner_{1,3,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\lrcorner\ulcorner_{4,1})\\(\lrcorner\lrcorner_{4,3,1}) \gg \curlyvee \succ (\lrcorner\urcorner_{4,3})\\(\urcorner\llcorner_{3,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\urcorner\lrcorner_{3,4}) \gg \curlyvee \succ (\lrcorner\lrcorner_{1,3,4})\\(\llcorner\lrcorner_{1,3})\end{matrix} \times \begin{matrix}(\urcorner\llcorner_{3,1})\\(\lrcorner\lrcorner_{4,3,1}) \gg \curlyvee \succ (\lrcorner\ulcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\llcorner\lrcorner_{1,3}) \gg \curlyvee \succ (\ulcorner\lrcorner_{1,4})\\(\lrcorner\lrcorner_{1,3,4})\end{matrix} \times \begin{matrix}(\lrcorner\lrcorner_{4,3,1})\\(\lrcorner\ulcorner_{4,1}) \gg \curlyvee \succ (\urcorner\llcorner_{3,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4})\\(\llcorner\lrcorner_{1,3}) \gg \curlyvee \succ (\ulcorner\lrcorner_{1,4})\\(\urcorner\lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\urcorner_{4,3})\\(\lrcorner\ulcorner_{4,1}) \gg \curlyvee \succ (\urcorner\llcorner_{3,1})\\(\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\lrcorner\,_{1,3})\\(\lrcorner\,\lrcorner\,_{1,3,4})\gg\curlyvee\succ(\ulcorner\lrcorner\,_{1,4})\\(\urcorner\,\lrcorner\,_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\urcorner\,_{4,3})\\(\lrcorner\,\ulcorner_{4,1})\gg\curlyvee\succ(\lrcorner\,\lrcorner\,_{4,3,1})\\(\urcorner\,\llcorner_{3,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner\,_{3,4})\\(\lrcorner\,\lrcorner\,_{1,3,4})\gg\curlyvee\succ(\ulcorner\lrcorner\,_{1,4})\\(\,\llcorner\lrcorner\,_{1,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\,\llcorner_{3,1})\\(\lrcorner\,\ulcorner_{4,1})\gg\curlyvee\succ(\lrcorner\,\lrcorner\,_{4,3,1})\\(\lrcorner\,\urcorner\,_{4,3})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\lrcorner\,_{1,3})\\(\urcorner\,\lrcorner\,_{3,4})\gg\curlyvee\succ(\ulcorner\lrcorner\,_{1,4})\\(\lrcorner\,\lrcorner\,_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\lrcorner\,_{4,3,1})\\(\lrcorner\,\ulcorner_{4,1})\gg\curlyvee\succ(\lrcorner\,\urcorner\,_{4,3})\\(\urcorner\,\llcorner_{3,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\lrcorner\,_{1,3,4})\\(\urcorner\,\lrcorner\,_{3,4})\gg\curlyvee\succ(\ulcorner\lrcorner\,_{1,4})\\(\,\llcorner\lrcorner\,_{1,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\,\llcorner_{3,1})\\(\lrcorner\,\ulcorner_{4,1})\gg\curlyvee\succ(\lrcorner\,\urcorner\,_{4,3})\\(\lrcorner\,\lrcorner\,_{4,3,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner\,_{1,4})\\(\,\llcorner\lrcorner\,_{1,3})\gg\curlyvee\succ(\urcorner\,\lrcorner\,_{3,4})\\(\lrcorner\,\lrcorner\,_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\lrcorner\,_{4,3,1})\\(\lrcorner\,\urcorner\,_{4,3})\gg\curlyvee\succ(\urcorner\,\llcorner_{3,1})\\(\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\lrcorner\,_{1,3,4})\\(\,\llcorner\lrcorner\,_{1,3})\gg\curlyvee\succ(\urcorner\,\lrcorner\,_{3,4})\\(\ulcorner\lrcorner\,_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\urcorner\,_{4,3})\gg\curlyvee\succ(\urcorner\,\llcorner_{3,1})\\(\lrcorner\,\lrcorner\,_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\lrcorner\,_{1,3})\\(\lrcorner\,\lrcorner\,_{1,3,4})\gg\curlyvee\succ(\urcorner\,\lrcorner\,_{3,4})\\(\ulcorner\lrcorner\,_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\urcorner\,_{4,3})\gg\curlyvee\succ(\lrcorner\,\lrcorner\,_{4,3,1})\\(\urcorner\,\llcorner_{3,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner\,_{1,4})\\(\lrcorner\,\lrcorner\,_{1,3,4})\gg\curlyvee\succ(\urcorner\,\lrcorner\,_{3,4})\\(\,\llcorner\lrcorner\,_{1,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\,\llcorner_{3,1})\\(\lrcorner\,\urcorner\,_{4,3})\gg\curlyvee\succ(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\lrcorner\,_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\lrcorner\,_{1,3})\\(\ulcorner\lrcorner\,_{1,4})\gg\curlyvee\succ(\urcorner\,\lrcorner\,_{3,4})\\(\lrcorner\,\lrcorner\,_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\lrcorner\,_{4,3,1})\\(\lrcorner\,\urcorner\,_{4,3})\quad\curlyvee\quad\succ(\lrcorner\,\ulcorner_{4,1})\\(\urcorner\,\llcorner_{3,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\lrcorner\,_{1,3,4})\\(\ulcorner\lrcorner\,_{1,4})\gg\curlyvee\succ(\urcorner\,\lrcorner\,_{3,4})\\(\,\llcorner\lrcorner\,_{1,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\,\llcorner_{3,1})\\(\lrcorner\,\urcorner\,_{4,3})\gg\curlyvee\succ(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\lrcorner\,_{4,3,1})\end{matrix}$$

2. Pre-semiotic dual system

$(\urcorner\lrcorner_{3,4}\ \ulcorner\lrcorner_{1,4}\lrcorner\lrcorner_{1,3,4}\ \llcorner\ulcorner_{1,2}) \times (\ulcorner\llcorner_{2,1}\lrcorner\lrcorner_{4,3,1}\lrcorner\ \ulcorner_{1,4}\lrcorner\urcorner_{4,3})$

Qualitative action

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\lrcorner\lrcorner_{1,3,4})\gg_{\Upsilon}\succ(\llcorner\ulcorner_{1,2})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\ulcorner_{4,1})\\(\ulcorner\llcorner_{2,1})\gg_{\Upsilon}\succ(\lrcorner\lrcorner_{4,3,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\lrcorner\lrcorner_{1,3,4})\gg_{\Upsilon}\succ(\llcorner\ulcorner_{1,2})\\(\urcorner\lrcorner_{3,4})\end{matrix}\times\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\ulcorner\llcorner_{2,1})\gg_{\Upsilon}\succ(\lrcorner\lrcorner_{4,3,1})\\(\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\ulcorner\lrcorner_{1,4})\gg_{\Upsilon}\succ(\llcorner\ulcorner_{1,2})\\(\lrcorner\lrcorner_{1,3,4})\end{matrix}\times\begin{matrix}(\lrcorner\lrcorner_{4,3,1})\\(\ulcorner\llcorner_{2,1})\gg_{\Upsilon}\succ(\lrcorner\ulcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4})\\(\ulcorner\lrcorner_{1,4})\gg_{\Upsilon}\succ(\llcorner\ulcorner_{1,2})\\(\urcorner\lrcorner_{3,4})\end{matrix}\times\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\ulcorner\llcorner_{2,1})\gg_{\Upsilon}\succ(\lrcorner\ulcorner_{4,1})\\(\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4})\\(\urcorner\lrcorner_{3,4})\gg_{\Upsilon}\succ(\llcorner\ulcorner_{1,2})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\ulcorner_{4,1})\\(\ulcorner\llcorner_{2,1})\gg_{\Upsilon}\succ(\lrcorner\urcorner_{4,3})\\(\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\urcorner\lrcorner_{3,4})\gg_{\Upsilon}\succ(\llcorner\ulcorner_{1,2})\\(\lrcorner\lrcorner_{1,3,4})\end{matrix}\times\begin{matrix}(\lrcorner\lrcorner_{4,3,1})\\(\ulcorner\llcorner_{2,1})\gg_{\Upsilon}\succ(\lrcorner\urcorner_{4,3})\\(\lrcorner\ulcorner_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\llcorner\ulcorner_{1,2})\gg_{\Upsilon}\succ(\lrcorner\lrcorner_{1,3,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\ulcorner_{4,1})\\(\lrcorner\lrcorner_{4,3,1})\gg_{\Upsilon}\succ(\ulcorner\llcorner_{2,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\llcorner\ulcorner_{1,2})\gg_{\Upsilon}\succ(\lrcorner\lrcorner_{1,3,4})\\(\urcorner\lrcorner_{3,4})\end{matrix}\times\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\lrcorner\lrcorner_{4,3,1})\gg_{\Upsilon}\succ(\ulcorner\llcorner_{2,1})\\(\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\,\ulcorner_{1,2})\\(\,\ulcorner\lrcorner_{1,4})\ \gg\curlyvee\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\curlyvee\succ(\lrcorner\,\ulcorner_{4,1})\\(\,\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\,\ulcorner\lrcorner_{1,4})\ \gg\curlyvee\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\,\llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\,\ulcorner\llcorner_{2,1})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\curlyvee\succ(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\ulcorner_{1,2})\\(\urcorner\,\lrcorner_{3,4})\ \gg\curlyvee\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\,\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\curlyvee\succ(\lrcorner\,\urcorner_{4,3})\\(\,\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\,\ulcorner\lrcorner_{1,4})\\(\urcorner\,\lrcorner_{3,4})\ \gg\curlyvee\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\,\llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\,\ulcorner\llcorner_{2,1})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\curlyvee\succ(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\,\llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\,\ulcorner\lrcorner_{1,4})\\(\lrcorner\,\lrcorner_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\lrcorner_{4,3,1})\\(\lrcorner\,\ulcorner_{4,1})\ \gg\curlyvee\succ(\,\ulcorner\llcorner_{2,1})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\lrcorner_{1,3,4})\\(\,\llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\,\ulcorner\lrcorner_{1,4})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\ulcorner_{4,1})\ \gg\curlyvee\succ(\,\ulcorner\llcorner_{2,1})\\(\lrcorner\,\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\ulcorner_{1,2})\\(\lrcorner\,\lrcorner_{1,3,4})\gg\curlyvee\succ(\,\ulcorner\lrcorner_{1,4})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\,\lrcorner_{4,3,1})\\(\,\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\lrcorner\,\lrcorner_{1,3,4})\gg\curlyvee\succ(\,\ulcorner\lrcorner_{1,4})\\(\,\llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\,\ulcorner\llcorner_{2,1})\\(\lrcorner\,\ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\,\lrcorner_{4,3,1})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\,\llcorner\ulcorner_{1,2})\\(\urcorner\,\lrcorner_{3,4})\ \gg\curlyvee\succ(\,\ulcorner\lrcorner_{1,4})\\(\lrcorner\,\lrcorner_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\lrcorner_{4,3,1})\\(\lrcorner\,\ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\,\urcorner_{4,3})\\(\,\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\lrcorner_{1,3,4})\\(\urcorner\,\lrcorner_{3,4})\ \gg\curlyvee\succ(\,\ulcorner\lrcorner_{1,4})\\(\,\llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\,\ulcorner\llcorner_{2,1})\\(\lrcorner\,\ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\lrcorner_{4,3,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\urcorner\lrcorner_{3,4})\\(\lrcorner\lrcorner_{1,3,4})\end{matrix}\times\begin{matrix}(\lrcorner\lrcorner_{4,3,1})\\(\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\ulcorner\llcorner_{2,1})\\(\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4})\\(\llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\urcorner\lrcorner_{3,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\ulcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\ulcorner\llcorner_{2,1})\\(\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2})\\(\lrcorner\lrcorner_{1,3,4})\gg\curlyvee\succ(\urcorner\lrcorner_{3,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\ulcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\lrcorner\lrcorner_{4,3,1})\\(\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\lrcorner\lrcorner_{1,3,4})\gg\curlyvee\succ(\urcorner\lrcorner_{3,4})\\(\llcorner\ulcorner_{1,2})\end{matrix}\times\begin{matrix}(\ulcorner\llcorner_{2,1})\\(\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\lrcorner\lrcorner_{4,3,1})\\(\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2})\\(\ulcorner\lrcorner_{1,4})\ \gg\curlyvee\succ(\urcorner\lrcorner_{3,4})\\(\lrcorner\lrcorner_{1,3,4})\end{matrix}\times\begin{matrix}(\lrcorner\lrcorner_{4,3,1})\\(\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\lrcorner\ulcorner_{4,1})\\(\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\lrcorner_{1,3,4})\\(\ulcorner\lrcorner_{1,4})\ \gg\curlyvee\succ(\urcorner\lrcorner_{3,4})\\(\llcorner\ulcorner_{1,2})\end{matrix}\times\begin{matrix}(\ulcorner\llcorner_{2,1})\\(\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\lrcorner\ulcorner_{4,1})\\(\lrcorner\lrcorner_{4,3,1})\end{matrix}$$

3. Pre-semiotic dual system

$(\urcorner\lrcorner_{3,4}\ \ulcorner\lrcorner_{1,4}\lrcorner\lrcorner_{1,3,4}\ \llcorner\urcorner_{2,3})\times(\urcorner\ \llcorner_{3,2}\lrcorner\lrcorner_{4,3,1}\lrcorner\ \ulcorner_{4,1}\lrcorner\urcorner_{4,3})$

Qualitative action

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\lrcorner\lrcorner_{1,3,4})\gg\curlyvee\succ(\llcorner\urcorner_{2,3})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\ulcorner_{4,1})\\(\urcorner\ \llcorner_{3,2})\ \gg\curlyvee\succ(\lrcorner\lrcorner_{4,3,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\lrcorner\lrcorner_{1,3,4})\gg\curlyvee\succ(\llcorner\urcorner_{2,3})\\(\urcorner\lrcorner_{3,4})\end{matrix}\times\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\urcorner\ \llcorner_{3,2})\quad\curlyvee\quad\succ(\lrcorner\lrcorner_{4,3,1})\\(\lrcorner\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\ulcorner\,\lrcorner_{1,4})\gg\succ(\llcorner\,\urcorner_{2,3})\\(\lrcorner\,\lrcorner_{1,3,4})\end{matrix}\times\begin{matrix}(\lrcorner\,\lrcorner_{4,3,1})\\(\urcorner\,\llcorner_{3,2})\gg\succ(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\lrcorner_{1,3,4})\\(\ulcorner\,\lrcorner_{1,4})\gg\succ(\llcorner\,\urcorner_{2,3})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\times\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\urcorner\,\llcorner_{3,2})\gg\succ(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\lrcorner_{1,3,4})\\(\urcorner\,\lrcorner_{3,4})\gg\succ(\llcorner\,\urcorner_{2,3})\\(\ulcorner\,\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\urcorner\,\llcorner_{3,2})\gg\succ(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\,\lrcorner_{1,4})\\(\urcorner\,\lrcorner_{3,4})\gg\succ(\llcorner\,\urcorner_{2,3})\\(\lrcorner\,\lrcorner_{1,3,4})\end{matrix}\times\begin{matrix}(\lrcorner\,\lrcorner_{4,3,1})\\(\urcorner\,\llcorner_{3,2})\gg\succ(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\llcorner\,\urcorner_{2,3})\gg\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\ulcorner\,\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\succ(\urcorner\,\llcorner_{3,2})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\,\lrcorner_{1,4})\\(\llcorner\,\urcorner_{2,3})\gg\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\times\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\succ(\urcorner\,\llcorner_{3,2})\\(\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\,\urcorner_{2,3})\\(\ulcorner\,\lrcorner_{1,4})\gg\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\times\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\succ(\lrcorner\,\ulcorner_{4,1})\\(\urcorner\,\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\ulcorner\,\lrcorner_{1,4})\gg\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\llcorner\,\urcorner_{2,3})\end{matrix}\times\begin{matrix}(\urcorner\,\llcorner_{3,2})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\succ(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\,\urcorner_{2,3})\\(\urcorner\,\lrcorner_{3,4})\gg\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\ulcorner\,\lrcorner_{1,4})\end{matrix}\times\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\succ(\lrcorner\,\urcorner_{4,3})\\(\urcorner\,\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\,\lrcorner_{1,4})\\(\urcorner\,\lrcorner_{3,4})\gg\succ(\lrcorner\,\lrcorner_{1,3,4})\\(\llcorner\,\urcorner_{2,3})\end{matrix}\times\begin{matrix}(\urcorner\,\llcorner_{3,2})\\(\lrcorner\,\lrcorner_{4,3,1})\gg\succ(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\lrcorner\ \lrcorner_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \lrcorner_{4,3,1})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \lrcorner_{1,3,4})\\ (\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\ (\lrcorner\ \lrcorner_{1,3,4})\gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\ \lrcorner_{4,3,1})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\lrcorner\ \lrcorner_{1,3,4})\gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\ \llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\ \lrcorner_{4,3,1})\\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\ (\urcorner\ \lrcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\lrcorner\ \lrcorner_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \lrcorner_{4,3,1})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\urcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \lrcorner_{1,3,4})\\ (\urcorner\ \lrcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\ \llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\urcorner_{4,3})\\ (\lrcorner\ \lrcorner_{4,3,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\ (\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{3,4})\\ (\lrcorner\ \lrcorner_{1,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \lrcorner_{4,3,1})\\ (\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \lrcorner_{1,3,4})\\ (\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{3,4})\\ (\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\ (\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \lrcorner_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\ (\lrcorner\ \lrcorner_{1,3,4})\gg\curlyvee\succ(\urcorner\ \lrcorner_{3,4})\\ (\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\ (\lrcorner\urcorner_{4,3})\ \gg\curlyvee\succ(\lrcorner\ \lrcorner_{4,3,1})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$(\lceil\rfloor_{1,4})\quad(\rceil\ \lfloor_{3,2})$$
$$(\rfloor\ \rfloor_{1,3,4}) \gg \curlyvee \succ (\rceil\ \rfloor_{3,4}) \times (\rfloor\ \rceil_{4,3}) \gg \curlyvee \succ (\rfloor\ \rfloor_{4,3,1})$$
$$(\ \lfloor\rceil_{2,3})\quad(\rfloor\ \lceil_{4,1})$$

$$(\ \lfloor\rceil_{2,3})\quad(\rfloor\ \rfloor_{4,3,1})$$
$$(\lceil\rfloor_{1,4}) \gg \curlyvee \succ (\rceil\ \rfloor_{3,4}) \times (\rfloor\ \rceil_{4,3}) \gg \curlyvee \succ (\rfloor\ \lceil_{4,1})$$
$$(\rfloor\ \rfloor_{1,3,4})\quad(\rceil\ \lfloor_{3,2})$$

$$(\rfloor\ \rfloor_{1,3,4})\quad(\rceil\ \lfloor_{3,2})$$
$$(\lceil\rfloor_{1,4}) \gg \curlyvee \succ (\rceil\ \rfloor_{3,4}) \times (\rfloor\ \rceil_{4,3}) \gg \curlyvee \succ (\rfloor\ \lceil_{4,1})$$
$$(\ \lfloor\rceil_{2,3})\quad(\rfloor\ \rfloor_{4,3,1})$$

4. Pre-semiotic system

$(\rceil\ \rfloor_{3,4}\ \lceil\rfloor_{1,4}\ \rfloor\ \lceil_{1,4}\ \lfloor\ \lceil_{1,2}) \times (\lceil\ \lfloor_{2,1}\ \lceil\rfloor_{4,1}\ \rfloor\ \lceil_{4,1}\ \rfloor\ \rceil_{4,3})$

Qualitative action

$$(\rceil\ \rfloor_{3,4})\quad(\rfloor\ \lceil_{4,1})$$
$$(\rfloor\ \lceil_{1,4}) \gg \curlyvee \succ (\ \lfloor\lceil_{1,2}) \times (\lceil\ \lfloor_{2,1}) \gg \curlyvee \succ (\lceil\rfloor_{4,1})$$
$$(\lceil\rfloor_{1,4})\quad(\rfloor\ \rceil_{4,3})$$

$$(\lceil\rfloor_{1,4})\quad(\rfloor\ \rceil_{4,3})$$
$$(\rfloor\ \lceil_{1,4}) \gg \curlyvee \succ (\ \lfloor\lceil_{1,2}) \times (\lceil\ \lfloor_{2,1}) \gg \curlyvee \succ (\lceil\rfloor_{4,1})$$
$$(\rceil\ \rfloor_{3,4})\quad(\rfloor\ \lceil_{4,1})$$

$$(\rceil\ \rfloor_{3,4})\quad(\lceil\rfloor_{4,1})$$
$$(\lceil\rfloor_{1,4}) \gg \curlyvee \succ (\ \lfloor\lceil_{1,2}) \times (\lceil\ \lfloor_{2,1}) \gg \curlyvee \succ (\rfloor\ \lceil_{4,1})$$
$$(\rfloor\ \lceil_{1,4})\quad(\rfloor\ \rceil_{4,3})$$

$$(\rfloor\ \lceil_{1,4})\quad(\rfloor\ \rceil_{3,4})$$
$$(\lceil\rfloor_{1,4}) \gg \curlyvee \succ (\ \lfloor\lceil_{1,2}) \times (\lceil\ \lfloor_{2,1}) \gg \curlyvee \succ (\rfloor\ \lceil_{4,1})$$
$$(\rceil\ \rfloor_{3,4})\quad(\lceil\rfloor_{4,1})$$

$$(\rfloor\ \lceil_{1,4})\quad(\rfloor\ \lceil_{4,1})$$
$$(\rceil\ \rfloor_{3,4}) \gg \curlyvee \succ (\ \lfloor\lceil_{1,2}) \times (\lceil\ \lfloor_{2,1}) \gg \curlyvee \succ (\rfloor\ \rceil_{4,3})$$
$$(\lceil\rfloor_{1,4})\quad(\lceil\rfloor_{4,1})$$

$$(\lceil\rfloor_{1,4})\quad(\lceil\rfloor_{4,1})$$
$$(\rceil\ \rfloor_{3,4}) \gg \curlyvee \succ (\ \lfloor\lceil_{1,2}) \times (\lceil\ \lfloor_{2,1}) \gg \curlyvee \succ (\rfloor\ \rceil_{4,3})$$
$$(\rfloor\ \lceil_{1,4})\quad(\rfloor\ \lceil_{4,1})$$

Medial action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\(\ \llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\ \llcorner_{2,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\ \llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\ \llcorner_{2,1})\\(\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\ulcorner_{1,2})\\(\ulcorner\lrcorner_{1,4})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{4,1})\\(\ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\ulcorner\lrcorner_{1,4})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ \llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ \llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\ulcorner_{1,2})\\(\urcorner\lrcorner_{3,4})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\urcorner_{4,3})\\(\ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\urcorner\lrcorner_{3,4})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ \llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ \llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\urcorner_{4,3})\\(\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\ \llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\(\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\ \llcorner_{2,1})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\ \llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\(\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\ \llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\ulcorner_{1,2})\\(\lrcorner\ \ulcorner_{1,4})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\(\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{4,1})\\(\ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\lrcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\ulcorner\lrcorner_{1,4})\\ (\llcorner\ulcorner_{1,2})\end{matrix} \times \begin{matrix}(\ulcorner\ \llcorner_{2,1})\\ (\lrcorner\ \ulcorner_{4,1}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1})\\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2})\\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\ulcorner\lrcorner_{1,4})\\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\lrcorner\ \ulcorner_{4,1}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{4,3})\\ (\ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\ulcorner\lrcorner_{1,4})\\ (\llcorner\ulcorner_{1,2})\end{matrix} \times \begin{matrix}(\ulcorner\ \llcorner_{2,1})\\ (\lrcorner\ \ulcorner_{4,1}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{4,3})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\ (\llcorner\ulcorner_{1,2}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4})\\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\ulcorner\ \llcorner_{2,1})\\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\ (\llcorner\ulcorner_{1,2}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4})\\ (\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\ulcorner\ \llcorner_{2,1})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2})\\ (\lrcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4})\\ (\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1})\\ (\llcorner\ulcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\ (\lrcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4})\\ (\llcorner\ulcorner_{1,2})\end{matrix} \times \begin{matrix}(\ulcorner\ \llcorner_{2,1})\\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1})\\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2})\\ (\ulcorner\lrcorner_{1,4}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4})\\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{4,1})\\ (\ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\ (\ulcorner\lrcorner_{1,4}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4})\\ (\llcorner\ulcorner_{1,2})\end{matrix} \times \begin{matrix}(\ulcorner\ \llcorner_{2,1})\\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{4,1})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

5. Pre-semiotic dual system

$(\urcorner\llcorner_{3,4}\ \ulcorner\lrcorner_{1,4}\ \llcorner\ \ulcorner_{1,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\ \ulcorner\lrcorner_{4,1}\ \llcorner\ \ulcorner_{4,1}\ \llcorner\urcorner_{3,4})$

Qualitative action

$$\begin{matrix}(\urcorner\llcorner_{3,4})\\ (\llcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\llcorner\ \ulcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1})\\ (\llcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\ (\llcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\urcorner\llcorner_{3,4})\end{matrix} \times \begin{matrix}(\llcorner\urcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1})\\ (\llcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\llcorner_{3,4})\\ (\ulcorner\lrcorner_{1,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\llcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\llcorner\ \ulcorner_{4,1})\\ (\llcorner\urcorner_{3,4})\end{matrix}$$

$$\begin{matrix}(\llcorner\ \ulcorner_{1,4})\\ (\ulcorner\lrcorner_{1,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\urcorner\llcorner_{3,4})\end{matrix} \times \begin{matrix}(\llcorner\urcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\llcorner\ \ulcorner_{4,1})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ \ulcorner_{1,4})\\ (\urcorner\llcorner_{3,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\llcorner\urcorner_{4,3})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\ (\urcorner\llcorner_{3,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\llcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\llcorner\urcorner_{4,3})\\ (\llcorner\ \ulcorner_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\llcorner_{3,4})\\ (\llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\llcorner\ \ulcorner_{1,4})\\ (\ulcorner\lrcorner_{1,4})\end{matrix} \times \begin{matrix}(\llcorner\ \ulcorner_{4,1})\\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2})\\ (\llcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\ (\llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\llcorner\ \ulcorner_{1,4})\\ (\urcorner\llcorner_{3,4})\end{matrix} \times \begin{matrix}(\llcorner\urcorner_{4,3})\\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2})\\ (\llcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\lceil\rfloor_{1,4})\gg\succ(\rfloor\lceil_{1,4})\\(\rceil\lfloor_{3,4})\end{matrix}\times\begin{matrix}(\rfloor\rceil_{4,3})\\(\lceil\rfloor_{4,1})\gg\succ(\rfloor\lceil_{4,1})\\(\rceil\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\rceil\lfloor_{3,4})\\(\lceil\rfloor_{1,4})\gg\succ(\rfloor\lceil_{1,4})\\(\lfloor\rceil_{2,3})\end{matrix}\times\begin{matrix}(\rceil\lfloor_{3,2})\\(\lceil\rfloor_{4,1})\gg\succ(\rfloor\lceil_{4,1})\\(\rfloor\rceil_{4})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\rceil\lfloor_{3,4})\gg\succ(\rfloor\lceil_{1,4})\\(\lceil\rfloor_{1,4})\end{matrix}\times\begin{matrix}(\rfloor\lceil_{4,1})\\(\lceil\rfloor_{4,1})\gg\succ(\rfloor\rceil_{4,3})\\(\rceil\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\lceil\rfloor_{1,4})\\(\rceil\lfloor_{3,4})\gg\succ(\rfloor\lceil_{1,4})\\(\lfloor\rceil_{2,3})\end{matrix}\times\begin{matrix}(\rceil\lfloor_{3,2})\\(\lceil\rfloor_{4,1})\gg\succ(\rfloor\rceil_{4,3})\\(\rfloor\lceil_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\rceil\lfloor_{3,4})\\(\lfloor\rceil_{2,3})\gg\succ(\lceil\rfloor_{1,4})\\(\rfloor\lceil_{1,4})\end{matrix}\times\begin{matrix}(\lceil\rfloor_{4,1})\\(\rfloor\lceil_{4,1})\gg\succ(\rceil\lfloor_{3,2})\\(\rfloor\rceil_{4,3})\end{matrix}$$

$$\begin{matrix}(\rfloor\lceil_{1,4})\\(\lfloor\rceil_{2,3})\gg\succ(\lceil\rfloor_{1,4})\\(\rceil\lfloor_{3,4})\end{matrix}\times\begin{matrix}(\rfloor\rceil_{4,3})\\(\rfloor\lceil_{4,1})\gg\succ(\rceil\lfloor_{3,2})\\(\lceil\rfloor_{4,1})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\rfloor\lceil_{1,4})\gg\succ(\lceil\rfloor_{1,4})\\(\rceil\lfloor_{3,4})\end{matrix}\times\begin{matrix}(\rfloor\rceil_{4,3})\\(\rfloor\lceil_{4,1})\gg\succ(\lceil\rfloor_{4,1})\\(\rceil\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\rceil\lfloor_{3,4})\\(\rfloor\lceil_{1,4})\gg\succ(\lceil\rfloor_{1,4})\\(\lfloor\rceil_{2,3})\end{matrix}\times\begin{matrix}(\rceil\lfloor_{3,2})\\(\rfloor\lceil_{4,1})\gg\succ(\lceil\rfloor_{4,1})\\(\rfloor\rceil_{4,3})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\rceil\lfloor_{3,4})\gg\succ(\lceil\rfloor_{1,4})\\(\rfloor\lceil_{1,4})\end{matrix}\times\begin{matrix}(\lceil\rfloor_{4,1})\\(\rfloor\lceil_{4,1})\gg\succ(\rfloor\lceil_{4,1})\\(\rceil\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\rfloor\lceil_{1,4})\\(\rceil\lfloor_{3,4})\gg\succ(\lceil\rfloor_{1,4})\\(\lfloor\rceil_{2,3})\end{matrix}\times\begin{matrix}(\rceil\lfloor_{3,2})\\(\rfloor\lceil_{4,1})\gg\succ(\rfloor\rceil_{4,3})\\(\lceil\rfloor_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\llcorner\urcorner_{2,3})\ \gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\lrcorner\urcorner_{3,4})\ \gg_{\Upsilon}\succ(\urcorner\ \llcorner_{3,2})\\(\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\llcorner\urcorner_{2,3})\ \gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\ \gg_{\Upsilon}\succ(\urcorner\ \llcorner_{3,2})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\lrcorner\ \ulcorner_{1,4})\ \gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\ \gg_{\Upsilon}\succ(\ulcorner\lrcorner_{4,1})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\lrcorner\ \ulcorner_{1,4})\ \gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\(\lrcorner\urcorner_{4,3})\ \gg_{\Upsilon}\succ(\ulcorner\lrcorner_{4,1})\\(\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\ulcorner\lrcorner_{1,4})\ \gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\ \gg_{\Upsilon}\succ(\lrcorner\ \ulcorner_{4,1})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\ulcorner\lrcorner_{1,4})\ \gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\(\lrcorner\urcorner_{4,3})\ \gg_{\Upsilon}\succ(\lrcorner\ \ulcorner_{4,1})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

6. Pre-semiotic dual system

$(\urcorner\lrcorner_{3,4}\ \ulcorner\lrcorner_{1,4}\lrcorner\urcorner_{3,4}\ \llcorner\urcorner_{2,3})\times(\urcorner\ \llcorner_{3,2}\urcorner\lrcorner_{4,3}\lrcorner\ \ulcorner_{4,1}\lrcorner\urcorner_{4,3})$

Qualitative action

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\lrcorner\urcorner_{3,4})\ \gg_{\Upsilon}\succ(\llcorner\urcorner_{2,3})\\(\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\(\urcorner\ \llcorner_{3,2})\ \gg_{\Upsilon}\succ(\urcorner\lrcorner_{4,3})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\(\lrcorner\urcorner_{3,4})\ \gg_{\Upsilon}\succ(\llcorner\urcorner_{2,3})\\(\urcorner\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\urcorner_{3,4})\\(\urcorner\ \llcorner_{3,2})\ \gg_{\Upsilon}\succ(\urcorner\lrcorner_{4,3})\\(\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\ulcorner\,\lrcorner_{1,4})\gg_Y\succ(\llcorner\urcorner_{2,3})\\(\lrcorner\,\urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\,\lrcorner_{4,3})\\(\urcorner\,\llcorner_{3,2})\gg_Y\succ(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\urcorner_{3,4})\\(\ulcorner\,\lrcorner_{1,4})\gg_Y\succ(\llcorner\urcorner_{2,3})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\urcorner\,\llcorner_{3,2})\gg_Y\succ(\lrcorner\,\ulcorner_{4,1})\\(\urcorner\,\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\,\urcorner_{3,4})\\(\urcorner\,\lrcorner_{3,4})\gg_Y\succ(\llcorner\urcorner_{2,3})\\(\ulcorner\,\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\urcorner\,\llcorner_{3,2})\gg_Y\succ(\lrcorner\,\urcorner_{4,3})\\(\urcorner\,\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\,\lrcorner_{1,4})\\(\urcorner\,\lrcorner_{3,4})\gg_Y\succ(\llcorner\urcorner_{2,3})\\(\lrcorner\,\urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\,\lrcorner_{4,3})\\(\urcorner\,\llcorner_{3,2})\gg_Y\succ(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\llcorner\urcorner_{2,3})\gg_Y\succ(\lrcorner\,\urcorner_{3,4})\\(\ulcorner\,\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\urcorner\,\lrcorner_{4,3})\gg_Y\succ(\urcorner\,\llcorner_{3,2})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\,\lrcorner_{1,4})\\(\llcorner\urcorner_{2,3})\gg_Y\succ(\lrcorner\,\urcorner_{3,4})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\urcorner\,\lrcorner_{4,3})\gg_Y\succ(\urcorner\,\llcorner_{3,2})\\(\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\ulcorner\,\lrcorner_{1,4})\gg_Y\succ(\lrcorner\,\urcorner_{3,4})\\(\urcorner\,\lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\urcorner_{4,3})\\(\urcorner\,\lrcorner_{3,4})\gg_Y\succ(\lrcorner\,\ulcorner_{4,1})\\(\urcorner\,\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\,\lrcorner_{3,4})\\(\ulcorner\,\lrcorner_{1,4})\gg_Y\succ(\lrcorner\,\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\,\llcorner_{3,2})\\(\urcorner\,\lrcorner_{4,3})\gg_Y\succ(\lrcorner\,\ulcorner_{4,1})\\(\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\urcorner\,\lrcorner_{3,4})\gg_Y\succ(\lrcorner\,\urcorner_{3,4})\\(\ulcorner\,\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\,\ulcorner_{4,1})\\(\urcorner\,\lrcorner_{4,3})\gg_Y\succ(\lrcorner\,\urcorner_{4,3})\\(\urcorner\,\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\,\lrcorner_{1,4})\\(\urcorner\,\lrcorner_{3,4})\gg_Y\succ(\lrcorner\,\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\,\llcorner_{3,2})\\(\urcorner\,\lrcorner_{4,3})\gg_Y\succ(\lrcorner\,\urcorner_{4,3})\\(\lrcorner\,\ulcorner_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\lrcorner\ \urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\\ (\lrcorner\ \ulcorner_{1,4})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\ (\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\ \succ(\urcorner\ \llcorner_{3,2})\\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\ (\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\ \llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{4,3})\\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\ (\urcorner\ \lrcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\lrcorner\ \urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\ (\urcorner\ \lrcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{1,4})\\ (\ \llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \ulcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{3,4})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\lrcorner_{1,4})\\ (\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{3,4})\\ (\lrcorner\ \urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \ulcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\ (\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{3,4})\\ (\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\ (\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\ (\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{3,4})\\ (\ulcorner\lrcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \ulcorner_{4,1})\\ (\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$(\lceil\rfloor_{1,4})\quad(\rfloor\rceil_{3,4}) \gg \curlyvee \succ (\rceil\lfloor_{3,4}) \quad(\lfloor\rceil_{2,3}) \times (\rfloor\rceil_{4,3}) \gg \curlyvee \succ (\rceil\lfloor_{4,3})\quad(\rfloor\lceil_{4,1})$$

$$(\lfloor\rceil_{2,3})\quad(\lceil\rfloor_{1,4}) \gg \curlyvee \succ (\rceil\lfloor_{3,4}) \quad(\rfloor\rceil_{3,4}) \times (\rfloor\rceil_{4,3}) \gg \curlyvee \succ (\rceil\lfloor_{4,3})\quad(\rfloor\lceil_{1,4})$$

$$(\rfloor\rceil_{3,4})\quad(\lceil\rfloor_{1,4}) \gg \curlyvee \succ (\rceil\lfloor_{3,4}) \quad(\lfloor\rceil_{2,3}) \times (\rfloor\rceil_{4,3}) \gg \curlyvee \succ (\rceil\lfloor_{4,3})\quad(\rfloor\lceil_{4,1})$$

7. Pre-semiotic dual system

$(\rceil\lfloor_{3,4}\ \lceil\lceil_{1,2,4}\rfloor\rceil_{1,4}\ \lfloor\lceil_{1,2}) \times (\lceil\lfloor_{2,1}\ \lceil\rfloor_{4,1}\ \lceil\lceil_{4,2,1}\rfloor\rceil_{4,3})$

Qualitative action

$$(\rceil\lfloor_{3,4})\quad(\rfloor\lceil_{1,4}) \gg \curlyvee \succ (\lfloor\lceil_{1,2}) \quad(\lceil\lceil_{1,2,4}) \times (\lceil\lfloor_{2,1}) \gg \curlyvee \succ (\lceil\rfloor_{4,1})\quad(\rfloor\rceil_{4,3})$$

$$(\lceil\lceil_{1,2,4})\quad(\rfloor\lceil_{1,4}) \gg \curlyvee \succ (\lfloor\lceil_{1,2}) \quad(\rceil\lfloor_{3,4}) \times (\lceil\lfloor_{2,1}) \gg \curlyvee \succ (\lceil\rfloor_{4,1})\quad(\lceil\lceil_{4,2,1})$$

$$(\rceil\lfloor_{3,4})\quad(\lceil\lceil_{1,2,4}) \gg \curlyvee \succ (\lfloor\lceil_{1,2}) \quad(\rfloor\lceil_{1,4}) \times (\lceil\lfloor_{2,1}) \gg \curlyvee \succ (\lceil\lceil_{4,2,1})\quad(\rfloor\rceil_{4,3})$$

$$(\rfloor\lceil_{1,4})\quad(\lceil\lceil_{1,2,4}) \gg \curlyvee \succ (\lfloor\lceil_{1,2}) \quad(\rceil\lfloor_{3,4}) \times (\lceil\lfloor_{2,1}) \gg \curlyvee \succ (\lceil\lceil_{4,2,1})\quad(\rfloor\rceil_{4,3})$$

$$(\rfloor\lceil_{1,4})\quad(\rceil\lfloor_{3,4}) \gg \curlyvee \succ (\lfloor\lceil_{1,2}) \quad(\lceil\lceil_{1,2,4}) \times (\lceil\lfloor_{2,1}) \gg \curlyvee \succ (\rceil\lfloor_{4,3})\quad(\lceil\rfloor_{4,1})$$

$$(\lceil\lceil_{1,2,4})\quad(\rceil\lfloor_{3,4}) \gg \curlyvee \succ (\lfloor\lceil_{1,2}) \quad(\rfloor\lceil_{1,4}) \times (\lceil\lfloor_{2,1}) \gg \curlyvee \succ (\lceil\lceil_{4,2,1})\quad(\rfloor\rceil_{4,3})$$

Medial action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\(\ \llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ulcorner\ \ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\ \llcorner_{2,1})\\(\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\ llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\ \llcorner_{2,1})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\ llcorner\ulcorner_{1,2})\\(\ulcorner\ulcorner_{1,2,4})\gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{4,2,1})\\(\ulcorner\ llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\(\ulcorner\ulcorner_{1,2,4})\gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{4,2,1})\\(\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ llcorner\ulcorner_{1,2})\\(\urcorner\ \lrcorner_{3,4})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{4,3})\\(\ulcorner\ llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \lrcorner_{3,4})\ \gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\(\ \llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\ llcorner_{2,1})\\(\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\ llcorner\ulcorner_{1,2})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\ llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ llcorner\ulcorner_{1,2})\\(\lrcorner\ \ulcorner_{1,4})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\lrcorner_{4,1})\\(\ulcorner\ llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\(\lrcorner\ \ulcorner_{1,4})\ \gg\Upsilon\succ(\ulcorner\ \ulcorner_{1,2,4})\\(\ \llcorner\ \ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ \ulcorner\ \llcorner_{2,1})\\(\ \ulcorner\ \ulcorner_{4,2,1})\gg\Upsilon\succ(\ulcorner\ \lrcorner_{4,1})\\(\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\ \ulcorner_{1,2})\\(\urcorner\ \lrcorner_{3,4})\ \gg\Upsilon\succ(\ulcorner\ \ulcorner_{1,2,4})\\(\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\ \ulcorner\ \ulcorner_{4,2,1})\gg\Upsilon\succ(\lrcorner\ \urcorner_{4,3})\\(\ \ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\urcorner\ \lrcorner_{3,4})\ \gg\Upsilon\succ(\ulcorner\ \ulcorner_{1,2,4})\\(\ \llcorner\ \ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ \ulcorner\ \llcorner_{2,1})\\(\ \ulcorner\ \ulcorner_{4,2,1})\gg\Upsilon\succ(\lrcorner\ \urcorner_{4,3})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ \ulcorner\ \ulcorner_{1,2,4})\\(\ \llcorner\ \ulcorner_{1,2})\ \gg\Upsilon\succ(\urcorner\ \lrcorner_{3,4})\\(\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\lrcorner\ \urcorner_{4,3})\ \gg\Upsilon\succ(\ \ulcorner\ \llcorner_{2,1})\\(\ \ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\ \llcorner\ \ulcorner_{1,2})\ \gg\Upsilon\succ(\urcorner\ \lrcorner_{3,4})\\(\ \ulcorner\ \ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ \ulcorner\ \ulcorner_{4,2,1})\\(\lrcorner\ \urcorner_{4,3})\ \gg\Upsilon\succ(\ \ulcorner\ \llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\ \ulcorner_{1,2})\\(\lrcorner\ \ulcorner_{1,4})\ \gg\Upsilon\succ(\urcorner\ \lrcorner_{3,4})\\(\ \ulcorner\ \ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ \ulcorner\ \ulcorner_{4,2,1})\\(\lrcorner\ \urcorner_{4,3})\ \gg\Upsilon\succ(\ulcorner\ \lrcorner_{4,1})\\(\ \ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\ \ulcorner\ \ulcorner_{1,2,4})\\(\lrcorner\ \ulcorner_{1,4})\ \gg\Upsilon\succ(\urcorner\ \lrcorner_{3,4})\\(\ \llcorner\ \ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ \ulcorner\ \llcorner_{2,1})\\(\lrcorner\ \urcorner_{4,3})\ \gg\Upsilon\succ(\ulcorner\ \lrcorner_{4,1})\\(\ \ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\ \ulcorner_{1,2})\\(\ \ulcorner\ \ulcorner_{1,2,4})\gg\Upsilon\succ(\urcorner\ \lrcorner_{3,4})\\(\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\lrcorner\ \urcorner_{4,3})\ \gg\Upsilon\succ(\ \ulcorner\ \ulcorner_{4,2,1})\\(\ \ulcorner\ \llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\ \ulcorner\ \ulcorner_{1,2,4})\gg\Upsilon\succ(\urcorner\ \lrcorner_{3,4})\\(\ \llcorner\ \ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ \ulcorner\ \llcorner_{2,1})\\(\lrcorner\ \urcorner_{4,3})\ \gg\Upsilon\succ(\ \ulcorner\ \ulcorner_{4,2,1})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

8. Pre-semiotic dual system

$(\urcorner\ \lrcorner_{3,4}\ \ulcorner\ \ulcorner_{1,2,4}\ \lrcorner\ \ulcorner_{1,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\ \ulcorner\lrcorner_{4,1}\ \ulcorner\ \ulcorner_{4,2,1}\ \lrcorner\urcorner_{4,3})$

Qualitative action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4}) \\ (\lrcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3}) \\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1}) \\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4}) \\ (\lrcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3}) \\ (\urcorner\ \lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\urcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4}) \\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3}) \\ (\urcorner\ \lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\urcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3}) \\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1}) \\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4}) \\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\lrcorner\urcorner_{4,3}) \\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4}) \\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1}) \\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2}) \\ (\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4}) \\ (\llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4}) \\ (\urcorner\ \lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\urcorner_{4,3}) \\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\lceil\lceil_{1,2,4})\gg\succ(\rfloor\lceil_{1,4})\\(\rceil\rfloor_{3,4})\end{matrix}\times\begin{matrix}(\rfloor\rceil_{4,3})\\(\lceil\rfloor_{4,1})\gg\succ(\lceil\lceil_{4,2,1})\\(\rceil\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\rceil\rfloor_{3,4})\\(\lceil\lceil_{1,2,4})\gg\succ(\rfloor\lceil_{1,4})\\(\lfloor\rceil_{2,3})\end{matrix}\times\begin{matrix}(\rceil\lfloor_{3,2})\\(\lceil\rfloor_{4,1})\gg\succ(\lceil\lceil_{4,2,1})\\(\rfloor\rceil_{4,3})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\rceil\rfloor_{3,4})\gg\succ(\rfloor\lceil_{1,4})\\(\lceil\lceil_{1,2,4})\end{matrix}\times\begin{matrix}(\lceil\lceil_{4,2,1})\\(\lceil\rfloor_{4,1})\gg\succ(\rfloor\rceil_{4,3})\\(\rceil\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\lceil\lceil_{1,2,4})\\(\rceil\rfloor_{3,4})\gg\succ(\rfloor\lceil_{1,4})\\(\lfloor\rceil_{2,3})\end{matrix}\times\begin{matrix}(\rceil\lfloor_{3,2})\\(\lceil\rfloor_{4,1})\gg\succ(\rfloor\rceil_{4,3})\\(\lceil\lceil_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\rceil\rfloor_{3,4})\\(\lfloor\rceil_{2,3})\gg\succ(\lceil\lceil_{1,2,4})\\(\rfloor\lceil_{1,4})\end{matrix}\times\begin{matrix}(\lceil\rfloor_{4,1})\\(\lceil\lceil_{4,2,1})\gg\succ(\rceil\lfloor_{3,2})\\(\rfloor\rceil_{4,3})\end{matrix}$$

$$\begin{matrix}(\rfloor\lceil_{1,4})\\(\lfloor\rceil_{2,3})\gg\succ(\lceil\lceil_{1,2,4})\\(\rceil\rfloor_{3,4})\end{matrix}\times\begin{matrix}(\rfloor\rceil_{4,3})\\(\lceil\lceil_{4,2,1})\gg\succ(\rceil\lfloor_{3,2})\\(\lceil\rfloor_{4,1})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\rfloor\lceil_{1,4})\gg\succ(\lceil\lceil_{1,2,4})\\(\rceil\rfloor_{3,4})\end{matrix}\times\begin{matrix}(\rfloor\rceil_{4,3})\\(\lceil\lceil_{4,2,1})\gg\succ(\lceil\rfloor_{4,1})\\(\rceil\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\rceil\rfloor_{3,4})\\(\rfloor\lceil_{1,4})\gg\succ(\lceil\lceil_{1,2,4})\\(\lfloor\rceil_{2,3})\end{matrix}\times\begin{matrix}(\rceil\lfloor_{3,2})\\(\lceil\lceil_{4,2,1})\gg\succ(\lceil\rfloor_{4,1})\\(\rfloor\rceil_{4,3})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\rceil\rfloor_{3,4})\gg\succ(\lceil\lceil_{1,2,4})\\(\rfloor\lceil_{1,4})\end{matrix}\times\begin{matrix}(\lceil\rfloor_{4,1})\\(\lceil\lceil_{4,2,1})\gg\succ(\rfloor\rceil_{4,3})\\(\rceil\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\rfloor\lceil_{1,4})\\(\rceil\rfloor_{3,4})\gg\succ(\lceil\lceil_{1,2,4})\\(\lfloor\rceil_{2,3})\end{matrix}\times\begin{matrix}(\rceil\lfloor_{3,2})\\(\lceil\lceil_{4,2,1})\gg\succ(\rfloor\rceil_{4,3})\\(\lceil\rfloor_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\urcorner_{2,3})\gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\lrcorner\ulcorner_{1,4})\end{matrix}\times\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\gg_{\Upsilon}\succ(\urcorner\llcorner_{3,2})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ulcorner_{1,4})\\(\llcorner\urcorner_{2,3})\gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\times\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\lrcorner\urcorner_{4,3})\gg_{\Upsilon}\succ(\urcorner\llcorner_{3,2})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\lrcorner\ulcorner_{1,4})\gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\times\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\lrcorner\urcorner_{4,3})\gg_{\Upsilon}\succ(\ulcorner\lrcorner_{4,1})\\(\urcorner\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\lrcorner\ulcorner_{1,4})\gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\times\begin{matrix}(\urcorner\llcorner_{3,2})\\(\lrcorner\urcorner_{4,3})\gg_{\Upsilon}\succ(\ulcorner\lrcorner_{4,1})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\ulcorner\ulcorner_{1,2,4})\gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\lrcorner\ulcorner_{1,4})\end{matrix}\times\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\lrcorner\urcorner_{4,3})\gg_{\Upsilon}\succ(\ulcorner\ulcorner_{4,2,1})\\(\urcorner\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ulcorner_{1,4})\\(\ulcorner\ulcorner_{1,2,4})\gg_{\Upsilon}\succ(\urcorner\lrcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\times\begin{matrix}(\urcorner\llcorner_{3,2})\\(\lrcorner\urcorner_{4,3})\gg_{\Upsilon}\succ(\ulcorner\ulcorner_{4,2,1})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

9. Pre-semiotic dual system

$$(\urcorner\lrcorner_{3,4}\ \ulcorner\ulcorner_{1,2,4}\lrcorner\urcorner_{3,4}\ \llcorner\urcorner_{2,3})\times(\urcorner\ \llcorner_{3,2}\urcorner\lrcorner_{4,3}\ \ulcorner\ulcorner_{4,2,1}\lrcorner\urcorner_{4,3})$$

Qualitative action

$$\begin{matrix}(\urcorner\lrcorner_{3,4})\\(\lrcorner\urcorner_{3,4})\gg_{\Upsilon}\succ(\llcorner\urcorner_{2,3})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\times\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\urcorner\ \llcorner_{3,2})\gg_{\Upsilon}\succ(\urcorner\lrcorner_{4,3})\\(\lrcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\lrcorner\urcorner_{3,4})\gg_{\Upsilon}\succ(\llcorner\urcorner_{2,3})\\(\urcorner\lrcorner_{3,4})\end{matrix}\times\begin{matrix}(\lrcorner\urcorner_{4,3})\\(\urcorner\ \llcorner_{3,2})\gg_{\Upsilon}\succ(\urcorner\lrcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\ \llcorner\urcorner_{2,3})\\ (\lrcorner\ \urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1})\\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\ \llcorner\urcorner_{2,3})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\ \urcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1})\\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\ \llcorner\urcorner_{2,3})\\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{4,3})\\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4})\\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\ \llcorner\urcorner_{2,3})\\ (\lrcorner\ \urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\ \lrcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{4,3})\\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\ \llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{3,4})\\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1})\\ (\urcorner\ \lrcorner_{4,3}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2})\\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4})\\ (\ \llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{3,4})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\ \urcorner_{4,3})\\ (\urcorner\ \lrcorner_{4,3}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2})\\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{3,4})\\ (\urcorner\ \lrcorner_{3,4})\end{matrix} \times \begin{matrix}(\lrcorner\ \urcorner_{4,3})\\ (\urcorner\ \lrcorner_{4,3}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{3,4})\\ (\ \llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\urcorner\ \lrcorner_{4,3}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1})\\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{3,4})\\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1})\\ (\urcorner\ \lrcorner_{4,3}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4})\\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{3,4})\\ (\ \llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\urcorner\ \lrcorner_{4,3}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{4,3})\\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

Objective action

$$\begin{matrix}(\urcorner\llcorner_{3,4})\\(\llcorner\urcorner_{2,3})\gg\succ(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\urcorner_{3,4})\end{matrix}\times\begin{matrix}(\urcorner\llcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\succ(\urcorner\llcorner_{3,2})\\(\llcorner\urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\gg\succ(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\llcorner_{3,4})\end{matrix}\times\begin{matrix}(\llcorner\urcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\succ(\urcorner\llcorner_{3,2})\\(\urcorner\llcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\llcorner\urcorner_{3,4})\gg\succ(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\llcorner_{3,4})\end{matrix}\times\begin{matrix}(\llcorner\urcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\succ(\urcorner\llcorner_{4,3})\\(\urcorner\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\llcorner_{3,4})\\(\llcorner\urcorner_{3,4})\gg\succ(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\times\begin{matrix}(\urcorner\llcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\succ(\urcorner\llcorner_{4,3})\\(\llcorner\urcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\urcorner\llcorner_{3,4})\gg\succ(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\urcorner_{3,4})\end{matrix}\times\begin{matrix}(\urcorner\llcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\succ(\llcorner\urcorner_{4,3})\\(\urcorner\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{3,4})\\(\urcorner\llcorner_{3,4})\gg\succ(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\times\begin{matrix}(\llcorner\urcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\succ(\llcorner\urcorner_{4,3})\\(\urcorner\llcorner_{3,2})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\urcorner_{2,3})\gg\succ(\urcorner\llcorner_{3,4})\\(\llcorner\urcorner_{3,4})\end{matrix}\times\begin{matrix}(\urcorner\llcorner_{4,3})\\(\llcorner\urcorner_{4,3})\gg\succ(\urcorner\llcorner_{3,2})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\gg\succ(\urcorner\llcorner_{3,4})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\times\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\llcorner\urcorner_{4,3})\gg\succ(\urcorner\llcorner_{3,2})\\(\urcorner\llcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\llcorner\urcorner_{3,4})\gg\succ(\urcorner\llcorner_{3,4})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\times\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\llcorner\urcorner_{4,3})\gg\succ(\urcorner\llcorner_{4,3})\\(\urcorner\llcorner_{3,2})\end{matrix}$$

$$(\lrcorner\,\urcorner_{3,4}) \gg \curlyvee \succ \begin{matrix}(\ulcorner\,\ulcorner_{1,4}) \\ (\urcorner\,\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad (\lrcorner\,\urcorner_{4,3}) \gg \curlyvee \succ \begin{matrix}(\urcorner\,\llcorner_{3,2}) \\ (\urcorner\,\lrcorner_{4,3}) \\ (\ulcorner\,\ulcorner_{4,2,1})\end{matrix}$$

$$(\ulcorner\,\ulcorner_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(\llcorner\urcorner_{2,3}) \\ (\urcorner\,\lrcorner_{3,4}) \\ (\lrcorner\,\urcorner_{3,4})\end{matrix} \quad \times \quad (\lrcorner\,\urcorner_{4,3}) \gg \curlyvee \succ \begin{matrix}(\urcorner\,\lrcorner_{4,3}) \\ (\urcorner\,\llcorner_{3,2}) \\ (\ulcorner\,\ulcorner_{4,2,1})\end{matrix}$$

$$(\ulcorner\,\ulcorner_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(\lrcorner\,\urcorner_{3,4}) \\ (\urcorner\,\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad (\lrcorner\,\urcorner_{4,3}) \gg \curlyvee \succ \begin{matrix}(\urcorner\,\llcorner_{3,2}) \\ (\urcorner\,\lrcorner_{4,3}) \\ (\ulcorner\,\ulcorner_{4,2,1})\end{matrix}$$

10. Pre-semiotic dual system

$(\urcorner\,\lrcorner_{3,4}\ \ulcorner\urcorner_{2,4}\,\lrcorner\,\urcorner_{3,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\,\urcorner\,\lrcorner_{4,3}\,\urcorner\ \ulcorner_{4,2}\,\lrcorner\,\urcorner_{4,3})$

Qualitative action

$$(\lrcorner\,\urcorner_{3,4}) \gg \curlyvee \succ \begin{matrix}(\urcorner\,\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\,\lrcorner_{4,3}) \\ (\lrcorner\,\urcorner_{4,3})\end{matrix}$$

$$(\lrcorner\,\urcorner_{3,4}) \gg \curlyvee \succ \begin{matrix}(\ulcorner\urcorner_{2,4}) \\ (\llcorner\urcorner_{2,3}) \\ (\urcorner\,\lrcorner_{3,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ \begin{matrix}(\lrcorner\,\urcorner_{4,3}) \\ (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\,\lrcorner_{4,3})\end{matrix}$$

$$(\ulcorner\urcorner_{2,4}) \gg \curlyvee \succ \begin{matrix}(\urcorner\,\lrcorner_{3,4}) \\ (\llcorner\urcorner_{2,3}) \\ (\lrcorner\,\urcorner_{3,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ (\lrcorner\,\urcorner_{4,3}) \\ (\urcorner\,\lrcorner_{4,3})\end{matrix}$$

$$(\lrcorner\,\urcorner_{3,4}) \gg \curlyvee \succ \begin{matrix}(\lrcorner\,\urcorner_{3,4}) \\ (\llcorner\urcorner_{2,3}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\,\lrcorner_{4,3}) \\ (\urcorner\,\lrcorner_{4,3})\end{matrix}$$

$$(\urcorner\,\lrcorner_{3,4}) \gg \curlyvee \succ \begin{matrix}(\lrcorner\,\urcorner_{3,4}) \\ (\llcorner\urcorner_{2,3}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ (\lrcorner\,\urcorner_{4,3}) \\ (\urcorner\,\lrcorner_{4,3})\end{matrix}$$

$$(\urcorner\,\lrcorner_{3,4}) \gg \curlyvee \succ \begin{matrix}(\ulcorner\,\ulcorner_{1,2,4}) \\ (\llcorner\urcorner_{2,3}) \\ (\lrcorner\,\urcorner_{3,4})\end{matrix} \quad \times \quad (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ \begin{matrix}(\urcorner\,\lrcorner_{4,3}) \\ (\lrcorner\,\urcorner_{4,3}) \\ (\ulcorner\,\ulcorner_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\(\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{3,4})\\(\ \ulcorner\urcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \ulcorner\urcorner_{2,4})\\(\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{3,4})\\(\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\(\ \ulcorner\urcorner_{2,4})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{3,4})\\(\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \ulcorner_{4,2})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\(\ \ulcorner\urcorner_{2,4})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{3,4})\\(\ \llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\ \gg\curlyvee\succ(\urcorner\ \ulcorner_{4,2})\\(\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\(\urcorner\ \lrcorner_{3,4})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{3,4})\\(\ \ulcorner\urcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{4,3})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ \ulcorner\urcorner_{2,4})\\(\urcorner\ \lrcorner_{3,4})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{3,4})\\(\ \llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\ \gg\curlyvee\succ(\lrcorner\ \urcorner_{4,3})\\(\urcorner\ \ulcorner_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4})\\(\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ \ulcorner\urcorner_{2,4})\\(\lrcorner\ \urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\(\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ \ulcorner\urcorner_{2,4})\\(\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\(\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\ \ulcorner\urcorner_{2,4})\\(\urcorner\ \lrcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\lrcorner\ \urcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{4,3})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \lrcorner_{3,4}) \\ (\lrcorner\ \urcorner_{3,4}) \gg \curlyvee \succ (\ulcorner\urcorner_{2,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ (\urcorner\ \ulcorner_{4,2}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{4,3}) \\ (\lrcorner\ \urcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\ulcorner\urcorner_{2,4}) \\ (\lrcorner\ \urcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \ulcorner_{4,2}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4}) \\ (\urcorner\ \lrcorner_{3,4}) \gg \curlyvee \succ (\ulcorner\urcorner_{2,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ (\urcorner\ \ulcorner_{4,2}) \gg \curlyvee \succ (\lrcorner\ \urcorner_{3,4}) \\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) \\ (\ \llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4}) \\ (\lrcorner\ \urcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \lrcorner_{4,3}) \\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2}) \\ (\urcorner\ \ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4}) \\ (\ \llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2}) \\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ (\lrcorner\ \urcorner_{3,4}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4}) \\ (\ulcorner\urcorner_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \ulcorner_{4,2}) \\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\urcorner_{2,4}) \\ (\lrcorner\ \urcorner_{3,4}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ (\ulcorner\urcorner_{2,4}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4}) \\ (\lrcorner\ \urcorner_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \lrcorner_{4,3}) \\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4}) \\ (\ulcorner\urcorner_{2,4}) \gg \curlyvee \succ (\urcorner\ \lrcorner_{3,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \quad \times \quad \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ (\lrcorner\ \urcorner_{4,3}) \gg \curlyvee \succ (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

11. Pre-semiotic dual system

$(\urcorner\ \ulcorner_{2,4}\ \ulcorner\ulcorner_{1,2,4}\ \lrcorner\ \ulcorner_{1,4}\ \llcorner\ulcorner_{1,2}) \times (\ulcorner\ \llcorner_{2,1}\ \ulcorner\lrcorner_{4,1}\ \ulcorner\ulcorner_{4,2,1}\ \ulcorner\urcorner_{4,2})$

Qualitative action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ (\lrcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\llcorner\ulcorner_{1,2}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\llcorner_{2,1}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\lrcorner\ \ulcorner_{1,4}) \gg \curlyvee \succ (\llcorner\ulcorner_{1,2}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ (\ulcorner\llcorner_{2,1}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ (\ulcorner\ulcorner_{1,2,4}) \gg \curlyvee \succ (\llcorner\ulcorner_{1,2}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\llcorner_{2,1}) \gg \curlyvee \succ (\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ (\ulcorner\ulcorner_{1,2,4}) \gg \curlyvee \succ (\llcorner\ulcorner_{1,2}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ (\ulcorner\llcorner_{2,1}) \gg \curlyvee \succ (\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ (\urcorner\ \ulcorner_{2,4}) \gg \curlyvee \succ (\llcorner\ulcorner_{1,2}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\llcorner_{2,1}) \gg \curlyvee \succ (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\urcorner\ \ulcorner_{2,4}) \gg \curlyvee \succ (\llcorner\ulcorner_{1,2}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\llcorner_{2,1}) \gg \curlyvee \succ (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ (\llcorner\ulcorner_{1,2}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\llcorner\ulcorner_{1,2}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2})\\(\ulcorner\ulcorner_{1,2,4})\gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\urcorner_{4,2})\\(\ulcorner\lrcorner_{4,1})\gg\curlyvee\succ(\ulcorner\ulcorner_{4,2,1})\\(\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\(\ulcorner\ulcorner_{1,2,4})\gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\gg\curlyvee\succ(\ulcorner\ulcorner_{4,2,1})\\(\urcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2})\\(\urcorner\ \ulcorner_{2,4})\gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\ulcorner\lrcorner_{4,1})\gg\curlyvee\succ(\urcorner\urcorner_{4,2})\\(\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \ulcorner_{2,4})\gg\curlyvee\succ(\lrcorner\ \ulcorner_{1,4})\\(\llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\gg\curlyvee\succ(\urcorner\urcorner_{4,2})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\(\llcorner\ulcorner_{1,2})\gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\llcorner_{2,1})\\(\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\llcorner\ulcorner_{1,2})\gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\urcorner_{4,2})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\llcorner_{2,1})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2})\\(\lrcorner\ \ulcorner_{1,4})\gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\urcorner_{4,2})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\lrcorner_{4,1})\\(\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\(\lrcorner\ \ulcorner_{1,4})\gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\urcorner_{4,2})\\(\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\(\urcorner\ \ulcorner_{2,4})\gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\ulcorner_{1,2})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\llcorner_{2,1})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\urcorner_{4,2})\\(\ulcorner\lrcorner_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\llcorner\ulcorner_{1,2}) \gg \curlyvee \succ (\urcorner\ulcorner_{2,4}) \\ (\lrcorner\ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\urcorner_{4,2}) \gg \curlyvee \succ (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ulcorner_{1,4}) \\ (\llcorner\ulcorner_{1,2}) \gg \curlyvee \succ (\urcorner\ulcorner_{2,4}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\urcorner_{4,2}) \gg \curlyvee \succ (\ulcorner\llcorner_{2,1}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ (\lrcorner\ulcorner_{1,4}) \gg \curlyvee \succ (\urcorner\ulcorner_{2,4}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\urcorner_{4,2}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\lrcorner\ulcorner_{1,4}) \gg \curlyvee \succ (\urcorner\ulcorner_{2,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \times \begin{matrix}(\ulcorner\llcorner_{2,1}) \\ (\ulcorner\urcorner_{4,2}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\ulcorner_{1,2}) \\ (\ulcorner\ulcorner_{1,2,4}) \gg \curlyvee \succ (\urcorner\ulcorner_{2,4}) \\ (\lrcorner\ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\urcorner_{4,2}) \gg \curlyvee \succ (\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\llcorner_{2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ulcorner_{1,4}) \\ (\ulcorner\ulcorner_{1,2,4}) \gg \curlyvee \succ (\urcorner\ulcorner_{2,4}) \\ (\llcorner\ulcorner_{1,2})\end{matrix} \times \begin{matrix}(\ulcorner\llcorner_{2,1}) \\ (\ulcorner\urcorner_{4,2}) \gg \curlyvee \succ (\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

12. Pre-semiotic dual system

$(\urcorner\ulcorner_{2,4}\ulcorner\ulcorner_{1,2,4}\lrcorner\ulcorner_{1,4}\llcorner\urcorner_{2,3}) \times (\urcorner\llcorner_{3,2}\ulcorner\lrcorner_{4,1}\ulcorner\ulcorner_{4,2,1}\ulcorner\urcorner_{4,2})$

Qualitative action

$$\begin{matrix}(\urcorner\ulcorner_{2,4}) \\ (\lrcorner\ulcorner_{1,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\lrcorner\ulcorner_{1,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3}) \\ (\urcorner\ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ (\urcorner\llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1})\\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\ (\urcorner\ \ulcorner_{2,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\urcorner_{4,2})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4})\\ (\urcorner\ \ulcorner_{2,4}) \gg \curlyvee \succ (\llcorner\urcorner_{2,3})\\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee\ \ \succ (\ulcorner\urcorner_{4,2})\\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\ (\llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4})\\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1})\\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2})\\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4})\\ (\llcorner\urcorner_{2,3}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4})\\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2})\\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\urcorner\ \llcorner_{3,2})\\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4})\\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2})\\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\ (\ulcorner\ \ulcorner_{1,2,4}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4})\\ (\llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2}) \gg \curlyvee \succ (\ulcorner\ \ulcorner_{4,2,1})\\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\ (\urcorner\ \ulcorner_{2,4}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4})\\ (\ulcorner\ \ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ \ulcorner_{4,2,1})\\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee \succ (\ulcorner\urcorner_{4,2})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ \ulcorner_{1,2,4})\\ (\urcorner\ \ulcorner_{2,4}) \gg \curlyvee \succ (\lrcorner\ \ulcorner_{1,4})\\ (\llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\lrcorner_{4,1}) \gg \curlyvee\ \ \succ (\ulcorner\urcorner_{4,2})\\ (\ulcorner\ \ulcorner_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\ (\llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\ (\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\ulcorner\ulcorner\urcorner_{4,2,1})\gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\ (\llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\ (\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\urcorner_{4,2})\\ (\ulcorner\ulcorner\urcorner_{4,2,1})\gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\ (\lrcorner\ \ulcorner_{1,4})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\ (\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\urcorner_{4,2})\\ (\ulcorner\ulcorner\urcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\lrcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\ (\lrcorner\ \ulcorner_{1,4})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\ulcorner\urcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\urcorner_{4,2})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\ (\urcorner\ \ulcorner_{2,4})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\ (\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\ulcorner\ulcorner\urcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\urcorner_{4,2})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\ (\urcorner\ \ulcorner_{2,4})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\ulcorner\urcorner_{4,2,1})\gg\curlyvee\succ(\ulcorner\urcorner_{4,2})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\ (\llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\urcorner\ \ulcorner_{2,4})\\ (\lrcorner\ \ulcorner_{1,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\lrcorner_{4,1})\\ (\ulcorner\urcorner_{4,2})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\ulcorner\urcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4})\\ (\llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\urcorner\ \ulcorner_{2,4})\\ (\ulcorner\ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner\urcorner_{4,2,1})\\ (\ulcorner\urcorner_{4,2})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\ (\lrcorner\ \ulcorner_{1,4})\ \gg\curlyvee\succ(\urcorner\ \ulcorner_{2,4})\\ (\ulcorner\ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner\urcorner_{4,2,1})\\ (\ulcorner\urcorner_{4,2})\ \gg\curlyvee\succ(\ulcorner\lrcorner_{4,1})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\lrcorner\ \ulcorner_{1,4}) \gg_{\Upsilon} \succ (\urcorner\ \ulcorner_{2,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\urcorner_{4,2}) \gg_{\Upsilon} \succ (\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3}) \\ (\ulcorner\ulcorner_{1,2,4}) \gg_{\Upsilon} \succ (\urcorner\ \ulcorner_{2,4}) \\ (\lrcorner\ \ulcorner_{1,4})\end{matrix} \times \begin{matrix}(\ulcorner\lrcorner_{4,1}) \\ (\ulcorner\urcorner_{4,2}) \gg_{\Upsilon} \succ (\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \ulcorner_{1,4}) \\ (\ulcorner\ulcorner_{1,2,4}) \gg_{\Upsilon} \succ (\urcorner\ \ulcorner_{2,4}) \\ (\ \llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\urcorner_{4,2}) \gg_{\Upsilon} \succ (\ulcorner\ulcorner_{4,2,1}) \\ (\ulcorner\lrcorner_{4,1})\end{matrix}$$

13. Pre-semiotic system

$(\urcorner\ \ulcorner_{2,4}\ \ulcorner\ulcorner_{1,2,4}\lrcorner\urcorner_{3,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\urcorner\lrcorner_{4,3}\ \ulcorner\ulcorner_{4,2,1}\ \ulcorner\urcorner_{4,2})$

Qualitative action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ (\lrcorner\urcorner_{3,4}) \gg_{\Upsilon} \succ (\ \llcorner\urcorner_{2,3}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\ \llcorner_{3,2}) \gg_{\Upsilon} \succ (\urcorner\lrcorner_{4,3}) \\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\lrcorner\urcorner_{3,4}) \gg_{\Upsilon} \succ (\ \llcorner\urcorner_{2,3}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2}) \gg_{\Upsilon} \succ (\urcorner\lrcorner_{4,3}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4}) \\ (\ulcorner\ulcorner_{1,2,4}) \gg_{\Upsilon} \succ (\ \llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2}) \gg_{\Upsilon} \succ (\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ (\ulcorner\ulcorner_{1,2,4}) \gg_{\Upsilon} \succ (\ \llcorner\urcorner_{2,3}) \\ (\urcorner\ \ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2}) \gg_{\Upsilon} \succ (\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4}) \\ (\urcorner\ \ulcorner_{2,4}) \gg_{\Upsilon} \succ (\ \llcorner\urcorner_{2,3}) \\ (\ulcorner\ulcorner_{1,2,4})\end{matrix} \times \begin{matrix}(\ulcorner\ulcorner_{4,2,1}) \\ (\urcorner\ \llcorner_{3,2}) \gg_{\Upsilon} \succ (\ulcorner\urcorner_{4,2}) \\ (\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4}) \\ (\urcorner\ \ulcorner_{2,4}) \gg_{\Upsilon} \succ (\ \llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2}) \gg_{\Upsilon} \succ (\ulcorner\urcorner_{4,2}) \\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\(\llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\lrcorner\urcorner_{3,4})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\urcorner\lrcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\lrcorner\urcorner_{3,4})\\(\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\urcorner_{4,2})\\(\urcorner\lrcorner_{4,3})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\ulcorner\ulcorner_{1,2,4})\gg\curlyvee\succ(\lrcorner\urcorner_{3,4})\\(\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\urcorner_{4,2})\\(\urcorner\lrcorner_{4,3})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{4,2,1})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\(\ulcorner\ulcorner_{1,2,4})\gg\curlyvee\succ(\lrcorner\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\(\urcorner\lrcorner_{4,3})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{4,2,1})\\(\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\urcorner\ \ulcorner_{2,4})\ \gg\curlyvee\succ(\lrcorner\urcorner_{3,4})\\(\ulcorner\ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\(\urcorner\lrcorner_{4,3})\ \gg\curlyvee\succ(\ulcorner\urcorner_{4,2})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \ulcorner_{2,4})\ \gg\curlyvee\succ(\lrcorner\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\(\urcorner\lrcorner_{4,3})\ \gg\curlyvee\succ(\ulcorner\urcorner_{4,2})\\(\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\(\llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\lrcorner\urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\lrcorner_{4,3})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\urcorner_{4,2})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\lrcorner\urcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\ulcorner_{1,2,4})\\(\urcorner\ \ulcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\urcorner_{4,2})\\(\ulcorner\ulcorner_{4,2,1})\gg\curlyvee\succ(\urcorner\lrcorner_{4,3})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \ulcorner_{2,4})\\ (\lrcorner\ \urcorner_{3,4})\ \gg\Upsilon\succ(\ulcorner\ulcorner_{1,2,4})\\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\ulcorner_{4,2,1})\gg\Upsilon\succ(\urcorner\ \lrcorner_{4,3})\\ (\ulcorner\urcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\ (\urcorner\ \ulcorner_{2,4})\ \gg\Upsilon\succ(\ulcorner\ulcorner_{1,2,4})\\ (\lrcorner\ \urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\\ (\ulcorner\ulcorner_{4,2,1})\gg\Upsilon\succ(\ulcorner\urcorner_{4,2})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4})\\ (\urcorner\ \ulcorner_{2,4})\ \gg\Upsilon\succ(\ulcorner\ulcorner_{1,2,4})\\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\ulcorner_{4,2,1})\gg\Upsilon\succ(\ulcorner\urcorner_{4,2})\\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\ (\llcorner\urcorner_{2,3})\ \gg\Upsilon\succ(\urcorner\ \ulcorner_{2,4})\\ (\lrcorner\urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\\ (\ulcorner\urcorner_{4,2})\ \gg\Upsilon\succ(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4})\\ (\llcorner\urcorner_{2,3})\ \gg\Upsilon\succ(\urcorner\ \ulcorner_{2,4})\\ (\ulcorner\ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\ (\ulcorner\urcorner_{4,2})\ \gg\ \Upsilon\ \ \succ(\urcorner\ \llcorner_{3,2})\\ (\urcorner\ \lrcorner_{4,3}\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\ (\lrcorner\urcorner_{3,4})\ \gg\Upsilon\succ(\urcorner\ \ulcorner_{2,4})\\ (\ulcorner\ulcorner_{1,2,4})\end{matrix}\quad\times\quad\begin{matrix}(\ulcorner\ulcorner_{4,2,1})\\ (\ulcorner\urcorner_{4,2})\ \gg\Upsilon\succ(\urcorner\ \lrcorner_{4,3})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\ulcorner_{1,2,4})\\ (\lrcorner\urcorner_{3,4})\ \gg\Upsilon\succ(\urcorner\ \ulcorner_{2,4})\\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\urcorner_{4,2})\ \gg\Upsilon\succ(\urcorner\ \lrcorner_{4,3})\\ (\ulcorner\ulcorner_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\ (\ulcorner\ulcorner_{1,2,4})\gg\Upsilon\succ(\urcorner\ \ulcorner_{2,4})\\ (\lrcorner\urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\\ (\ulcorner\urcorner_{4,2})\ \gg\Upsilon\succ(\ulcorner\ulcorner_{4,2,1})\\ (\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4})\\ (\ulcorner\ulcorner_{1,2,4})\gg\Upsilon\succ(\urcorner\ \ulcorner_{2,4})\\ (\llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\ (\ulcorner\urcorner_{4,2})\ \gg\Upsilon\succ(\ulcorner\ulcorner_{4,2,1})\\ (\urcorner\ \lrcorner_{4,3})\end{matrix}$$

14. Pre-semiotic dual system

$(\urcorner\ \ulcorner_{2,4}\ \ulcorner\urcorner_{2,4}\ \lrcorner\urcorner_{3,4}\ \llcorner\urcorner_{2,3}) \times (\urcorner\ \llcorner_{3,2}\urcorner\lrcorner_{4,3}\urcorner\ \ulcorner_{4,2}\ \ulcorner\urcorner_{4,2})$

Qualitative action

$$\begin{matrix} (\urcorner\ \ulcorner_{2,4}) \\ (\lrcorner\urcorner_{3,4}) \gg_Y \succ (\llcorner\urcorner_{2,3}) \\ (\ulcorner\urcorner_{2,4}) \end{matrix} \times \begin{matrix} (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2}) \gg_Y \succ (\urcorner\lrcorner_{4,3}) \\ (\ulcorner\urcorner_{4,2}) \end{matrix}$$

$$\begin{matrix} (\ulcorner\urcorner_{2,4}) \\ (\lrcorner\urcorner_{3,4}) \gg_Y \succ (\llcorner\urcorner_{2,3}) \\ (\urcorner\ \ulcorner_{2,4}) \end{matrix} \times \begin{matrix} (\ulcorner\urcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2}) \gg_Y \succ (\urcorner\lrcorner_{4,3}) \\ (\urcorner\ \ulcorner_{4,2}) \end{matrix}$$

$$\begin{matrix} (\urcorner\ \ulcorner_{2,4}) \\ (\ulcorner\urcorner_{2,4}) \gg_Y \succ (\llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4}) \end{matrix} \times \begin{matrix} (\urcorner\lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2}) \gg_Y \succ (\urcorner\ \ulcorner_{4,2}) \\ (\ulcorner\urcorner_{4,2}) \end{matrix}$$

$$\begin{matrix} (\lrcorner\urcorner_{3,4}) \\ (\ulcorner\urcorner_{2,4}) \gg_Y \succ (\llcorner\urcorner_{2,3}) \\ (\urcorner\ \ulcorner_{2,4}) \end{matrix} \times \begin{matrix} (\ulcorner\urcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2}) \gg_Y \succ (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\lrcorner_{4,3}) \end{matrix}$$

$$\begin{matrix} (\lrcorner\urcorner_{3,4}) \\ (\urcorner\ \ulcorner_{2,4}) \gg_Y \succ (\llcorner\urcorner_{2,3}) \\ (\ulcorner\urcorner_{2,4}) \end{matrix} \times \begin{matrix} (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \llcorner_{3,2}) \gg_Y \succ (\ulcorner\urcorner_{4,2}) \\ (\urcorner\lrcorner_{4,3}) \end{matrix}$$

$$\begin{matrix} (\ulcorner\urcorner_{2,4}) \\ (\urcorner\ \ulcorner_{2,4}) \gg_Y \succ (\llcorner\urcorner_{2,3}) \\ (\lrcorner\urcorner_{3,4}) \end{matrix} \times \begin{matrix} (\urcorner\lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2}) \gg_Y \succ (\ulcorner\urcorner_{4,2}) \\ (\urcorner\ \ulcorner_{4,2}) \end{matrix}$$

Medial action

$$\begin{matrix} (\urcorner\ \ulcorner_{2,4}) \\ (\llcorner\urcorner_{2,3}) \gg_Y \succ (\lrcorner\urcorner_{3,4}) \\ (\ulcorner\urcorner_{2,4}) \end{matrix} \times \begin{matrix} (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\lrcorner_{4,3}) \gg_Y \succ (\urcorner\ \llcorner_{3,2}) \\ (\ulcorner\urcorner_{4,2}) \end{matrix}$$

$$\begin{matrix} (\ulcorner\urcorner_{2,4}) \\ (\llcorner\urcorner_{2,3}) \gg_Y \succ (\lrcorner\urcorner_{3,4}) \\ (\urcorner\ \ulcorner_{2,4}) \end{matrix} \times \begin{matrix} (\urcorner\lrcorner_{4,3}) \\ (\urcorner\ \llcorner_{3,2}) \gg_Y \succ (\urcorner\ \ulcorner_{4,2}) \\ (\urcorner\ \ulcorner_{4,2}) \end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\lceil\rceil_{2,4}) \gg \curlyvee \succ \lrcorner\rceil_{3,4})\\(\urcorner\lceil_{2,4})\end{matrix} \times \begin{matrix}(\lceil\rceil_{4,2})\\(\urcorner\lrcorner_{4,3}) \gg \curlyvee \succ (\urcorner\lceil_{4,2})\\(\urcorner\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\lceil_{2,4})\\(\lceil\rceil_{2,4}) \gg \curlyvee \succ (\lrcorner\rceil_{3,4})\\(\lfloor\rceil_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\lfloor_{3,2})\\(\urcorner\lrcorner_{4,3}) \gg \curlyvee \succ (\urcorner\lceil_{4,2})\\(\lceil\rceil_{4,2})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\urcorner\lceil_{2,4}) \gg \quad \succ (\lrcorner\rceil_{3,4})\\(\lceil\rceil_{2,4})\end{matrix} \times \begin{matrix}(\urcorner\lceil_{4,2})\\(\urcorner\lrcorner_{4,3}) \gg \curlyvee \succ (\lceil\rceil_{4,2})\\(\urcorner\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\lceil\rceil_{2,4})\\(\urcorner\lceil_{2,4}) \gg \curlyvee \succ (\lrcorner\rceil_{3,4})\\(\lfloor\rceil_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\lfloor_{3,2})\\(\urcorner\lrcorner_{4,3}) \gg \curlyvee \succ (\lceil\rceil_{4,2})\\(\urcorner\lceil_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\lceil_{2,4})\\(\lfloor\rceil_{2,3}) \gg \curlyvee \succ (\lceil\rceil_{2,4})\\(\lrcorner\rceil_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3})\\(\urcorner\lceil_{4,2}) \gg \curlyvee \succ (\urcorner\lfloor_{3,2})\\(\lceil\rceil_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\rceil_{3,4})\\(\lfloor\rceil_{2,3}) \gg \curlyvee \succ (\lceil\rceil_{2,4})\\(\urcorner\lceil_{2,4})\end{matrix} \times \begin{matrix}(\lceil\rceil_{4,2})\\(\urcorner\lceil_{4,2}) \gg \curlyvee \succ (\urcorner\lfloor_{3,2})\\(\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lfloor\rceil_{2,3})\\(\lrcorner\rceil_{3,4}) \gg \curlyvee \succ (\lceil\rceil_{2,4})\\(\urcorner\lceil_{2,4})\end{matrix} \times \begin{matrix}(\lceil\rceil_{4,2})\\(\urcorner\lceil_{4,2}) \gg \curlyvee \succ (\urcorner\lrcorner_{4,3})\\(\urcorner\lfloor_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\lceil_{2,4})\\(\lrcorner\rceil_{3,4}) \gg \curlyvee \succ (\lceil\rceil_{2,4})\\(\lfloor\rceil_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\lfloor_{3,2})\\(\urcorner\lceil_{4,2}) \gg \curlyvee \succ (\urcorner\lrcorner_{4,3})\\(\lceil\rceil_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\rceil_{3,4})\\(\urcorner\lceil_{2,4}) \gg \curlyvee \succ (\lceil\rceil_{2,4})\\(\lfloor\rceil_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\lfloor_{3,2})\\(\urcorner\lceil_{4,2}) \gg \curlyvee \succ (\lceil\rceil_{4,2})\\(\urcorner\lrcorner_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ \lceil\urcorner\ _{2,4})\\(\ \llcorner\urcorner\ _{2,3})\ \gg\curlyvee\succ(\urcorner\ \lceil_{2,4})\\(\lrcorner\ \urcorner\ _{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner\ _{4,3})\\(\ \lceil\urcorner\ _{4,2})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \lceil_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner\ _{3,4})\\(\ \llcorner\urcorner\ _{2,3})\ \gg\curlyvee\succ(\urcorner\ \lceil_{2,4})\\(\ \lceil\urcorner\ _{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lceil_{4,2})\\(\ \lceil\urcorner\ _{4,2})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \lrcorner\ _{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner\ _{2,3})\\(\lrcorner\ \urcorner\ _{3,4})\ \gg\curlyvee\succ(\urcorner\ \lceil_{2,4})\\(\ \lceil\urcorner\ _{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lceil_{4,2})\\(\ \lceil\urcorner\ _{4,2})\ \gg\curlyvee\succ(\urcorner\ \lrcorner\ _{4,3})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ \lceil\urcorner\ _{2,4})\\(\lrcorner\ \urcorner\ _{3,4})\ \gg\curlyvee\succ(\urcorner\ \lceil_{2,4})\\(\ \llcorner\urcorner\ _{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\(\ \lceil\urcorner\ _{4,2})\ \gg\curlyvee\succ(\urcorner\ \lrcorner\ _{4,3})\\(\urcorner\ \lceil_{4,2})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner\ _{2,3})\\(\ \lceil\urcorner\ _{2,4})\ \gg\curlyvee\succ(\urcorner\ \lceil_{2,4})\\(\lrcorner\ \urcorner\ _{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner\ _{4,3})\\(\ \lceil\urcorner\ _{4,2})\ \gg\curlyvee\succ(\urcorner\ \lceil_{4,2})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner\ _{3,4})\\(\ \lceil\urcorner\ _{2,4})\ \gg\curlyvee\succ(\urcorner\ \lceil_{2,4})\\(\ \llcorner\urcorner\ _{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\(\ \lceil\urcorner\ _{4,2})\ \gg\curlyvee\succ(\urcorner\ \lceil_{4,2})\\(\urcorner\ \lrcorner\ _{4,3})\end{matrix}$$

15. Pre-semiotic dual system

$(\urcorner\ \urcorner_{2,3,4}\ \lceil\urcorner_{2,4}\ \lrcorner\ \urcorner_{3,4}\ \llcorner\urcorner_{2,3})\times(\urcorner\ \llcorner_{3,2}\ \urcorner\ \lrcorner_{4,3}\ \urcorner\ \lceil_{4,2}\ \urcorner\ \urcorner_{4,3,2})$

Qualitative action

$$\begin{matrix}(\urcorner\ \urcorner\ _{2,3,4})\\(\lrcorner\ \urcorner\ _{3,4})\ \gg\curlyvee\succ(\ \llcorner\urcorner\ _{2,3})\\(\ \lceil\urcorner\ _{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lceil_{4,2})\\(\urcorner\ \llcorner_{3,2})\ \gg\curlyvee\succ(\urcorner\ \lrcorner\ _{4,3})\\(\urcorner\ \urcorner\ _{4,3,2})\end{matrix}$$

$$\begin{matrix}(\ \lceil\urcorner\ _{2,4})\\(\lrcorner\ \urcorner\ _{3,4})\ \gg\curlyvee\succ(\ \llcorner\urcorner\ _{2,3})\\(\urcorner\ \urcorner\ _{2,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \urcorner\ _{4,3,2})\\(\urcorner\ \llcorner_{3,2})\ \gg\curlyvee\succ(\urcorner\ \lrcorner\ _{4,3})\\(\urcorner\ \lceil_{4,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\urcorner_{2,3,4})\\(\ulcorner\urcorner_{2,4}) \gg \succ (\llcorner\urcorner_{2,3})\\(\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3})\\(\urcorner\llcorner_{3,2}) \gg \succ (\urcorner\ulcorner_{4,2})\\(\urcorner\urcorner_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4})\\(\ulcorner\urcorner_{2,4}) \gg \succ (\llcorner\urcorner_{2,3})\\(\urcorner\urcorner_{2,3,4})\end{matrix} \times \begin{matrix}(\urcorner\urcorner_{4,3,2})\\(\urcorner\llcorner_{3,2}) \gg \succ (\urcorner\ulcorner_{4,2})\\(\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\lrcorner\urcorner_{3,4})\\(\urcorner\urcorner_{2,3,4}) \gg \succ (\llcorner\urcorner_{2,3})\\(\ulcorner\urcorner_{2,4})\end{matrix} \times \begin{matrix}(\urcorner\ulcorner_{4,2})\\(\urcorner\llcorner_{3,2}) \gg \succ (\urcorner\urcorner_{4,3,2})\\(\urcorner\lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ulcorner\urcorner_{2,4})\\(\urcorner\urcorner_{2,3,4}) \gg \succ (\llcorner\urcorner_{2,3})\\(\lrcorner\urcorner_{3,4})\end{matrix} \times \begin{matrix}(\urcorner\lrcorner_{4,3})\\(\urcorner\llcorner_{3,2}) \gg \succ (\urcorner\urcorner_{4,3,2})\\(\urcorner\ulcorner_{4,2})\end{matrix}$$

Medial action

$$\begin{matrix}(\urcorner\urcorner_{2,3,4})\\(\llcorner\urcorner_{2,3}) \gg \succ (\lrcorner\urcorner_{3,4})\\(\ulcorner\urcorner_{2,4})\end{matrix} \times \begin{matrix}(\urcorner\ulcorner_{4,2})\\(\urcorner\lrcorner_{4,3}) \gg \succ (\urcorner\llcorner_{3,2})\\(\urcorner\urcorner_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\urcorner_{2,4})\\(\llcorner\urcorner_{2,3}) \gg \succ (\lrcorner\urcorner_{3,4})\\(\urcorner\ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2})\\(\urcorner\lrcorner_{4,3}) \gg \succ (\urcorner\llcorner_{3,2})\\(\urcorner\ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\ulcorner\urcorner_{2,4}) \gg \succ (\lrcorner\urcorner_{3,4})\\(\urcorner\ulcorner_{2,4})\end{matrix} \times \begin{matrix}(\ulcorner\urcorner_{4,2})\\(\urcorner\lrcorner_{4,3}) \gg \succ (\urcorner\ulcorner_{4,2})\\(\urcorner\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\urcorner_{2,3,4})\\(\ulcorner\urcorner_{2,4}) \gg \succ (\lrcorner\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\llcorner_{3,2})\\(\urcorner\lrcorner_{4,3}) \gg \succ (\urcorner\ulcorner_{4,2})\\(\urcorner\urcorner_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\llcorner\urcorner_{2,3})\\(\urcorner\urcorner_{2,3,4}) \gg \succ (\lrcorner\urcorner_{3,4})\\(\ulcorner\urcorner_{2,4})\end{matrix} \times \begin{matrix}(\urcorner\ulcorner_{4,2})\\(\urcorner\lrcorner_{4,3}) \gg \succ (\urcorner\urcorner_{4,3,2})\\(\urcorner\llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\ulcorner\urcorner_{2,4})\\(\urcorner\urcorner_{2,3,4}) \gg \succ (\lrcorner\urcorner_{3,4})\\(\llcorner\urcorner_{2,3})\end{matrix} \times \begin{matrix}(\urcorner\llcorner_{3,2})\\(\urcorner\lrcorner_{4,3}) \gg \succ (\urcorner\urcorner_{4,3,2})\\(\urcorner\ulcorner_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\urcorner\ \urcorner_{2,3,4})\\(\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\urcorner_{2,4})\\(\lrcorner\ \urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\\(\urcorner\ \ulcorner_{4,2})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \urcorner_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\(\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\ulcorner\urcorner_{2,4})\\(\urcorner\ \urcorner_{2,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \urcorner_{4,3,2})\\(\urcorner\ \ulcorner_{4,2})\ \gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\(\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\urcorner_{2,4})\\(\urcorner\ \urcorner_{2,3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \urcorner_{4,3,2})\\(\urcorner\ \ulcorner_{4,2})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{4,3})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\urcorner\ \urcorner_{2,3,4})\\(\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\ulcorner\urcorner_{2,4})\\(\ \llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \ulcorner_{4,2})\ \gg\curlyvee\succ(\urcorner\ \lrcorner_{3,4})\\(\urcorner\ \urcorner_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\(\urcorner\ \urcorner_{2,3,4})\ \gg\curlyvee\succ(\ulcorner\urcorner_{2,4})\\(\lrcorner\ \urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\\(\urcorner\ \ulcorner_{4,2})\ \gg\curlyvee\succ(\urcorner\ \urcorner_{2,3,4})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\(\urcorner\ \urcorner_{2,3,4})\ \gg\curlyvee\succ(\ulcorner\urcorner_{2,4})\\(\ \llcorner\urcorner_{2,3})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \ulcorner_{4,2})\ \gg\curlyvee\succ(\urcorner\ \urcorner_{4,3,2})\\(\urcorner\ \lrcorner_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\ulcorner\urcorner_{2,4})\\(\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\urcorner\ \urcorner_{2,3,4})\\(\lrcorner\ \urcorner_{3,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \lrcorner_{4,3})\\(\urcorner\ \urcorner_{4,3,2})\gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \ulcorner_{4,2})\end{matrix}$$

$$\begin{matrix}(\lrcorner\ \urcorner_{3,4})\\(\ \llcorner\urcorner_{2,3})\ \gg\curlyvee\succ(\urcorner\ \urcorner_{2,3,4})\\(\ulcorner\urcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \ulcorner_{4,2})\\(\urcorner\ \urcorner_{4,3,2})\gg\curlyvee\succ(\urcorner\ \llcorner_{3,2})\\(\urcorner\ \lrcorner_{4,3})\end{matrix}$$

$$\begin{matrix}(\ \llcorner\urcorner_{2,3})\\(\lrcorner\ \urcorner_{3,4})\ \gg\curlyvee\succ(\urcorner\ \urcorner_{2,3,4})\\(\ulcorner\urcorner_{2,4})\end{matrix}\quad\times\quad\begin{matrix}(\urcorner\ \ulcorner_{4,2})\\(\urcorner\ \urcorner_{4,3,2})\gg\curlyvee\succ(\urcorner\ \lrcorner_{4,3})\\(\urcorner\ \llcorner_{3,2})\end{matrix}$$

$$\begin{pmatrix}\lceil\rceil_{2,4}\\ \lrcorner\rceil_{3,4}\end{pmatrix} \gg \curlyvee \succ \begin{pmatrix}\rceil\rceil_{2,3,4}\\ \lfloor\rceil_{2,3}\end{pmatrix} \quad \times \quad \begin{pmatrix}\rceil\lfloor_{3,2}\\ \rceil\rceil_{4,3,2}\end{pmatrix} \gg \curlyvee \succ \begin{pmatrix}\rceil\lrcorner_{4,3}\\ \rceil\lceil_{4,2}\end{pmatrix}$$

$$\begin{pmatrix}\lfloor\rceil_{2,3}\\ \lceil\rceil_{2,4}\end{pmatrix} \gg \curlyvee \succ \begin{pmatrix}\rceil\rceil_{2,3,4}\\ \lrcorner\rceil_{3,4}\end{pmatrix} \quad \times \quad \begin{pmatrix}\rceil\lrcorner_{4,3}\\ \rceil\rceil_{4,3,2}\end{pmatrix} \gg \curlyvee \succ \begin{pmatrix}\rceil\lceil_{4,2}\\ \rceil\lfloor_{3,2}\end{pmatrix}$$

$$\begin{pmatrix}\lrcorner\rceil_{3,4}\\ \lceil\rceil_{2,4}\end{pmatrix} \gg \curlyvee \succ \begin{pmatrix}\rceil\rceil_{2,3,4}\\ \lfloor\rceil_{2,3}\end{pmatrix} \quad \times \quad \begin{pmatrix}\rceil\lfloor_{3,2}\\ \rceil\rceil_{4,3,2}\end{pmatrix} \gg \curlyvee \succ \begin{pmatrix}\rceil\lceil_{4,2}\\ \rceil\lrcorner_{4,3}\end{pmatrix}$$

Chapter Five: The Systemic Night

Notation:

0.1 = A*I(A)	1.0 = I(A)*A	.1. = I(A)
0.2 = A*(A(I(A))	2.0 = A(I(A))*A	.2. = A(I(A))
0.3 = A*I(A(I(A)))	3.0 = I(A(I(A)))*A	.3. = I(A(I(A)))

I. Action schemata of the 2 · 24 triadic semiotic partial relations

1. Pre-semiotic dual system
$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)I(A)_{1,3,4}\ A^*I(A)_{1,3}) \times$
$(I(A)^*A_{3,1}\ I(A)I(A)_{4,3,1}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (A^*I(A)_{1,3})$
$(I(A)I(A)_{1,3,4})$

$\times$

$(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A)^*A_{3,1})$
$(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A^*I(A)_{1,3})$
$(I(A)I(A)_{1,3,4})$

$\times$

$(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A)^*A_{3,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$
$\quad \curlywedge \gg (A^*I(A)_{1,3})$
$(A(I(A))I(A)_{1,4})$

$\times$

$(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)^*A_{3,1})$
$(I(A)I(A)_{4,3,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A^*I(A)_{1,3})$
$(A(I(A))I(A)_{1,4})$

$\times$

$(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)^*A_{3,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$
$\quad \curlywedge \gg (A^*I(A)_{1,3})$
$(I(A(I(A)))I(A)_{3,4})$

$\times$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)^*A_{3,1})$
$(I(A)I(A)_{4,3,1})$

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (A^*I(A)_{1,3})$
$(I(A(I(A)))I(A)_{3,4})$

$\times$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)^*A_{3,1})$
$(I(A)A(I(A))_{4,1})$

Medial action

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4})$
$(A^*I(A)_{1,3})$

$\times$

$(I(A)^*A_{3,1})$
$\quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)^*A_{3,1})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A^*I(A)_{1,3})$ $(I(A)I(A(I(A)))_{4,3})$

$(A^*I(A)_{1,3})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A(I(A))I(A)_{1,4})$ $(I(A)^*A_{3,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(A^*I(A)_{1,3})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)^*A_{3,1})$

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$

Objectal action

$(I(A)I(A)_{1,3,4})$ $(I(A)^*A_{3,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times \quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(A^*I(A)_{1,3})$ $(I(A)I(A)_{4,3,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)^*A_{3,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times \quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(A^*I(A)_{1,3})$ $(I(A)I(A(I(A)))_{4,3})$

$(A^*I(A)_{1,3})$ $(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times \quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A)_{1,3,4})$ $(I(A)^*A_{3,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times \quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A)_{1,3,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times \quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)I(A)_{4,3,1})$

$(A^*I(A)_{1,3})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times \quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)^*A_{3,1})$

Interpretative action

$(A(I(A))I(A)_{1,4})$ $(I(A)*A_{3,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A*I(A)_{1,3})$ $(I(A)A(I(A))_{4,1})$

$(I(A)I(A)_{1,3,4})$ $(I(A)*A_{3,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A*I(A)_{1,3})$ $(I(A)I(A)_{4,3,1})$

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)I(A)_{1,3,4})$ $(I(A)A(I(A))_{4,1})$

$(A*I(A)_{1,3})$ $(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)I(A)_{1,3,4})$ $(I(A)*A_{3,1})$

$(I(A)I(A)_{1,3,4})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A)_{4,3,1})$

$(A*I(A)_{1,3})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(I(A)*A_{3,1})$

2. Pre-semiotic dual system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)I(A)_{1,3,4}\ A*A(I(A))_{1,2}) \times$
$(A(I(A))*A_{2,1}\ I(A)I(A)_{4,3,1}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (A*A(I(A))_{1,2}) \quad \times \quad \curlywedge \gg (A(I(A))*A_{2,1})$
$(I(A)I(A)_{1,3,4})$ $(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (A*A(I(A))_{1,2}) \quad \times \quad \curlywedge \gg (A(I(A))*A_{2,1})$
$(I(A)I(A)_{1,3,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (A*A(I(A))_{1,2}) \quad \times \quad \curlywedge \gg (A(I(A))*A_{2,1})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A)_{4,3,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (A*A(I(A))_{1,2}) \quad \times \quad \curlywedge \gg (A(I(A))*A_{2,1})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$
$\quad \curlywedge \gg (A^{*}A(I(A))_{1,2})$
$(I(A(I(A)))I(A)_{3,4})$

$\times$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))^{*}A_{2,1})$
$(I(A)I(A)_{4,3,1})$

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (A^{*}A(I(A))_{1,2})$
$(I(A(I(A)))I(A)_{3,4})$

$\times$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))^{*}A_{2,1})$
$(I(A)A(I(A))_{4,1})$

Medial action

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4})$
$(A^{*}A(I(A))_{1,2})$

$\times$

$(A(I(A))^{*}A_{2,1})$
$\quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4})$
$(A^{*}A(I(A))_{1,2})$

$\times$

$(A(I(A))^{*}A_{2,1})$
$\quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^{*}A(I(A))_{1,2})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4})$
$(A(I(A))I(A)_{1,4})$

$\times$

$(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A(I(A))^{*}A_{2,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4})$
$(A(I(A))I(A)_{1,4})$

$\times$

$(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^{*}A(I(A))_{1,2})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4})$
$(I(A(I(A)))I(A)_{3,4})$

$\times$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A(I(A))^{*}A_{2,1})$

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A)I(A)_{1,3,4})$
$(I(A(I(A)))I(A)_{3,4})$

$\times$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A)A(I(A))_{4,1})$

Objectal action

$(I(A)I(A)_{1,3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4})$
$(A^{*}A(I(A))_{1,2})$

$\times$

$(A(I(A))^{*}A_{2,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A)_{4,3,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4})$
$(A^{*}A(I(A))_{1,2})$

$\times$

$(A(I(A))^{*}A_{2,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^{*}A(I(A))_{1,2})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4})$
$(I(A)I(A)_{1,3,4})$

$\times$

$(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(A(I(A))^{*}A_{2,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)I(A)_{4,3,1})$
$\curlywedge \gg (A(I(A))I(A)_{1,4})$ × $\curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A)_{1,3,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A(I(A))I(A)_{1,4})$ × $\curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)I(A)_{4,3,1})$

$(A^*A(I(A))_{1,2})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A(I(A))I(A)_{1,4})$ × $\curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))^*A_{2,1})$

Interpretative action

$(A(I(A))I(A)_{1,4})$ $(A(I(A))^*A_{2,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A^*A(I(A))_{1,2})$ $(I(A)A(I(A))_{4,1})$

$(I(A)I(A)_{1,3,4})$ $(I(A)I(A)_{4,3,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A^*A(I(A))_{1,2})$ $(A^*A(I(A))_{1,2})$

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A)_{4,3,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)I(A)_{1,3,4})$ $(I(A)A(I(A))_{4,1})$

$(A^*A(I(A))_{1,2})$ $(I(A)I(A)_{4,3,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)I(A)_{1,3,4})$ $(A(I(A))^*A_{2,1})$

$(I(A)I(A)_{1,3,4})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A)_{4,3,1})$

$(A^*A(I(A))_{1,2})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(A(I(A))^*A_{2,1})$

3. Pre-semiotic dual system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)I(A)_{1,3,4}\ A^*I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^*A_{3,2}\ I(A)I(A)_{4,3,1}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative Action

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A)_{4,3,1})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A)I(A)_{1,3,4})$ $(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)I(A)_{4,3,1})$
$\curlywedge \gg (A{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(I(A)I(A)_{1,3,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (A{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A)_{4,3,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (A{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)I(A)_{4,3,1})$

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$

Medial action

$(A(I(A))I(A)_{1,4})$ $(I(A(I(A))){*}A_{3,2})$
$\curlywedge \gg (I(A)I(A)_{1,3,4})$ $\times$ $\curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A{*}I(A(I(A)))_{2,3})$ $(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A(I(A))){*}A_{3,2})$
$\curlywedge \gg (I(A)I(A)_{1,3,4})$ $\times$ $\curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A{*}I(A(I(A)))_{2,3})$ $(I(A)I(A(I(A)))_{4,3})$

$(A{*}I(A(I(A)))_{2,3})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (I(A)I(A)_{1,3,4})$ $\times$ $\curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A(I(A))I(A)_{1,4})$ $(I(A(I(A))){*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (I(A)I(A)_{1,3,4})$ $\times$ $\curlywedge \gg (I(A)I(A)_{4,3,1})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(A{*}I(A(I(A)))_{2,3})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (I(A)I(A)_{1,3,4})$ $\times$ $\curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A(I(A))){*}A_{3,2})$

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (I(A)I(A)_{1,3,4})$ $\times$ $\curlywedge \gg (I(A)I(A)_{4,3,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$

Objectal action

$(I(A)I(A)_{1,3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A)_{4,3,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A)I(A)_{1,3,4})$

$(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$I(A(I(A)))^{*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A)I(A)_{1,3,4})$

$(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A)_{1,3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A)_{4,3,1})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))^{*}A_{3,2})$

Interpretative action

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{4,1})$

$(I(A)I(A)_{1,3,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)I(A)_{4,3,1})$

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(I(A)I(A)_{1,3,4})$

$(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{4,1})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(I(A)I(A)_{1,3,4})$

$(I(A)I(A)_{4,3,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A(I(A)))^{*}A_{3,2})$

$(I(A)I(A)_{1,3,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(A(I(A))I(A)_{1,4})$

$(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)I(A)_{4,3,1})$

$$\begin{array}{lcl} (A{*}I(A(I(A)))_{2,3}) & & (I(A)A(I(A))_{4,1}) \\ \quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) & \times & \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3}) \\ (A(I(A))I(A)_{1,4}) & & (I(A(I(A)))*A_{3,2}) \end{array}$$

4. Pre-semiotic dual system

$$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)A(I(A))_{1,4}\ A{*}A(I(A))_{1,2}) \times (A(I(A))*A_{2,1}\ A(I(A))I(A)_{4,1}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$$

Qualitative action

$$\begin{array}{lcl} (A(I(A))I(A)_{1,4}) & & (A(I(A))I(A)_{4,1}) \\ \quad \curlywedge \gg (A{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))*A_{2,1}) \\ (I(A)A(I(A))_{1,4}) & & (I(A)A(I(A))_{4,1}) \end{array}$$

$$\begin{array}{lcl} (I(A(I(A)))I(A)_{3,4}) & & (A(I(A))I(A)_{4,1}) \\ \quad \curlywedge \gg (A{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))*A_{2,1}) \\ (I(A)A(I(A))_{1,4}) & & (I(A)I(A(I(A)))_{4,3}) \end{array}$$

$$\begin{array}{lcl} (I(A)A(I(A))_{1,4}) & & (I(A)A(I(A))_{4,1}) \\ \quad \curlywedge \gg (A{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))*A_{2,1}) \\ (A(I(A))I(A)_{1,4}) & & (A(I(A))I(A)_{4,1}) \end{array}$$

$$\begin{array}{lcl} (I(A(I(A)))I(A)_{3,4}) & & (I(A)A(I(A))_{4,1}) \\ \quad \curlywedge \gg (A{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))*A_{2,1}) \\ (A(I(A))I(A)_{1,4}) & & (I(A)I(A(I(A)))_{4,3}) \end{array}$$

$$\begin{array}{lcl} (I(A)A(I(A))_{1,4}) & & (I(A)I(A(I(A)))_{4,3}) \\ \quad \curlywedge \gg (A{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))*A_{2,1}) \\ (I(A(I(A)))I(A)_{3,4}) & & (A(I(A))I(A)_{4,1}) \end{array}$$

$$\begin{array}{lcl} (A(I(A))I(A)_{1,4}) & & (I(A)I(A(I(A)))_{4,3}) \\ \quad \curlywedge \gg (A{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))*A_{2,1}) \\ (I(A(I(A)))I(A)_{3,4}) & & (I(A)A(I(A))_{4,1}) \end{array}$$

Medial action

$$\begin{array}{lcl} (A(I(A))I(A)_{1,4}) & & (A(I(A))*A_{2,1}) \\ \quad \curlywedge \gg (I(A)A(I(A))_{1,4}) & \times & \quad \curlywedge \gg (A(I(A))I(A)_{4,1}) \\ (A{*}A(I(A))_{1,2}) & & (I(A)A(I(A))_{4,1}) \end{array}$$

$$\begin{array}{lcl} (I(A(I(A)))I(A)_{3,4}) & & (A(I(A))*A_{2,1}) \\ \quad \curlywedge \gg (I(A)A(I(A))_{1,4}) & \times & \quad \curlywedge \gg (A(I(A))I(A)_{4,1}) \\ (A{*}A(I(A))_{1,2}) & & (I(A)I(A(I(A)))_{4,3}) \end{array}$$

$$\begin{array}{lcl} (A{*}A(I(A))_{1,2}) & & (I(A)A(I(A))_{4,1}) \\ \quad \curlywedge \gg (I(A)A(I(A))_{1,4}) & \times & \quad \curlywedge \gg (A(I(A))I(A)_{4,1}) \\ (A(I(A))I(A)_{1,4}) & & (A(I(A))*A_{2,1}) \end{array}$$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times$
$(A(I(A))I(A)_{1,4})$

$(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A*A(I(A))_{1,2})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A(I(A))*A_{2,1})$

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A)A(I(A))_{4,1})$

Objectal action

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(A*A(I(A))_{1,2})$

$(A(I(A))*A_{2,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(A(I(A))I(A)_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(A*A(I(A))_{1,2})$

$(A(I(A))*A_{2,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A*A(I(A))_{1,2})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A)A(I(A))_{1,4})$

$(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(A(I(A))*A_{2,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A)A(I(A))_{1,4})$

$(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A)A(I(A))_{4,1})$

$(A*A(I(A))_{1,2})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A(I(A)))I(A)_{3,4})$

$(A(I(A))*A_{2,1})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(A(I(A))I(A)_{4,1})$

Interpretative action

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(A*A(I(A))_{1,2})$

$(A(I(A))*A_{2,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{4,1})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A))^{*}A_{2,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ $\times$ $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A^{*}A(I(A))_{1,2})$ $(A(I(A))I(A)_{4,1})$

$(A(I(A))I(A)_{1,4})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ $\times$ $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{1,4})$ $(I(A)A(I(A))_{4,1})$

$(A^{*}A(I(A))_{1,2})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ $\times$ $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))^{*}A_{2,1})$

$(I(A)A(I(A))_{1,4})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ $\times$ $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(A(I(A))I(A)_{4,1})$

$(A^{*}A(I(A))_{1,2})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ $\times$ $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(A(I(A))^{*}A_{2,1})$

5. Pre-Semiotic dual system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)A(I(A))_{1,4}\ A^{*}I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^{*}A_{3,2}\ A(I(A))I(A)_{4,1}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$

Qualtitative action

$(A(I(A))I(A)_{1,4})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(I(A)A(I(A))_{1,4})$ $(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(I(A)A(I(A))_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$ $(I(A)A(I(A))_{4,1})|$
$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(A(I(A))I(A)_{1,4})$ $(A(I(A))I(A)_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3})$ $\times$ $\curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))I(A)_{4,1})$

$$(A(I(A))I(A)_{1,4}) \quad (I(A)I(A(I(A)))_{4,3})$$
$$\curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))*A_{3,2})$$
$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A)A(I(A))_{4,1})$$

Medial action

$$(A(I(A))I(A)_{1,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(A{*}I(A(I(A)))_{2,3}) \quad (I(A)A(I(A))_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(A{*}I(A(I(A)))_{2,3}) \quad (I(A)I(A(I(A)))_{4,3})$$

$$(A{*}I(A(I(A)))_{2,3}) \quad (I(A)A(I(A))_{4,1})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(A(I(A))I(A)_{1,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A)A(I(A))_{4,1})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(A(I(A))I(A)_{1,4}) \quad (I(A)I(A(I(A)))_{4,3})$$

$$(A{*}I(A(I(A)))_{2,3}) \quad (I(A)I(A(I(A)))_{4,3})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(A(I(A))I(A)_{1,4}) \quad (I(A)I(A(I(A)))_{4,3})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge A(I(A))I(A)_{4,1})$$
$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A)A(I(A))_{4,1})$$

Objectal action

$$(I(A)A(I(A))_{1,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))I(A)_{1,4}) \times \curlywedge \gg (I(A)A(I(A))_{4,1})$$
$$(A{*}I(A(I(A)))_{2,3}) \quad (A(I(A))I(A)_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))I(A)_{1,4}) \times \curlywedge \gg (I(A)A(I(A))_{4,1})$$
$$(A{*}I(A(I(A)))_{2,3}) \quad (I(A)I(A(I(A)))_{4,3})$$

$$(A{*}I(A(I(A)))_{2,3}) \quad (A(I(A))I(A)_{4,1})$$
$$\curlywedge \gg (A(I(A))I(A)_{1,4}) \times \curlywedge \gg (I(A)A(I(A))_{4,1})$$
$$(I(A)A(I(A))_{1,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(I(A(I(A)))I(A)_{3,4}) \quad (A(I(A))I(A)_{4,1})$$
$$\curlywedge \gg (A(I(A))I(A)_{1,4}) \times \curlywedge \gg (I(A)A(I(A))_{4,1})$$
$$(I(A)A(I(A))_{1,4}) \quad (I(A)I(A(I(A)))_{4,3})$$

$(I(A)A(I(A))_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A(I(A))I(A)_{1,4})$ × $\curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))I(A)_{4,1})$

$(A^*I(A(I(A)))_{2,3})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A(I(A))I(A)_{1,4})$ × $\curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A(I(A)))^*A_{3,2})$

Interpretative action

$(A(I(A))I(A)_{1,4})$ $(I(A(I(A)))^*A_{3,2})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A^*I(A(I(A)))_{2,3})$ $(I(A)A(I(A))_{4,1})$

$(I(A)A(I(A))_{1,4})$ $(I(A(I(A)))^*A_{3,2})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A^*I(A(I(A)))_{2,3})$ $(A(I(A))I(A)_{4,1})$

$(A(I(A))I(A)_{1,4})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{1,4})$ $(I(A)A(I(A))_{4,1})$

$(A^*I(A(I(A)))_{2,3})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{1,4})$ $(I(A(I(A)))^*A_{3,2})$

$(I(A)A(I(A))_{1,4})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(A(I(A))I(A)_{4,1})$

$(A^*I(A(I(A)))_{2,3})$ $(I(A)A(I(A))_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(I(A(I(A)))^*A_{3,2})$

6. Pre-semiotic dual system
$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)I(A(I(A)))_{3,4}\ A^*I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^*A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$(A(I(A))I(A)_{1,4})$ $(I(A(I(A)))I(A)_{4,3})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A)I(A(I(A)))_{3,4})$ $(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A(I(A)))I(A)_{4,3})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A)I(A(I(A)))_{3,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A(I(A)))_{3,4})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(A(I(A))I(A)_{1,4})$ $(I(A(I(A)))I(A)_{4,3})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A(I(A)))_{3,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A(I(A)))I(A)_{4,3})$

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$

Medial action

$(A(I(A))I(A)_{1,4})$ $(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A^{*}I(A(I(A)))_{2,3})$ $(I(A)A(I(A))_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A^{*}I(A(I(A)))_{2,3})$ $(I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(I(A(I(A)))^{*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A(I(A)))^{*}A_{3,2})$

$(A(I(A))I(A)_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))I(A)_{3,4})$ $(I(A)A(I(A))_{4,1})$

Objectal action

$(I(A)I(A(I(A)))_{3,4})$ $(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times \quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(A^{*}I(A(I(A)))_{2,3})$ $(I(A(I(A)))I(A)_{4,3})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))^{*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))I(A)_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))I(A)_{1,4}) \quad \times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{4,1})$
$(I(A(I(A)))^{*}A_{3,2})$

Interpretative action

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{4,1})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A(I(A)))I(A)_{4,3})$

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{4,1})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A(I(A)))^{*}A_{3,2})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(A(I(A))I(A)_{1,4})$

$(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A(I(A)))I(A)_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times$
$(A(I(A))I(A)_{1,4})$

$(I(A)A(I(A))_{4,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A(I(A)))^{*}A_{3,2})$

7. Pre-semiotic dual system
$(I(A(I(A)))I(A)_{3,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)A(I(A))_{1,4}\ A^*A(I(A))_{1,2}) \times$
$(A(I(A))^*A_{2,1}\ A(I(A))I(A)_{4,1}\ A(I(A))A(I(A))_{4,2,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (A^*A(I(A))_{1,2})$
$(I(A)A(I(A))_{1,4})$
$\times$
$(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (A(I(A))^*A_{2,1})$
$(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A^*A(I(A))_{1,2})$
$(I(A)A(I(A))_{1,4})$
$\times$
$(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (A(I(A))^*A_{2,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (A^*A(I(A))_{1,2})$
$(A(I(A))A(I(A))_{1,2,4})$
$\times$
$(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (A(I(A))^*A_{2,1})$
$(A(I(A))I(A)_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A^*A(I(A))_{1,2})$
$(A(I(A))A(I(A))_{1,2,4})$
$\times$
$(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (A(I(A))^*A_{2,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (A^*A(I(A))_{1,2})$
$(I(A(I(A)))I(A)_{3,4})$
$\times$
$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))^*A_{2,1})$
$(A(I(A))I(A)_{4,1})$

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (A^*A(I(A))_{1,2})$
$(I(A(I(A)))I(A)_{3,4})$
$\times$
$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))^*A_{2,1})$
$(A(I(A))A(I(A))_{4,2,1})$

Medial action

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4})$
$(A^*A(I(A))_{1,2})$
$\times$
$(A(I(A))^*A_{2,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4})$
$(A^*A(I(A))_{1,2})$
$\times$
$(A(I(A))^*A_{2,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^*A(I(A))_{1,2})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4})$
$(A(I(A))A(I(A))_{1})$
$\times$
$(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A(I(A))^*A_{2,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4})$
$(A(I(A))A(I(A))_{1,2,4})$
$\times$
$(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A{*}A(I(A))_{1,2})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A)){*}A_{2,1})$

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$

Objectal action

$(I(A)A(I(A))_{1,4})$ $(A(I(A)){*}A_{2,1})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A{*}A(I(A))_{1,2})$ $(A(I(A))I(A)_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A)){*}A_{2,1})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A{*}A(I(A))_{1,2})$ $(I(A)I(A(I(A)))_{4,3})$

$(A{*}A(I(A))_{1,2})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A)){*}A_{2,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A)A(I(A))_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))I(A)_{4,1})$

$(A{*}A(I(A))_{1,2})$ $(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A)){*}A_{2,1})$

Interpretative action

$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A)){*}A_{2,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A{*}A(I(A))_{1,2})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A)){*}A_{2,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A{*}A(I(A))_{1,2})$ $(A(I(A))I(A)_{4,1})$

$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(A^*A(I(A))_{1,2})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))^*A_{2,1})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$

$(A^*A(I(A))_{1,2})$ $(A(I(A))A(I(A))_{4,2,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))^*A_{2,1})$

8. Pre-semiotic dual system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)A(I(A))_{1,4}\ A^*I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^*A_{3,2}\ A(I(A))I(A)_{4,1}\ A(I(A))A(I(A))_{4,2,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A)A(I(A))_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))I(A)_{4,1})$

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A)I(A(I(A)))_{4,3})$
$\curlywedge \gg (A^*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$

Medial action

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))^*A_{3,2})$
$\curlywedge \gg (I(A)A(I(A))_{1,4})$ × $\curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A^*I(A(I(A)))_{2,3})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A^{*}I(A(I(A)))_{2,3}) \qquad (I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A(I(A))A(I(A))_{1,2,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A(I(A))A(I(A))_{1,2,4}) \qquad (I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A(I(A)))I(A)_{3,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A(I(A)))I(A)_{3,4}) \qquad (A(I(A))A(I(A))_{4,2,1})$

Objectal action

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A^{*}I(A(I(A)))_{2,3}) \qquad (A(I(A))I(A)_{4,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A^{*}I(A(I(A)))_{2,3}) \qquad (I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(I(A)A(I(A))_{1,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A)A(I(A))_{1,4}) \qquad (I(A)I(A(I(A)))_{4,3})$

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))I(A)_{3,4}) \qquad (A(I(A))I(A)_{4,1})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))I(A)_{3,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$

Interpretative action

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))*A_{3,2})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A*I(A(I(A)))_{2,3})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A)A(I(A))_{1,4})$ $(I(A(I(A)))*A_{3,2})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A*I(A(I(A)))_{2,3})$ $(A(I(A))I(A)_{4,1})$

$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(A*I(A(I(A)))_{2,3})$ $(A(I(A))I(A)_{4,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A)A(I(A))_{1,4})$ $(I(A(I(A)))*A_{3,2})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$

$(A*I(A(I(A)))_{2,3})$ $(A(I(A))A(I(A))_{4,2,1})$
$\curlywedge \gg (I(A(I(A)))I(A)_{3,4})$ × $\curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))*A_{3,2})$

9. Pre-semiotic dual system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)I(A(I(A)))_{4,3}\ A*I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))*A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ A(I(A))A(I(A))_{4,2,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))I(A)_{4,3})$
$\curlywedge \gg (A*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))*A_{3,2})$
$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))I(A)_{3,4})$ $(I(A(I(A)))I(A)_{4,3})$
$\curlywedge \gg (A*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))*A_{3,2})$
$(I(A)I(A(I(A)))_{3,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\curlywedge \gg (A*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))*A_{3,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))I(A)_{4,3})$

$(I(A(I(A)))I(A)_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\curlywedge \gg (A*I(A(I(A)))_{2,3})$ × $\curlywedge \gg (I(A(I(A)))*A_{3,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3})$ $\times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(I(A(I(A)))I(A)_{4,3})$

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3})$ $\times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(A(I(A))A(I(A))_{4,2,1})$

Medial action

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4})$ $\times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4})$ $\times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4})$ $\times$
$(A(I(A))A(I(A))_{1,2,4})$

$(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))^{*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4})$ $\times$
$(A(I(A))A(I(A))_{1,2,4})$

$(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4})$ $\times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))^{*}A_{3,2})$

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4})$ $\times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A(I(A))A(I(A))_{4,2,1})$

Objectal action

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))I(A)_{4,3})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(A^{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(A^{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))^{*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times$
$(I(A(I(A)))I(A)_{3,4})$

$(A^*I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times$
$(I(A(I(A)))I(A)_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))I(A)_{4,3})$

$(I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))^*A_{3,2})$

Interpretative action

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times$
$(A^*I(A(I(A)))_{2,3})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times$
$(A^*I(A(I(A)))_{2,3})$

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times$
$(I(A)I(A(I(A)))_{3,4})$

$(A^*I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times$
$(A(I(A))A(I(A))_{4,2,1})$

$(A^*I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times$
$(A(I(A))A(I(A))_{1,2,4})$

$(I(A(I(A)))^*A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))^*A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A(I(A)))I(A)_{4,3})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))^*A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A(I(A)))I(A)_{4,3})$

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A^*I(A(I(A)))_{2,3})$

$(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(I(A(I(A)))^*A_{3,2})$

10. Pre-semiotic dual system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A(I(A)))_{2,4}\ I(A)I(A(I(A)))_{3,4}\ A^*I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^*A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ I(A(I(A)))A(I(A))_{4,2}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$(A(I(A))I(A(I(A)))_{2,4})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))A(I(A))_{4,2})$

$(I(A(I(A)))I(A)_{3,4})$
$\quad \curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(I(A)I(A(I(A)))_{3,4})$ $\quad (I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A(I(A)))_{3,4})$ $\quad (I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(A(I(A))I(A(I(A)))_{2,4})$ $\quad (I(A(I(A)))I(A)_{4,3})$

$(I(A(I(A)))I(A)_{3,4})$ $\quad (I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(A(I(A))I(A(I(A)))_{2,4})$ $\quad (I(A)I(A(I(A)))_{4,3})$

$(I(A)I(A(I(A)))_{3,4})$ $\quad (I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $\quad (I(A(I(A)))I(A)_{4,3})$

$(A(I(A))I(A(I(A)))_{2,4})$ $\quad (I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A))){*}A_{3,2})$
$(I(A(I(A)))I(A)_{3,4})$ $\quad (I(A(I(A)))A(I(A))_{4,2})$

Medial action

$(A(I(A))I(A(I(A)))_{2,4})$ $\quad (I(A(I(A))){*}A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A{*}I(A(I(A)))_{2,3})$ $\quad (I(A(I(A)))A(I(A))_{4,2})$

$(I(A(I(A)))I(A)_{3,4})$ $\quad (I(A(I(A))){*}A_{3,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A{*}I(A(I(A)))_{2,3})$ $\quad (I(A)I(A(I(A)))_{4,3})$

$(A{*}I(A(I(A)))_{2,3})$ $\quad (I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(A(I(A))I(A(I(A)))_{2,4})$ $\quad (I(A(I(A))){*}A_{3,2})$

$(I(A(I(A)))I(A)_{3,4})$ $\quad (I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$
$(A(I(A))I(A(I(A)))_{2,4})$ $\quad (I(A)I(A(I(A)))_{4,3})$

$(A{*}I(A(I(A)))_{2,3})$ $\quad (I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))I(A)_{3,4})$ $\quad (I(A(I(A))){*}A_{3,2})$

$(A(I(A))I(A(I(A)))_{2,4})$ $\quad (I(A)I(A(I(A)))_{4,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times \quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))I(A)_{3,4})$ $\quad (I(A(I(A)))A(I(A))_{4,2})$

Objectal action

$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(A*I(A(I(A)))_{2,3}) \quad (I(A)I(A(I(A)))_{4,3})$$

$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A)I(A(I(A)))_{4,3})$$

$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A)I(A(I(A)))_{4,3})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(A*I(A(I(A)))_{2,3}) \quad (I(A)I(A(I(A)))_{4,3})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(I(A(I(A)))I(A)_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$

Interpretative action

$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$$
$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))A(I(A))_{4,2})$$

$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$$
$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$

$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$
$$\curlywedge \gg (I(A(I(A)))I(A)_{3,4}) \times \curlywedge \gg (I(A)I(A(I(A)))_{4,3})$$
$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$\begin{array}{lcl}(A{*}I(A(I(A)))_{2,3}) & & (I(A(I(A)))A(I(A))_{4,2}) \\ \quad \curlywedge \gg (I(A(I(A)))I(A)_{3,4}) & \times & \quad \curlywedge \gg (I(A)I(A(I(A)))_{4,3}) \\ (A(I(A))I(A(I(A)))_{2,4}) & & (I(A(I(A)))^{*}A_{3,2})\end{array}$$

11. Pre-semiotic dual system

$$(I(A(I(A)))A(I(A))_{2,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)A(I(A))_{1,4}\ A^{*}A(I(A))_{1,2}) \times (A(I(A))^{*}A_{2,1}\ A(I(A))I(A)_{4,1}\ A(I(A))A(I(A))_{4,2,1}\ A(I(A))I(A(I(A)))_{4,2})$$

Qualitative action

$$\begin{array}{lcl}(A(I(A))A(I(A))_{1,2,4}) & & (A(I(A))I(A)_{4,1}) \\ \quad \curlywedge \gg (A^{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))^{*}A_{2,1}) \\ (I(A)A(I(A))_{1,4}) & & (A(I(A))A(I(A))_{4,2,1})\end{array}$$

$$\begin{array}{lcl}(I(A(I(A)))A(I(A))_{2,4}) & & (A(I(A))I(A)_{4,1}) \\ \quad \curlywedge \gg (A^{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))^{*}A_{2,1}) \\ (I(A)A(I(A))_{1,4}) & & (A(I(A))I(A(I(A)))_{4,2})\end{array}$$

$$\begin{array}{lcl}(I(A)A(I(A))_{1,4}) & & (A(I(A))A(I(A))_{4,2,1}) \\ \quad \curlywedge \gg (A^{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))^{*}A_{2,1}) \\ (A(I(A))A(I(A))_{1,2,4}) & & (A(I(A))I(A)_{4,1})\end{array}$$

$$\begin{array}{lcl}(I(A(I(A)))A(I(A))_{2,4}) & & (A(I(A))A(I(A))_{4,2,1}) \\ \quad \curlywedge \gg (A^{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))^{*}A_{2,1}) \\ (A(I(A))A(I(A))_{1,2,4}) & & (A(I(A))I(A(I(A)))_{4,2})\end{array}$$

$$\begin{array}{lcl}(I(A)A(I(A))_{1,4}) & & (A(I(A))I(A(I(A)))_{4,2}) \\ \quad \curlywedge \gg (A^{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))^{*}A_{2,1}) \\ (I(A(I(A)))A(I(A))_{2,4}) & & (A(I(A))I(A)_{4,1})\end{array}$$

$$\begin{array}{lcl}(A(I(A))A(I(A))_{1,2,4}) & & (A(I(A))I(A(I(A)))_{4,2}) \\ \quad \curlywedge \gg (A^{*}A(I(A))_{1,2}) & \times & \quad \curlywedge \gg (A(I(A))^{*}A_{2,1}) \\ (I(A(I(A)))A(I(A))_{2,4}) & & (A(I(A))A(I(A))_{4,2,1})\end{array}$$

Medial action

$$\begin{array}{lcl}(I(A(I(A)))A(I(A))_{2,4}) & & (A(I(A))^{*}A_{2,1}) \\ \quad \curlywedge \gg (I(A)A(I(A))_{1,4}) & \times & \quad \curlywedge \gg (A(I(A))I(A)_{4,1}) \\ (A^{*}A(I(A))_{1,2}) & & (A(I(A))I(A(I(A)))_{4,2})\end{array}$$

$$\begin{array}{lcl}(I(A(I(A)))A(I(A))_{2,4}) & & (A(I(A))^{*}A_{2,1}) \\ \quad \curlywedge \gg (I(A)A(I(A))_{1,4}) & \times & \quad \curlywedge \gg (A(I(A))I(A)_{4,1}) \\ (A^{*}A(I(A))_{1,2}) & & (A(I(A))I(A(I(A)))_{4,2})\end{array}$$

$$\begin{array}{lcl}(A^{*}A(I(A))_{1,2}) & & (A(I(A))A(I(A))_{4,2,1}) \\ \quad \curlywedge \gg (I(A)A(I(A))_{1,4}) & \times & \quad \curlywedge \gg (A(I(A))I(A)_{4,1}) \\ (A(I(A))A(I(A))_{1,2,4}) & & (A(I(A))^{*}A_{2,1})\end{array}$$

$(I(A(I(A)))A(I(A))_{2,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4})$ $\times$
$(A(I(A))A(I(A))_{1,2,4})$

$(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A(I(A))I(A(I(A)))_{4,2})$

$(A*A(I(A))_{1,2})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4})$ $\times$
$(I(A(I(A)))A(I(A))_{2,4})$

$(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A(I(A))*A_{2,1})$

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A)A(I(A))_{1,4})$ $\times$
$(I(A(I(A)))A(I(A))_{2,4})$

$(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A(I(A))I(A)_{4,1})$
$(A(I(A))A(I(A))_{4,2,1})$

Objectal action

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(A*A(I(A))_{1,2})$

$(A(I(A))*A_{2,1})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A(I(A))I(A)_{4,1})$

$(I(A(I(A)))A(I(A))_{2,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(A*A(I(A))_{1,2})$

$(A(I(A))*A_{2,1})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A(I(A))I(A(I(A)))_{4,2})$

$(A*A(I(A))_{1,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(I(A)A(I(A))_{1,4})$

$(A(I(A))I(A)_{1,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A(I(A))*A_{2,1})$

$(I(A(I(A)))A(I(A))_{2,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(I(A)A(I(A))_{1,4})$

$(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A(I(A))I(A(I(A)))_{4,2})$

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(I(A(I(A)))A(I(A))_{2,4})$

$(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A(I(A))I(A)_{4,1})$

$(A*A(I(A))_{1,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4})$ $\times$
$(I(A(I(A)))A(I(A))_{2,4})$

$(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(A(I(A))*A_{2,1})$

Interpretative action

$(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4})$ $\times$
$(A*A(I(A))_{1,2})$

$(A(I(A))*A_{2,1})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A(I(A))A(I(A))_{4,2,1})$

$(I(A)A(I(A))_{1,4})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4})$ $\times$
$(A*A(I(A))_{1,2})$

$(A(I(A))*A_{2,1})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A(I(A))I(A)_{4,1})$

$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(A^*A(I(A))_{1,2})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))^*A_{2,1})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$

$(A^*A(I(A))_{1,2})$ $(A(I(A))A(I(A))_{1,2,4})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))^*A_{2,1})$

12. Pre-semiotic dual system

$(I(A(I(A)))A(I(A))_{2,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)A(I(A))_{1,4}\ A^*I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^*A_{3,2}\ A(I(A))I(A)_{4,1}\ A(I(A))A(I(A))_{4,2,1}\ A(I(A))I(A(I(A)))_{4,2})$

Qualitative action

$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))A(I(A))_{2,4})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))I(A(I(A)))_{4,2})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$

$(I(A(I(A)))A(I(A))_{2,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(A(I(A))I(A(I(A)))_{2,4})$ $(A(I(A))A(I(A))_{1,2,4})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))A(I(A))_{2,4})$ $(A(I(A))I(A)_{4,1})$

$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))A(I(A))_{2,4})$ $(A(I(A))A(I(A))_{4,2,1})$

Medial action

$$(A(I(A))A(I(A))_{1,2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))A(I(A))_{4,2,1})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))A(I(A))_{4,2,1})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(A(I(A))A(I(A))_{1,2,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (A(I(A))A(I(A))_{4,2,1})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(A(I(A))A(I(A))_{1,2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(A(I(A))A(I(A))_{1,2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (I(A)A(I(A))_{1,4}) \times \curlywedge \gg (A(I(A))I(A)_{4,1})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (A(I(A))A(I(A))_{4,2,1})$$

Objectal action

$$(I(A)A(I(A))_{1,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$$
$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))I(A)_{4,1})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$$
$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))I(A)_{4,1})$$
$$\curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A)A(I(A))_{1,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (A(I(A))I(A)_{4,1})$$
$$\curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A)A(I(A))_{1,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(I(A)A(I(A))_{1,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (A(I(A))I(A)_{4,1})$$

$(A^{*}I(A(I(A)))_{2,3})$ $(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))A(I(A))_{2,4})$ $(I(A(I(A)))^{*}A_{3,2})$

Interpretative action

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A^{*}I(A(I(A)))_{2,3})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A)A(I(A))_{1,4})$ $(I(A(I(A)))^{*}A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A^{*}I(A(I(A)))_{2,3})$ $(A(I(A))I(A)_{4,1})$

$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(A^{*}I(A(I(A)))_{2,3})$ $(A(I(A))I(A)_{4,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(I(A)A(I(A))_{1,4})$ $(I(A(I(A)))^{*}A_{3,2})$

$(I(A)A(I(A))_{1,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(A(I(A))I(A)_{4,1})$

$(A^{*}I(A(I(A)))_{2,3})$ $(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))^{*}A_{3,2})$

13. Pre-semiotic dual system

$(I(A(I(A)))A(I(A))_{2,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)I(A(I(A)))_{3,4}\ A^{*}I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^{*}A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ A(I(A))A(I(A))_{4,2,1}\ A(I(A))I(A(I(A)))_{4,2})$

Qualitative action

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A(I(A)))A(I(A))_{2,4})$ $(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))I(A(I(A)))_{4,2})$

$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \quad \times \quad \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))I(A)_{4,3})$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (A(I(A))A(I(A))_{4,2,1})$$
$$\curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))*A_{3,2})$$
$$(A(I(A))A(I(A))_{1,2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(I(A)I(A(I(A)))_{3,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))*A_{3,2})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(A(I(A))A(I(A))_{1,2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (A{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))*A_{3,2})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (A(I(A))A(I(A))_{4,2,1})$$

Medial action

$$(A(I(A))A(I(A))_{1,2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(A{*}I(A(I(A)))_{2,3}) \quad (A(I(A))A(I(A))_{4,2,1})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(A{*}I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(A{*}I(A(I(A)))_{2,3}) \quad (A(I(A))A(I(A))_{4,2,1})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(A(I(A))A(I(A))_{1,2,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (A(I(A))A(I(A))_{4,2,1})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(A(I(A))A(I(A))_{1,2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(A{*}I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(A(I(A))A(I(A))_{1,2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (A(I(A))A(I(A))_{4,2,1})$$

Objectal action

$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$$
$$(A{*}I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \times \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$$
$$(A{*}I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$(A{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A)I(A(I(A)))_{3,4})$ $(I(A(I(A)))*A_{3,2})$

$(I(A(I(A)))A(I(A))_{2,4})$ $(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))I(A(I(A)))_{4,2})$

$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))A(I(A))_{2,4})$ $(I(A(I(A)))I(A)_{4,3})$

$(A{*}I(A(I(A)))_{2,3})$ $(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (A(I(A))A(I(A))_{1,2,4}) \quad \times \quad \curlywedge \gg (A(I(A))A(I(A))_{4,2,1})$
$(I(A(I(A)))A(I(A))_{2,4})$ $(I(A(I(A)))*A_{3,2})$

Interpretative action

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))*A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A{*}I(A(I(A)))_{2,3})$ $(A(I(A))A(I(A))_{4,2,1})$

$(I(A)I(A(I(A)))_{3,4})$ $(I(A(I(A)))*A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A{*}I(A(I(A)))_{2,3})$ $(I(A(I(A)))I(A)_{4,3})$

$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$

$(A{*}I(A(I(A)))_{2,3})$ $(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(I(A)I(A(I(A)))_{3,4})$ $(I(A(I(A)))*A_{3,2})$

$(I(A)I(A(I(A)))_{3,4})$ $(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))I(A)_{4,3})$

$(A{*}I(A(I(A)))_{2,3})$ $(A(I(A))A(I(A))_{4,2,1})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times \quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(A(I(A))A(I(A))_{1,2,4})$ $(I(A(I(A)))*A_{3,2})$

14. Pre-semiotic dual system

$(I(A(I(A)))A(I(A))_{2,4}\ A(I(A))I(A(I(A)))_{2,4}\ I(A)I(A(I(A)))_{3,4}\ A{*}I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))*A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ I(A(I(A)))A(I(A))_{4,2}\ A(I(A))I(A(I(A)))_{4,2})$

Qualitative action

$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$
$$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$$
$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$
$$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$$
$$(A(I(A))I(A(I(A)))_{2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(I(A)I(A(I(A)))_{3,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(A(I(A))I(A(I(A)))_{2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (A^{*}I(A(I(A)))_{2,3}) \times \curlywedge \gg (I(A(I(A)))^{*}A_{3,2})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$

Medial action

$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))^{*}A_{3,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(A^{*}I(A(I(A)))_{2,3}) \quad (I(A(I(A)))A(I(A))_{4,2})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))^{*}A_{3,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(A^{*}I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(A^{*}I(A(I(A)))_{2,3}) \quad (I(A(I(A)))A(I(A))_{4,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))^{*}A_{3,2})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(A(I(A))I(A(I(A)))_{2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(A^{*}I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))^{*}A_{3,2})$$

$$(A(I(A))I(A(I(A)))_{2,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \times \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$

Objectal action

$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$

$$(I(A)I(A(I(A)))_{3,4}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(A*I(A(I(A)))_{2,3}) \quad (A(I(A))I(A(I(A)))_{4,2})$$
$$\curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \times \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$

Interpretative action

$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$$
$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))A(I(A))_{4,2})$$

$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$
$$\curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$$
$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$

$$(A(I(A))I(A(I(A)))_{2,4}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))A(I(A))_{4,2})$$

$$(A*I(A(I(A)))_{2,3}) \quad (I(A(I(A)))I(A)_{4,3})$$
$$\curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \times \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$$
$$(I(A)I(A(I(A)))_{3,4}) \quad (I(A(I(A)))*A_{3,2})$$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times$
$(A(I(A))I(A(I(A)))_{2,4})$

$(I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(I(A(I(A)))I(A)_{4,3})$

$(A^*I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{2,4}) \quad \times$
$(A(I(A))I(A(I(A)))_{2,4})$

$(I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{4,2})$
$(I(A(I(A)))^*A_{3,2})$

15. Pre-semiotic dual system

$(I(A(I(A)))I(A(I(A)))_{2,3,4}\ A(I(A))I(A(I(A)))_{2,4}\ I(A)I(A(I(A)))_{3,4}\ A^*I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^*A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ I(A(I(A)))A(I(A))_{4,2}\ I(A(I(A)))I(A(I(A)))_{4,3,2})$

Qualitative action

$(A(I(A))I(A(I(A)))_{2,4})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))A(I(A))_{4,2})$

$(I(A(I(A)))I(A(I(A)))_{2,3,4})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))I(A(I(A)))_{4,3,2})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times$
$(A(I(A))I(A(I(A)))_{2,4})$

$(I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))I(A)_{4,3})$

$(I(A(I(A)))A(I(A))_{2,4})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times$
$(A(I(A))I(A(I(A)))_{2,4})$

$(I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(A(I(A))I(A(I(A)))_{4,2})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times$
$(I(A(I(A)))A(I(A))_{2,4})$

$(A(I(A))I(A(I(A)))_{4,2})$
$\quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))I(A)_{4,3})$

$(A(I(A))I(A(I(A)))_{2,4})$
$\quad \curlywedge \gg (A^*I(A(I(A)))_{2,3}) \quad \times$
$(I(A(I(A)))A(I(A))_{2,4})$

$(I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (I(A(I(A)))^*A_{3,2})$
$(I(A(I(A)))A(I(A))_{4,2})$

Medial action

$(A(I(A))I(A(I(A)))_{2,4})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times$
$(A^*I(A(I(A)))_{2,3})$

$(I(A(I(A)))^*A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))A(I(A))_{4,2})$

$(I(A(I(A)))I(A(I(A)))_{2,3,4})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times$
$(A^*I(A(I(A)))_{2,3})$

$(I(A(I(A)))^*A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))I(A(I(A)))_{4,3,2})$

$(A{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times$
$(A(I(A))I(A(I(A)))_{2,4})$

$(I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))*A_{3,2})$

$(I(A(I(A)))I(A(I(A)))_{2,3,4})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times$
$(A(I(A))I(A(I(A)))_{2,4})$

$(I(A(I(A)))A(I(A))_{4,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))I(A(I(A)))_{4,3,2})$

$(A{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times$
$(I(A(I(A)))I(A(I(A)))_{2,3,4})$

$(I(A(I(A)))I(A(I(A)))_{4,3,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))*A_{3,2})$

$(A(I(A))I(A(I(A)))_{2,4})$
$\quad \curlywedge \gg (I(A)I(A(I(A)))_{3,4}) \quad \times$
$(I(A(I(A)))I(A(I(A)))_{2,3,4})$

$(I(A(I(A)))I(A(I(A)))_{4,3,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A)_{4,3})$
$(I(A(I(A)))A(I(A))_{4,2})$

Objectal action

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \quad \times$
$(A{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))*A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$
$(I(A(I(A)))I(A)_{4,3})$

$(I(A(I(A)))I(A(I(A)))_{2,3,4})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \quad \times$
$(A{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))*A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$
$(I(A(I(A)))I(A(I(A)))_{4,3,2})$

$(A{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \quad \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$
$(I(A(I(A)))*A_{3,2})$

$(I(A(I(A)))I(A(I(A)))_{2,3,4})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \quad \times$
$(I(A)I(A(I(A)))_{3,4})$

$(I(A(I(A)))I(A)_{4,3})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$
$(I(A(I(A)))I(A(I(A)))_{4,3,2})$

$(I(A)I(A(I(A)))_{3,4})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \quad \times$
$(I(A(I(A)))I(A(I(A)))_{2,3,4})$

$(I(A(I(A)))I(A(I(A)))_{4,3,2})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$
$(I(A(I(A)))I(A)_{4,3})$

$(A{*}I(A(I(A)))_{2,3})$
$\quad \curlywedge \gg (A(I(A))I(A(I(A)))_{2,4}) \quad \times$
$(I(A(I(A)))I(A(I(A)))_{2,3,4})$

$(I(A(I(A)))I(A(I(A)))_{4,3,2})$
$\quad \curlywedge \gg (I(A(I(A)))A(I(A))_{4,2})$
$(I(A(I(A)))*A_{3,2})$

Interpretative action

$(A(I(A))I(A(I(A)))_{2,4})$
$\quad \curlywedge \gg (I(A(I(A)))I(A(I(A)))_{2,3,4}) \quad \times$
$(A{*}I(A(I(A)))_{2,3})$

$(I(A(I(A)))*A_{3,2})$
$\quad \curlywedge \gg (I(A(I(A)))I(A(I(A)))_{4,3,2})$
$(I(A(I(A)))A(I(A))_{4,2})$

$$\begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{2,3,4}) \\ (\mathrm{A^{*}I(A(I(A)))}_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))^{*}A}_{3,2}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{4,3,2}) \\ (\mathrm{I(A(I(A)))I(A)}_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A(I(A))I(A(I(A)))}_{2,4}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{2,3,4}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{4,3}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{4,3,2}) \\ (\mathrm{I(A(I(A)))A(I(A))}_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{2,3,4}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{4,3}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{4,3,2}) \\ (\mathrm{I(A(I(A)))^{*}A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{2,3,4}) \\ (\mathrm{A(I(A))I(A(I(A)))}_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))A(I(A))}_{4,2}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{4,3,2}) \\ (\mathrm{I(A(I(A)))I(A)}_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{2,3,4}) \\ (\mathrm{A(I(A))I(A(I(A)))}_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))A(I(A))}_{4,2}) \\ \curlywedge \gg (\mathrm{I(A(I(A)))I(A(I(A)))}_{4,3,2}) \\ (\mathrm{I(A(I(A)))^{*}A}_{3,2})\end{matrix}$$

II. Action schemata of the 2 · 24 tetradic semiotic partial relations

1. Pre-semiotic dual system
(I(A(I(A)))I(A) A(I(A))I(A) I(A)I(A) A*I(A)) ×
(I(A)*A I(A)I(A) I(A)A(I(A)) I(A)I(A(I(A))))

Qualitative action

$$\begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{I(A)I(A)}_{1,3,4}) \gg \curlyvee \succ (\mathrm{A^{*}I(A)}_{1,3}) \\ (\mathrm{A(I(A))I(A)}_{1,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{I(A)^{*}A}_{3,1}) \gg \curlyvee \succ (\mathrm{I(A)I(A)}_{4,3,1}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A(I(A))I(A)}_{1,4}) \\ (\mathrm{I(A)I(A)}_{1,4,3}) \gg \curlyvee \succ (\mathrm{A^{*}I(A)}_{1,3}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{4,3}) \\ (\mathrm{I(A)^{*}A}_{3,1}) \gg \curlyvee \succ (\mathrm{I(A)I(A)}_{4,3,1}) \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{A(I(A))I(A)}_{1,4}) \gg \curlyvee \succ (\mathrm{A^{*}I(A)}_{1,3}) \\ (\mathrm{I(A)I(A)}_{1,3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)I(A)}_{4,3,1}) \\ (\mathrm{I(A)^{*}A}_{3,1}) \gg \curlyvee \succ (\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{I(A)I(A)}_{1,3,4}) \\ (\mathrm{A(I(A))I(A)}_{1,4}) \gg \curlyvee \succ (\mathrm{A^{*}I(A)}_{1,3}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{4,3}) \\ (\mathrm{I(A)^{*}A}_{3,1}) \gg \curlyvee \succ (\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{I(A)I(A)}_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{I(A)I(A)}_{1,3,4}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ (\mathrm{A^{*}I(A)}_{1,3}) \\ (\mathrm{A(I(A))I(A)}_{1,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{I(A)^{*}A}_{3,1}) \gg \curlyvee \succ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \\ (\mathrm{I(A)I(A)}_{4,3,1})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A{*}I(A)_{1,3})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\(I(A){*}A_{3,1}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A{*}I(A)_{1,3}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A){*}A_{3,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\(A{*}I(A)_{1,3}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A){*}A_{3,1})\\(I(A)A(I(A))_{4,1})\end{matrix}$$

$$\begin{matrix}(A{*}I(A)_{1,3})\\(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\(I(A){*}A_{3,1})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\(A{*}I(A)_{1,3})\end{matrix} \times \begin{matrix}(I(A){*}A_{3,1})\\(I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A{*}I(A)_{1,3})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\(I(A){*}A_{3,1})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\(A{*}I(A)_{1,3})\end{matrix} \times \begin{matrix}(I(A){*}A_{3,1})\\(I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A{*}I(A)_{1,3}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (I(A){*}A_{3,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(I(A)I(A)_{1,3,4})\\(A{*}I(A)_{1,3}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (I(A){*}A_{3,1})\\(I(A)I(A)_{4,3,1})\end{matrix}$$

$$\begin{matrix}(A{*}I(A)_{1,3})\\(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (I(A)I(A)_{4,3,1})\\(I(A){*}A_{3,1})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(A{*}I(A)_{1,3})\end{matrix} \times \begin{matrix}(I(A){*}A_{3,1})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (I(A)I(A)_{4,3,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$(\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{1,4}) \times \begin{matrix}(\mathrm{A^{*}I(A)}_{1,3}) \\ (\mathrm{I(A)I(A)}_{1,3,4})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)I(A)}_{4,3,1}) \\ (\mathrm{I(A)A(I(A))}_{4,1}) \gg \curlyvee \\ (\mathrm{I(A)^{*}A}_{3,1})\end{matrix} \succ (\mathrm{I(A)I(A(I(A)))}_{4,3})$$

$$(\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{1,4}) \times \begin{matrix}(\mathrm{I(A)I(A)}_{1,3,4}) \\ (\mathrm{A^{*}I(A)}_{1,3})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)^{*}A}_{3,1}) \\ (\mathrm{I(A)A(I(A))}_{4,1}) \gg \curlyvee \\ (\mathrm{I(A)I(A)}_{4,3,1})\end{matrix} \succ (\mathrm{I(A)I(A(I(A)))}_{4,3})$$

Interpretative action

$$(\mathrm{A^{*}I(A)}_{1,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times \begin{matrix}(\mathrm{A(I(A))I(A)}_{1,4}) \\ (\mathrm{I(A)I(A)}_{1,3,4})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)I(A)}_{4,3,1}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix} \succ (\mathrm{I(A)^{*}A}_{3,1})$$

$$(\mathrm{A^{*}I(A)}_{1,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times \begin{matrix}(\mathrm{I(A)I(A)}_{1,3,4}) \\ (\mathrm{A(I(A))I(A)}_{1,4})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \\ (\mathrm{I(A)I(A)}_{4,3,1})\end{matrix} \succ (\mathrm{I(A)^{*}A}_{3,1})$$

$$(\mathrm{I(A)I(A)}_{1,3,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times \begin{matrix}(\mathrm{A^{*}I(A)}_{1,3}) \\ (\mathrm{A(I(A))I(A)}_{1,4})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \\ (\mathrm{I(A)^{*}A}_{3,1})\end{matrix} \succ (\mathrm{I(A)I(A)}_{4,3,1})$$

$$(\mathrm{I(A)I(A)}_{1,3,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times \begin{matrix}(\mathrm{A(I(A))I(A)}_{1,4}) \\ (\mathrm{A^{*}I(A)}_{1,3})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)^{*}A}_{3,1}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix} \succ (\mathrm{I(A)I(A)}_{4,3,1})$$

$$(\mathrm{A(I(A))I(A)}_{1,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times \begin{matrix}(\mathrm{A^{*}I(A)}_{1,3}) \\ (\mathrm{I(A)I(A)}_{1,3,4})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)I(A)}_{4,3,1}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \curlyvee \\ (\mathrm{I(A)^{*}A}_{3,1})\end{matrix} \succ (\mathrm{I(A)A(I(A))}_{4,1})$$

$$(\mathrm{A(I(A))I(A)}_{1,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times \begin{matrix}(\mathrm{I(A)I(A)}_{1,3,4}) \\ (\mathrm{A^{*}I(A)}_{1,3})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)^{*}A}_{3,1}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \\ (\mathrm{I(A)I(A)}_{4,3,1})\end{matrix} \succ (\mathrm{I(A)A(I(A))}_{4,1})$$

2. Pre-semiotic dual system

$(\mathrm{I(A(I(A)))I(A)}_{3,4}\ \mathrm{A(I(A))I(A)}_{1,4}\ \mathrm{I(A)I(A)}_{1,3,4}\ \mathrm{A^{*}A(I(A))}_{1,2}) \times$
$(\mathrm{A(I(A))^{*}A}_{2,1}\ \mathrm{I(A)I(A)}_{4,3,1}\ \mathrm{I(A)A(I(A))}_{1,4}\ \mathrm{I(A)I(A(I(A)))}_{4,3})$

Qualitative action

$$(\mathrm{I(A)I(A)}_{1,3,4}) \gg \curlyvee \succ (\mathrm{A^{*}A(I(A))}_{1,2}) \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{A(I(A))I(A)}_{1,4})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{A(I(A))^{*}A}_{2,1}) \gg \curlyvee \\ (\mathrm{I(A)I(A(I(A)))}_{4,3})\end{matrix} \succ (\mathrm{I(A)I(A)}_{4,3,1})$$

$$(\mathrm{I(A)I(A)}_{1,3,4}) \gg \curlyvee \succ (\mathrm{A^{*}A(I(A))}_{1,2}) \times \begin{matrix}(\mathrm{A(I(A))I(A)}_{1,4}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4})\end{matrix} \qquad \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{4,3}) \\ (\mathrm{A(I(A))^{*}A}_{2,1}) \gg \curlyvee \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix} \succ (\mathrm{I(A)I(A)}_{4,3,1})$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4}) \\ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4}) \\ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\end{matrix} \times \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4}) \\ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\end{matrix} \times \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{1,4}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{1,3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A})_{4,3,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A)_{1,3,4})\\(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})\\(I(A)I(A)_{4,3,1})\end{matrix}$$

$$(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (I(A)I(A)_{4,3,1})\\(A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\\(A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (I(A)I(A)_{4,3,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(A(I(A))I(A)_{1,4})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\(A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A)_{1,3,4})\\(A(I(A))I(A)_{1,4})\\(A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\(I(A)A(I(A))_{4,1}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\(I(A)I(A)_{4,3,1})\end{matrix}$$

Interpretative action

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\(I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})\\(I(A)A(I(A))_{4,1})\end{matrix}$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A)_{1,3,4})\\(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})\\(I(A)I(A)_{4,3,1})\end{matrix}$$

$$(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (I(A)I(A)_{4,3,1})\\(A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(I(A(I(A)))I(A)_{3,4})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\(A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\(I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\(I(A)I(A)_{4,3,1})\end{matrix}$$

3. Pre-semiotic dual system
$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)I(A)_{1,3,4}\ A^{*}I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^{*}A_{3,2}\ I(A)I(A)_{4,3,1}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\ (I(A)I(A)_{1,3,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3})\\ (A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A)I(A)_{4,3,1})\\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\ (I(A)I(A)_{1,3,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3})\\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\ (I(A(I(A)))^{*}A_{3,2}) \curlyvee \succ (I(A)I(A)_{4,3,1})\\ (I(A)A(I(A))_{4,1})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\ (A(I(A))I(A)_{1,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3})\\ (I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(I(A)I(A)_{1,3,4})\\ (A(I(A))I(A)_{1,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3})\\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3})\\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\ (I(A)I(A)_{4,3,1})\end{matrix}$$

$$\begin{matrix}(I(A)I(A)_{1,3,4})\\ (I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3})\\ (A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\ (I(A)I(A)_{4,3,1})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\ (I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3})\\ (I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\ (I(A)A(I(A))_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\ (A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\ (A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\ (I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})\\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\ (A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\ (I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})\\ (I(A)A(I(A))_{4,1})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\ (A(I(A))I(A)_{1,4}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\ (I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\ (I(A(I(A)))^{*}A_{3,2})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\ (A(I(A))I(A)_{1,4}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\ (A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\ (I(A)I(A)_{4,3,1}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A)_{4,3,1}) \gg \curlyvee\\(I(A(I(A)))^{*}A_{3,2})\end{matrix} \succ (I(A)I(A(I(A)))_{4,3})$$

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (I(A)I(A)_{1,3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(I(A)I(A)_{4,3,1}) \gg \curlyvee\\(I(A)A(I(A))_{4,1})\end{matrix} \succ (I(A)I(A(I(A)))_{4,3})$$

Objectal action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\(I(A)A(I(A))_{4,1}) \gg\\(I(A)I(A(I(A)))_{4,3})\end{matrix} \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})$$

$$\begin{matrix}(I(A)I(A)_{1,3,4})\\(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1}) \gg\\(I(A)I(A)_{4,3,1})\end{matrix} \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1}) \gg\\(I(A(I(A)))^{*}A_{3,2})\end{matrix} \curlyvee \succ (I(A)I(A)_{4,3,1})$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(I(A)A(I(A))_{4,1}) \gg\\(I(A)I(A(I(A)))_{4,3})\end{matrix} \curlyvee \succ (I(A)I(A)_{4,3,1})$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\(I(A)A(I(A))_{4,1}) \gg\\(I(A(I(A)))^{*}A_{3,2})\end{matrix} \curlyvee \succ (I(A)I(A(I(A)))_{4,3})$$

$$\begin{matrix}(I(A)I(A)_{1,3,4})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A(I(A))I(A)_{1,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(I(A)A(I(A))_{4,1}) \gg\\(I(A)I(A)_{4,3,1})\end{matrix} \curlyvee \succ (I(A)I(A)_{4,3,1})$$

Interpretative action

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\(I(A)I(A(I(A)))_{4,3}) \gg\\(I(A)A(I(A))_{4,1})\end{matrix} \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})$$

$$\begin{matrix}(I(A)I(A)_{1,3,4})\\(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3}) \gg\\(I(A)I(A)_{4,3,1})\end{matrix} \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(I(A)I(A)_{1,3,4}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3}) \gg\\(I(A(I(A)))^{*}A_{3,2})\end{matrix} \curlyvee \succ (I(A)I(A)_{4,3,1})$$

$$(I(A)I(A)_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1})\end{matrix} \gg \Upsilon \succ (I(A)I(A)_{4,3,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \Upsilon \succ \begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))I(A)_{3,4})\\(I(A)I(A)_{1,3,4})\end{matrix} \times \begin{matrix}(I(A)I(A)_{4,3,1})\\(I(A)I(A(I(A)))_{4,3})\\(I(A(I(A)))^{*}A_{3,2})\end{matrix} \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \Upsilon \succ \begin{matrix}(I(A)I(A)_{1,3,4})\\(I(A(I(A)))I(A)_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(I(A)I(A(I(A)))_{4,3})\\(I(A)I(A)_{4,3,1})\end{matrix} \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$

4. Pre-semiotic system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)A(I(A))_{1,4}\ A^{*}A(I(A))_{1,2}) \times$
$(A(I(A))^{*}A_{2,1}\ A(I(A))I(A)_{4,1}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A^{*}A(I(A))_{1,2})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(A(I(A))^{*}A_{2,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix} \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(A^{*}A(I(A))_{1,2})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(A(I(A))^{*}A_{2,1})\\(I(A)A(I(A))_{4,1})\end{matrix} \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \Upsilon \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A^{*}A(I(A))_{1,2})\\(I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\(A(I(A))^{*}A_{2,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix} \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \Upsilon \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\(A^{*}A(I(A))_{1,2})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{3,4})\\(A(I(A))^{*}A_{2,1})\\(A(I(A))I(A)_{4,1})\end{matrix} \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \Upsilon \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\(A^{*}A(I(A))_{1,2})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(A(I(A))^{*}A_{2,1})\\(A(I(A))I(A)_{4,1})\end{matrix} \gg \Upsilon \succ (I(A)I(A(I(A)))_{4,3})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \Upsilon \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(A^{*}A(I(A))_{1,2})\\(I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\(A(I(A))^{*}A_{2,1})\\(I(A)A(I(A))_{4,1})\end{matrix} \gg \Upsilon \succ (I(A)I(A(I(A)))_{4,3})$$

Medial action

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(I(A)A(I(A))_{1,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(A(I(A))I(A)_{4,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix} \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A)A(I(A))_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(A(I(A))I(A)_{4,1})\\(I(A)A(I(A))_{4,1})\end{matrix} \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(I(A)A(I(A))_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(A(I(A))I(A)_{4,1})\\(A(I(A))^{*}A_{2,1})\end{matrix} \gg \curlyvee \succ (I(A)A(I(A))_{4,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(I(A)A(I(A))_{1,4})\\(A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\(A(I(A))I(A)_{4,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix} \gg \curlyvee \succ (I(A)A(I(A))_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(I(A)A(I(A))_{1,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1})\\(A(I(A))I(A)_{4,1})\\(A(I(A))^{*}A_{2,1})\end{matrix} \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A)A(I(A))_{1,4})\\(A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\(A(I(A))I(A)_{4,1})\\(I(A)A(I(A))_{4,1})\end{matrix} \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})$$

Objectal action

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\\(I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix} \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\(A(I(A))I(A)_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1})\\(A(I(A))I(A)_{4,1})\end{matrix} \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})$$

$$(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(A(I(A))I(A)_{4,1})\\(A(I(A))^{*}A_{2,1})\end{matrix} \gg \curlyvee \succ (A(I(A))I(A)_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A)A(I(A))_{1,4})\\(A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix} \gg \curlyvee \succ (A(I(A))I(A)_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\(I(A)A(I(A))_{1,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\(I(A)A(I(A))_{4,1})\\(A(I(A))^{*}A_{2,1})\end{matrix} \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})$$

$$(\mathrm{I(A)A(I(A))}_{1,4})$$
$$(\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{1,4}) \quad \times \quad (\mathrm{I(A)A(I(A))}_{4,1}) \gg \curlyvee \succ (\mathrm{I(A)I(A(I(A)))}_{4,3})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2})$$

$$(\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{A(I(A))I(A)}_{4,1})$$

Interpretative action

$$(\mathrm{A(I(A))I(A)}_{1,4})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \quad \times \quad (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{I(A)A(I(A))}_{1,4})$$

$$(\mathrm{A(I(A))I(A)}_{4,1})$$

$$(\mathrm{I(A)A(I(A))}_{1,4})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \quad \times \quad (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{A(I(A))I(A)}_{1,4})$$

$$(\mathrm{I(A)A(I(A))}_{4,1})$$
$$(\mathrm{A(I(A))I(A)}_{4,1})$$

$$(\mathrm{A^{*}A(I(A))}_{1,2})$$
$$(\mathrm{I(A)A(I(A))}_{1,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \quad \times \quad (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A(I(A))I(A)}_{1,4})$$

$$(\mathrm{I(A)A(I(A))}_{4,1})$$
$$(\mathrm{A(I(A))^{*}A}_{2,1})$$

$$(\mathrm{A(I(A))I(A)}_{1,4})$$
$$(\mathrm{I(A)A(I(A))}_{1,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \quad \times \quad (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2})$$

$$(\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{I(A)A(I(A))}_{4,1})$$

$$(\mathrm{A^{*}A(I(A))}_{1,2})$$
$$(\mathrm{A(I(A))I(A)}_{1,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \quad \times \quad (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{I(A)A(I(A))}_{4,1})$$
$$(\mathrm{I(A)A(I(A))}_{1,4})$$

$$(\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A(I(A))^{*}A}_{2,1})$$

$$(\mathrm{I(A)A(I(A))}_{1,4})$$
$$(\mathrm{A(I(A))I(A)}_{1,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \quad \times \quad (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{I(A)A(I(A))}_{4,1})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2})$$

$$(\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{A(I(A))I(A)}_{4,1})$$

5. Pre-semiotic dual system

$$(\mathrm{I(A(I(A)))I(A)}_{3,4}\ \mathrm{A(I(A))I(A)}_{1,4}\ \mathrm{I(A)A(I(A))}_{1,4}\ \mathrm{A^{*}I(A(I(A)))}_{2,3}) \times$$
$$(\mathrm{I(A(I(A)))^{*}A}_{3,2}\ \mathrm{A(I(A))I(A)}_{4,1}\ \mathrm{I(A)A(I(A))}_{4,1}\ \mathrm{I(A)I(A(I(A)))}_{3,4})$$

Qualitative action

$$(\mathrm{I(A(I(A)))I(A)}_{3,4})$$
$$(\mathrm{I(A)A(I(A))}_{1,4}) \gg \curlyvee \succ (\mathrm{A^{*}I(A(I(A)))}_{2,3}) \quad \times \quad (\mathrm{I(A(I(A)))^{*}A}_{3,2}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A(I(A))I(A)}_{1,4})$$

$$(\mathrm{I(A)A(I(A))}_{4,1})$$
$$(\mathrm{I(A)I(A(I(A)))}_{4,3})$$

$$(\mathrm{A(I(A))I(A)}_{1,4})$$
$$(\mathrm{I(A)A(I(A))}_{1,4}) \gg \curlyvee \succ (\mathrm{A^{*}I(A(I(A)))}_{2,3}) \quad \times \quad (\mathrm{I(A(I(A)))^{*}A}_{3,2}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{I(A(I(A)))I(A)}_{3,4})$$

$$(\mathrm{I(A)I(A(I(A)))}_{4,3})$$
$$(\mathrm{I(A)A(I(A))}_{4,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\\(I(A)A(I(A))_{1,4})\end{matrix} \times (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{4,1})\\(I(A)I(A(I(A)))_{3,4})\end{matrix} (I(A)A(I(A))_{4,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(A(I(A))I(A)_{4,1})\end{matrix} (I(A)A(I(A))_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\(A^{*}I(A(I(A)))_{2,3})\\(A(I(A))I(A)_{1,4})\end{matrix} \times (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{4,1})\\(A(I(A))I(A)_{4,1})\end{matrix} (I(A)I(A(I(A)))_{4,3})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(A^{*}I(A(I(A)))_{2,3})\\(I(A)A(I(A))_{1,4})\end{matrix} \times (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{4,1})\\(I(A)A(I(A))_{4,1})\end{matrix} (I(A)I(A(I(A)))_{4,3})$$

Medial action

$$(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(I(A)A(I(A))_{1,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix} (I(A(I(A)))^{*}A_{3,2})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A)A(I(A))_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A)A(I(A))_{4,1})\end{matrix} (I(A(I(A)))^{*}A_{3,2})$$

$$(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(I(A)A(I(A))_{1,4})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(I(A(I(A)))^{*}A_{3,2})\end{matrix} (I(A)A(I(A))_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(I(A)I(A(I(A)))_{4})\end{matrix} (I(A)A(I(A))_{4,1})$$

$$(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A(I(A)))^{*}A_{3,2})\end{matrix} (I(A)I(A(I(A)))_{4,3})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{1,4})\\(A^{*}I(A(I(A)))_{2,3})\\(I(A)A(I(A))_{1,4})\end{matrix} \times (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{4,1})\\(I(A)A(I(A))_{4,1})\end{matrix} (I(A)I(A(I(A)))_{4,3})$$

Objectal action

$$(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A(I(A))I(A)_{1,4})\\(I(A)A(I(A))_{1,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{4,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix} (I(A(I(A)))^{*}A_{3,2})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A)A(I(A))_{1,4}) \times (I(A)I(A(I(A)))_{4,3}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$
$$(A(I(A))I(A)_{1,4}) \qquad (I(A(I(A)))I(A)_{3,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (A(I(A))I(A)_{1,4}) \times (I(A)A(I(A))_{4,1}) \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$
$$(A^{*}I(A(I(A)))_{2,3}) \qquad (I(A(I(A)))I(A)_{3,4}) \qquad (I(A)I(A(I(A)))_{4,3})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (A(I(A))I(A)_{1,4}) \times (I(A)A(I(A))_{4,1}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$
$$(I(A(I(A)))I(A)_{3,4}) \qquad (A^{*}I(A(I(A)))_{2,3}) \qquad (A(I(A))I(A)_{4,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \Upsilon \succ (A(I(A))I(A)_{1,4}) \times (I(A)A(I(A))_{4,1}) \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$
$$(A^{*}I(A(I(A)))_{2,3}) \qquad (I(A)A(I(A))_{1,4}) \qquad (I(A)I(A(I(A)))_{4,3})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (A(I(A))I(A)_{1,4}) \times (I(A)A(I(A))_{4,1}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$
$$(I(A(I(A)))I(A)_{3,4}) \qquad (I(A)A(I(A))_{1,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (A(I(A))I(A)_{1,4}) \times (I(A)A(I(A))_{4,1}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{4,3})$$
$$(I(A(I(A)))I(A)_{3,4}) \qquad (A^{*}I(A(I(A)))_{2,3}) \qquad (A(I(A))I(A)_{4,1})$$

Interpretative action

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)I(A(I(A)))_{4,3}) \gg \Upsilon \succ (I(A(I(A)))^{*}A_{3,2})$$
$$(A(I(A))I(A)_{1,4}) \qquad (I(A)A(I(A))_{1,4}) \qquad (I(A)A(I(A))_{4,1})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)I(A(I(A)))_{4,3}) \gg \Upsilon \succ (I(A(I(A)))^{*}A_{3,2})$$
$$(I(A)A(I(A))_{1,4}) \qquad (A(I(A))I(A)_{1,4}) \qquad (A(I(A))I(A)_{4,1})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)A(I(A))_{4,1}) \gg \Upsilon \succ (I(A(I(A)))^{*}A_{3,2})$$
$$(I(A)A(I(A))_{1,4}) \qquad (A(I(A))I(A)_{1,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)I(A(I(A)))_{4,3}) \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$
$$(A^{*}I(A(I(A)))_{2,3}) \qquad (A(I(A))I(A)_{1,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)A(I(A))_{4,1}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$
$$(A(I(A))I(A)_{1,4}) \qquad (I(A)A(I(A))_{1,4}) \qquad (I(A(I(A)))^{*}A_{3,2})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)I(A(I(A)))_{4,3}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1})$$
$$(A(I(A))I(A)_{1,4}) \qquad (A^{*}I(A(I(A)))_{2,3}) \qquad (A(I(A))I(A)_{4,1})$$

6. Pre-semiotic dual system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A)_{1,4}\ I(A)I(A(I(A)))_{3,4}\ A^{*}I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^{*}A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ I(A)A(I(A))_{4,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ (A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3}) \\ (I(A)A(I(A))_{4,1})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (A(I(A))I(A)_{1,4}) \gg \Upsilon \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))I(A)_{1,4}) \gg \Upsilon \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1}) \\ (I(A(I(A)))I(A)_{4,3})\end{matrix}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{3,4}) \gg \Upsilon \succ (A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))I(A)_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4}) \\ (I(A(I(A)))I(A)_{3,4}) \gg \Upsilon \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{4,3}) \\ (I(A)A(I(A))_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))I(A)_{1,4})\end{matrix} \times \begin{matrix}(I(A)A(I(A))_{4,1}) \\ (I(A(I(A)))I(A)_{4,3}) \gg \Upsilon \succ (I(A(I(A)))^{*}A_{3,2}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A)_{1,4}) \\ (A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))I(A)_{4,3}) \gg \Upsilon \succ (I(A(I(A)))^{*}A_{3,2}) \\ (I(A)A(I(A))_{4,1})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))I(A)_{1,4}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))I(A)_{3,4}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1}) \\ (I(A(I(A)))^{*}A_{3,2})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (A(I(A))I(A)_{1,4}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{3,4}) \\ (A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))I(A)_{4,3}) \gg \Upsilon \succ (I(A)A(I(A))_{4,1}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$(\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ \begin{matrix}(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \\ (\mathrm{A(I(A))I(A)}_{1,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{I(A(I(A)))^{*}A}_{3,2})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A)I(A(I(A)))}_{4,3})$$

$$(\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ \begin{matrix}(\mathrm{A(I(A))I(A)}_{1,4}) \\ (\mathrm{A^{*}I(A(I(A)))}_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))^{*}A}_{3,2}) \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A)I(A(I(A)))}_{4,3})$$

Objectal action

$$(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \gg \curlyvee \succ \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{4,3}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A(I(A)))^{*}A}_{3,2})$$

$$(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \gg \curlyvee \succ \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{4,3}) \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A(I(A)))^{*}A}_{3,2})$$

$$(\mathrm{I(A)I(A(I(A)))}_{3,4}) \gg \curlyvee \succ \begin{matrix}(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{4,3}) \\ (\mathrm{I(A(I(A)))I(A)}_{4,3})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A)I(A(I(A)))}_{4,3})$$

$$(\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ (\mathrm{A^{*}I(A(I(A)))}_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{4,3}) \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A(I(A)))^{*}A}_{3,2})$$

$$(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \gg \curlyvee \succ \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{4,3}) \\ (\mathrm{I(A(I(A)))^{*}A}_{3,2})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{4,3})$$

$$(\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ \begin{matrix}(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))^{*}A}_{3,2}) \\ (\mathrm{I(A(I(A)))I(A)}_{4,3})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A)I(A(I(A)))}_{4,3})$$

$$(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \gg \curlyvee \succ \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{4,3}) \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A(I(A)))^{*}A}_{3,2})$$

Interpretative action

$$(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \gg \curlyvee \succ \begin{matrix}(\mathrm{A(I(A))I(A)}_{1,4}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{I(A)A(I(A))}_{4,1})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A(I(A)))^{*}A}_{3,2})$$

$$(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \gg \curlyvee \succ \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{A(I(A))I(A)}_{1,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A)A(I(A))}_{4,1}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A(I(A)))^{*}A}_{3,2})$$

$$(\mathrm{I(A)I(A(I(A)))}_{3,4}) \gg \curlyvee \succ \begin{matrix}(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \\ (\mathrm{A(I(A))I(A)}_{1,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{I(A(I(A)))^{*}A}_{3,2})\end{matrix} \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{4,3})$$

$$\begin{matrix}(A(I(A))I(A)_{1,4})\\(I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3})\\(I(A)A(I(A))_{4,1})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4})\\(I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3})\\(I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (I(A)A(I(A))_{1,4})\\(I(A(I(A)))^{*}A_{3,2})\end{matrix}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4})\\(A(I(A))I(A)_{1,4}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (I(A)A(I(A))_{4,1})\\(I(A(I(A)))I(A)_{4,3})\end{matrix}$$

7. Pre-semiotic dual system

$$(I(A(I(A)))I(A)_{3,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)A(I(A))_{1,4}\ A^{*}A(I(A))_{1,2}) \times (A(I(A))^{*}A_{2,1}\ A(I(A))I(A)_{4,1}\ A(I(A))A(I(A))_{4,2,1}\ I(A)I(A(I(A)))_{4,3})$$

Qualitative action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ (A^{*}A(I(A))_{1,2})\\(A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1})\\(A(I(A))^{*}A_{2,1}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ (A^{*}A(I(A))_{1,2})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(A(I(A))^{*}A_{2,1}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1})\\(A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4})\\(A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (A^{*}A(I(A))_{1,2})\\(I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\(A(I(A))^{*}A_{2,1}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1})\\(I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(I(A)A(I(A))_{1,4})\\(A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (A^{*}A(I(A))_{1,2})\\(I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\(A(I(A))^{*}A_{2,1}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1})\\(A(I(A))I(A)_{4,1})\end{matrix}$$

$$\begin{matrix}(I(A)A(I(A))_{1,4})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A^{*}A(I(A))_{1,2})\\(A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1})\\(A(I(A))^{*}A_{2,1}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\(A(I(A))I(A)_{4,1})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A^{*}A(I(A))_{1,2})\\(I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\(A(I(A))^{*}A_{2,1}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3})\\(A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

Medial action

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\ (I(A)A(I(A))_{1,4})\\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(A(I(A))A(I(A))_{4,2,1})\\ (I(A)I(A(I(A)))_{4,3})\\ (A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\ (I(A)A(I(A))_{1,4})\\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\ (A(I(A))^{*}A_{2,1})\\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (I(A)A(I(A))_{1,4})\\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\ (A(I(A))^{*}A_{2,1})\\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\ (I(A)A(I(A))_{1,4})\\ (A^{*}A(I(A))_{1,2})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(A(I(A))^{*}A_{2,1})\\ (I(A)I(A(I(A)))_{4,3})\\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (I(A)A(I(A))_{1,4})\\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(A(I(A))A(I(A))_{4,2,1})\\ (I(A)I(A(I(A)))_{4,3})\\ (A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (I(A(I(A)))I(A)_{3,4})\\ (I(A)A(I(A))_{1,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(A(I(A))^{*}A_{2,1})\\ (I(A)I(A(I(A)))_{4,3})\\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

Objectal action

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\ (A(I(A))A(I(A))_{1,2,4})\\ (I(A)A(I(A))_{1,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{4,1})\\ (A(I(A))A(I(A))_{4,2,1})\\ (I(A)I(A(I(A)))_{4,3})\end{matrix} (A(I(A))^{*}A_{2,1})$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\ (A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\ (A(I(A))A(I(A))_{4,2,1})\\ (A(I(A))I(A)_{4,1})\end{matrix} (A(I(A))^{*}A_{2,1})$$

$$(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (I(A(I(A)))I(A)_{3,4})\\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(I(A)I(A(I(A)))_{4,3})\\ (A(I(A))A(I(A))_{4,2,1})\\ (A(I(A))I(A)_{4,1})\end{matrix} (A(I(A))^{*}A_{2,1})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\ (A(I(A))A(I(A))_{1,2,4})\\ (A^{*}A(I(A))_{1,2})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{4,1})\\ (A(I(A))A(I(A))_{4,2,1})\\ (I(A)I(A(I(A)))_{4,3})\end{matrix} (A(I(A))^{*}A_{2,1})$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))I(A)_{3,4})\\ (I(A)A(I(A))_{1,4})\\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ \begin{matrix}(A(I(A))I(A)_{4,1})\\ (A(I(A))A(I(A))_{4,2,1})\\ (I(A)I(A(I(A)))_{4,3})\end{matrix} (I(A)I(A(I(A)))_{4,3})$$

$$(\mathrm{I(A)A(I(A))}_{1,4})\quad\quad(\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \Upsilon \succ (\mathrm{A(I(A))A(I(A))}_{1,2,4}) \times (\mathrm{A(I(A))A(I(A))}_{4,2,1}) \gg \Upsilon \succ (\mathrm{I(A)I(A(I(A)))}_{4,3})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2})\quad\quad(\mathrm{A(I(A))I(A)}_{4,1})$$

Interpretative action

$$(\mathrm{A(I(A))A(I(A))}_{1,2,4})\quad\quad(\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \Upsilon \succ (\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{I(A)A(I(A))}_{1,4})\quad\quad(\mathrm{A(I(A))A(I(A))}_{4,2,1})$$

$$(\mathrm{I(A)A(I(A))}_{1,4})\quad\quad(\mathrm{A(I(A))A(I(A))}_{4,2,1})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \Upsilon \succ (\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{A(I(A))A(I(A))}_{1,2,4})\quad\quad(\mathrm{A(I(A))I(A)}_{4,1})$$

$$(\mathrm{A^{*}A(I(A))}_{1,2})\quad\quad(\mathrm{A(I(A))A(I(A))}_{4,2,1})$$
$$(\mathrm{I(A)A(I(A))}_{1,4}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A(I(A))A(I(A))}_{1,2,4})\quad\quad(\mathrm{A(I(A))^{*}A}_{2,1})$$

$$(\mathrm{A(I(A))A(I(A))}_{1,2,4})\quad\quad(\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{I(A)A(I(A))}_{1,4}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2})\quad\quad(\mathrm{A(I(A))A(I(A))}_{4,2,1})$$

$$(\mathrm{A^{*}A(I(A))}_{1,2})\quad\quad(\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A(I(A))A(I(A))}_{1,2,4}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \Upsilon \succ (\mathrm{A(I(A))A(I(A))}_{4,2,1})$$
$$(\mathrm{I(A)A(I(A))}_{1,4})\quad\quad(\mathrm{A(I(A))^{*}A}_{2,1})$$

$$(\mathrm{I(A)A(I(A))}_{1,4})\quad\quad(\mathrm{A(I(A))^{*}A}_{2,1})$$
$$(\mathrm{A(I(A))A(I(A))}_{1,2,4}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \times (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \Upsilon \succ (\mathrm{A(I(A))A(I(A))}_{4,2,1})$$
$$(\mathrm{A^{*}A(I(A))}_{1,2})\quad\quad(\mathrm{A(I(A))I(A)}_{4,1})$$

8. Pre-semiotic dual system

$$(\mathrm{I(A(I(A)))I(A)}_{3,4}\ \mathrm{A(I(A))A(I(A))}_{1,2,4}\ \mathrm{I(A)A(I(A))}_{1,4}\ \mathrm{A^{*}I(A(I(A)))}_{2,3}) \times$$
$$(\mathrm{I(A(I(A)))^{*}A}_{3,2}\ \mathrm{A(I(A))I(A)}_{4,1}\ \mathrm{A(I(A))A(I(A))}_{4,2,1}\ \mathrm{I(A)I(A(I(A)))}_{4,3})$$

Qualitative action

$$(\mathrm{I(A(I(A)))I(A)}_{3,4})\quad\quad(\mathrm{A(I(A))A(I(A))}_{4,2,1})$$
$$(\mathrm{I(A)A(I(A))}_{1,4}) \gg \Upsilon \succ (\mathrm{A^{*}I(A(I(A)))}_{2,3}) \times (\mathrm{I(A(I(A)))^{*}A}_{3,2}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{A(I(A))A(I(A))}_{1,2,4})\quad\quad(\mathrm{I(A)I(A(I(A)))}_{4,3})$$

$$(\mathrm{A(I(A))A(I(A))}_{1,2,4})\quad\quad(\mathrm{I(A)I(A(I(A)))}_{4,3})$$
$$(\mathrm{I(A)A(I(A))}_{1,4}) \gg \Upsilon \succ (\mathrm{A^{*}I(A(I(A)))}_{2,3}) \times (\mathrm{I(A(I(A)))^{*}A}_{3,2}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A)}_{4,1})$$
$$(\mathrm{I(A(I(A)))I(A)}_{3,4})\quad\quad(\mathrm{A(I(A))A(I(A))}_{4,2,1})$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \times \\ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\end{matrix} \quad \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \times \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \quad \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \times \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \quad \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \times \\ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\end{matrix} \quad \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \quad \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \quad \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \quad \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \quad \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \quad \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \quad \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \quad \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \quad \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \quad \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times \\ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\end{matrix} \quad \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A)A(I(A))_{1,2,4}) \times (I(A)A(I(A))_{1,4})$$
$$(I(A(I(A)))I(A)_{3,4})$$

$$(I(A)I(A(I(A)))_{4,3}) \gg \Upsilon \succ (I(A(I(A)))^{*}A_{3,2})$$
$$(A(I(A))A(I(A))_{4,2,1}) \quad (A(I(A))I(A)_{4,1})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (A(I(A))A(I(A))_{1,2,4}) \times (I(A)A(I(A))_{1,4})$$
$$(I(A(I(A)))I(A)_{3,4})$$

$$(I(A)I(A(I(A)))_{4,3}) \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$
$$(A(I(A))A(I(A))_{4,2,1}) \quad (I(A(I(A)))^{*}A_{3,2})$$

$$(I(A(I(A)))I(A)_{3,4}) \gg \Upsilon \succ (A(I(A))A(I(A))_{1,2,4}) \times (I(A)A(I(A))_{1,4})$$
$$(A^{*}I(A(I(A)))_{2,3})$$

$$(I(A(I(A)))^{*}A_{3,2}) \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$
$$(A(I(A))A(I(A))_{4,2,1}) \quad (I(A)I(A(I(A)))_{4,3})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (A(I(A))A(I(A))_{1,2,4}) \times (I(A)A(I(A))_{1,4})$$
$$(I(A(I(A)))I(A)_{3,4})$$

$$(A(I(A))I(A)_{4,1}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{4,3})$$
$$(A(I(A))A(I(A))_{4,2,1}) \quad (I(A(I(A)))^{*}A_{3,2})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (A(I(A))A(I(A))_{1,2,4}) \times (A^{*}I(A(I(A)))_{2,3})$$
$$(I(A(I(A)))I(A)_{3,4})$$

$$(I(A(I(A)))^{*}A_{3,2}) \gg \Upsilon \succ (I(A)I(A(I(A)))_{4,3})$$
$$(A(I(A))A(I(A))_{4,2,1}) \quad (A(I(A))I(A)_{4,1})$$

Interpretative action

$$(A(I(A))A(I(A))_{1,2,4}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (A^{*}I(A(I(A)))_{2,3})$$
$$(I(A)A(I(A))_{1,4})$$

$$(A(I(A))I(A)_{4,1}) \gg \Upsilon \succ (I(A(I(A)))^{*}A_{3,2})$$
$$(I(A)I(A(I(A)))_{4,3}) \quad (A(I(A))A(I(A))_{4,2,1})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (A^{*}I(A(I(A)))_{2,3})$$
$$(A(I(A))A(I(A))_{1,2,4})$$

$$(A(I(A))A(I(A))_{4,2,1}) \gg \Upsilon \succ (I(A(I(A)))^{*}A_{3,2})$$
$$(I(A)I(A(I(A)))_{4,3}) \quad (A(I(A))I(A)_{4,1})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)A(I(A))_{1,4})$$
$$(A(I(A))A(I(A))_{1,2,4})$$

$$(A(I(A))A(I(A))_{4,2,1}) \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$
$$(I(A)I(A(I(A)))_{4,3}) \quad (I(A(I(A)))^{*}A_{3,2})$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)A(I(A))_{1,4})$$
$$(A^{*}I(A(I(A)))_{2,3})$$

$$(A(I(A))I(A)_{4,1}) \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A)I(A(I(A)))_{4,3}) \quad (I(A(I(A)))^{*}A_{3,2})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)A(I(A))_{1,4})$$
$$(A(I(A))A(I(A))_{1,2,4})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (A^{*}I(A(I(A)))_{2,3})$$
$$(A(I(A))A(I(A))_{1,2,4})$$

$$(A(I(A))I(A)_{4,1}) \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A)I(A(I(A)))_{4,3}) \quad (I(A(I(A)))^{*}A_{3,2})$$

$$(A^{*}I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (I(A)A(I(A))_{1,4})$$
$$(A(I(A))A(I(A))_{1,2,4})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{3,4}) \times (A^{*}I(A(I(A)))_{2,3})$$
$$(A(I(A))A(I(A))_{1,2,4})$$

$$(A(I(A))I(A)_{4,1}) \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A)I(A(I(A)))_{4,3}) \quad (I(A(I(A)))^{*}A_{3,2})$$

9. Pre-semiotic dual system

$(I(A(I(A)))I(A)_{3,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)I(A(I(A)))_{3,4}\ A^*I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^*A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ A(I(A))A(I(A))_{4,2,1}\ I(A)I(A(I(A)))_{4,3})$

Qualitative action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A^*I(A(I(A)))_{2,3}) \\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))^*A_{3,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A^*I(A(I(A)))_{2,3}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3}) \\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (A^*I(A(I(A)))_{2,3}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (I(A(I(A)))^*A_{3,2}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (A^*I(A(I(A)))_{2,3}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))I(A)_{4,3})\end{matrix}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A^*I(A(I(A)))_{2,3}) \\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))^*A_{3,2}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))I(A)_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4}) \\ (I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A^*I(A(I(A)))_{2,3}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3}) \\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))I(A)_{4,3}) \gg \curlyvee \succ (I(A(I(A)))^*A_{3,2}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))I(A)_{4,3}) \gg \curlyvee \succ (I(A(I(A)))^*A_{3,2}) \\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(A^*I(A(I(A)))_{2,3}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))I(A)_{4,3}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))^*A_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \times\\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \times\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \times\\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{matrix}$$

Objective action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4})\\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times\\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times\\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \times\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4})\end{matrix} \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4})\\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \times\\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4}) \\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1}) \\ (I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4}) \\ (A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2}) \\ (I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3}) \\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3}) \\ (I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))^{*}A_{3,2})\end{matrix}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{3,4}) \\ (A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2}) \\ (I(A)I(A(I(A)))_{4,3}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))I(A)_{4,3})\end{matrix}$$

10. Pre-semiotic dual system

$$(I(A(I(A)))I(A)_{3,4}\ A(I(A))I(A(I(A)))_{2,4}\ I(A)I(A(I(A)))_{3,4}\ A^{*}I(A(I(A)))_{2,3}) \times (I(A(I(A)))^{*}A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ I(A(I(A)))A(I(A))_{4,2}\ I(A)I(A(I(A)))_{4,3})$$

Qualitative action

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))I(A(I(A)))_{2,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A(I(A)))_{2,4}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A(I(A)))I(A)_{3,4})\end{matrix} \times \begin{matrix}(I(A)I(A(I(A)))_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))A(I(A))_{4,2})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))I(A)_{3,4}) \\ (A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A(I(A)))A(I(A))_{4,2}) \\ (I(A)I(A(I(A)))_{4,3})\end{matrix}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))I(A(I(A)))_{2,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))I(A)_{4,3})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4}) \\ (I(A(I(A)))I(A)_{3,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{4,3}) \\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \quad \gg \quad \curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \quad \gg \quad \curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \quad \gg\curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \quad \gg\curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \quad \gg\curlyvee \quad \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\vdots$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \quad \gg\curlyvee \quad \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \gg\curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \gg\curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \gg\curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \gg\curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,4}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2}) \gg\curlyvee \quad \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A(I(A)))}_{2,4}) \\ (\mathrm{A^{*}I(A(I(A)))}_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))^{*}A}_{3,2}) \\ (\mathrm{I(A(I(A)))A(I(A))}_{4,2}) \gg \curlyvee \succ (\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ (\mathrm{I(A(I(A)))I(A)}_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\mathrm{A(I(A))I(A(I(A)))}_{2,4}) \\ (\mathrm{A^{*}I(A(I(A)))}_{2,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{4,3}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))^{*}A}_{3,2}) \\ (\mathrm{I(A(I(A)))A(I(A))}_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ (\mathrm{A^{*}I(A(I(A)))}_{2,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{A(I(A))I(A(I(A)))}_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))A(I(A))}_{4,2}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))^{*}A}_{3,2}) \\ (\mathrm{I(A(I(A)))I(A)}_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{A(I(A))I(A(I(A)))}_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))A(I(A))}_{4,2}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{4,3}) \\ (\mathrm{I(A(I(A)))^{*}A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A(I(A))I(A(I(A)))}_{2,4}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{A^{*}I(A(I(A)))}_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))^{*}A}_{3,2}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{4,3}) \\ (\mathrm{I(A(I(A)))A(I(A))}_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A^{*}I(A(I(A)))}_{2,3}) \\ (\mathrm{A(I(A))I(A(I(A)))}_{2,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{I(A)I(A(I(A)))}_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))I(A)}_{4,3}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))A(I(A))}_{4,2}) \\ (\mathrm{I(A(I(A)))^{*}A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I(A)I(A(I(A)))}_{3,4}) \\ (\mathrm{A(I(A))I(A(I(A)))}_{2,4}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))I(A)}_{3,4}) \\ (\mathrm{A^{*}I(A(I(A)))}_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I(A(I(A)))^{*}A}_{3,2}) \\ (\mathrm{I(A)I(A(I(A)))}_{4,3}) \gg \curlyvee \succ (\mathrm{I(A(I(A)))A(I(A))}_{4,2}) \\ (\mathrm{I(A(I(A)))I(A)}_{4,3})\end{matrix}$$

11. Pre-semiotic dual system

$$(\mathrm{I(A(I(A)))A(I(A))}_{2,4}\ \mathrm{A(I(A))A(I(A))}_{1,2,4}\ \mathrm{I(A)A(I(A))}_{1,4}\ \mathrm{A^{*}A(I(A))}_{1,2}) \times (\mathrm{A(I(A))^{*}A}_{2,1}\ \mathrm{A(I(A))I(A)}_{4,1}\ \mathrm{A(I(A))A(I(A))}_{4,2,1}\ \mathrm{A(I(A))I(A(I(A)))}_{4,2})$$

Qualitative action

$$\begin{matrix}(\mathrm{I(A(I(A)))A(I(A))}_{2,4}) \\ (\mathrm{I(A)A(I(A))}_{1,4}) \gg \curlyvee \succ (\mathrm{A^{*}A(I(A))}_{1,2}) \\ (\mathrm{A(I(A))A(I(A))}_{1,2,4})\end{matrix} \times \begin{matrix}(\mathrm{A(I(A))A(I(A))}_{4,2,1}) \\ (\mathrm{A(I(A))^{*}A}_{2,1}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{4,1}) \\ (\mathrm{A(I(A))I(A(I(A)))}_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A(I(A))A(I(A))}_{1,2,4}) \\ (\mathrm{I(A)A(I(A))}_{1,4}) \gg \curlyvee \succ (\mathrm{A^{*}A(I(A))}_{1,2}) \\ (\mathrm{I(A(I(A)))A(I(A))}_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{A(I(A))I(A(I(A)))}_{4,2}) \\ (\mathrm{A(I(A))^{*}A}_{2,1}) \gg \curlyvee \succ (\mathrm{A(I(A))I(A)}_{4,1}) \\ (\mathrm{A(I(A))A(I(A))}_{4,2,1})\end{matrix}$$

$$\begin{array}{c}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\\(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\end{array}$$

$$\begin{array}{c}(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\\(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})\end{array}$$

$$\begin{array}{c}(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\\(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})\end{array}$$

$$\begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\\(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\\(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{array}$$

Medial action

$$\begin{array}{c}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\\(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\end{array}$$

$$\begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\\(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\\(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{array}$$

$$\begin{array}{c}(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\\(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\end{array}$$

$$\begin{array}{c}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\\(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\end{array}$$

$$\begin{array}{c}(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\\(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\end{array}$$

$$\begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\\(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\\(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{array}$$

Objectal action

$$\begin{array}{c}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\\(\mathrm{A}^{*}\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\\(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4})\end{array} \times \begin{array}{c}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))^{*}\mathrm{A}_{2,1})\\(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\end{array}$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\ (A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2})\\ (A(I(A))A(I(A))_{4,2,1}) \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})\\ (A(I(A))I(A)_{4,1})\end{matrix}$$

$$(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2})\\ (A(I(A))A(I(A))_{4,2,1}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1})\\ (A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ \begin{matrix}(I(A(I(A)))A(I(A))_{2,4})\\ (A(I(A))A(I(A))_{1,2,4})\\ (A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\ (A(I(A))A(I(A))_{4,2,1}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1})\\ (A(I(A))I(A(I(A)))_{4,2})\end{matrix}$$

$$(I(A(I(A)))A(I(A))_{2,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (A(I(A))A(I(A))_{1,2,4})\\ (I(A)A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\ (A(I(A))A(I(A))_{4,2,1}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{4,2})\\ (A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(I(A(I(A)))A(I(A))_{2,4}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\ (A(I(A))A(I(A))_{1,2,4})\\ (A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\ (A(I(A))A(I(A))_{4,2,1}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{4,2})\\ (A(I(A))I(A)_{4,1})\end{matrix}$$

Interpretative action

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\\ (I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\ (A(I(A))I(A(I(A)))_{4,2}) \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})\\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\ (A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1})\\ (A(I(A))I(A(I(A)))_{4,2}) \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})\\ (A(I(A))I(A)_{4,1})\end{matrix}$$

$$(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1})\\ (A(I(A))I(A(I(A)))_{4,2}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1})\\ (A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\ (A(I(A))I(A(I(A)))_{4,2}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1})\\ (A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ \begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\\ (A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\ (A(I(A))I(A(I(A)))_{4,2}) \gg \curlyvee \succ (A(I(A))^{*}A_{2,1})\\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$(A^{*}A(I(A))_{1,2}) \gg \curlyvee \succ \begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\\ (I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\ (A(I(A))I(A(I(A)))_{4,2}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1})\\ (A(I(A))^{*}A_{2,1})\end{matrix}$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(A^{*}A(I(A))_{1,2})\\ (I(A(I(A)))A(I(A))_{2,4})\\ (I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\ (A(I(A))I(A(I(A)))_{4,2}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1})\\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$(I(A)A(I(A))_{1,4}) \gg \curlyvee \succ \begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\ (I(A(I(A)))A(I(A))_{2,4})\\ (A^{*}A(I(A))_{1,2})\end{matrix} \times \begin{matrix}(A(I(A))^{*}A_{2,1})\\ (A(I(A))I(A(I(A)))_{4,2}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1})\\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

12. Pre-semiotic dual system

$(I(A(I(A)))A(I(A))_{2,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)A(I(A))_{1,4}\ A^{*}I(A(I(A)))_{2,3}) \times$
$(I(A(I(A)))^{*}A_{3,2}\ A(I(A))I(A)_{4,1}\ A(I(A))A(I(A))_{4,2,1}\ A(I(A))I(A(I(A)))_{4,2})$

Qualitative action

$$\begin{matrix}(I(A(I(A)))A(I(A))_{2,4}) \\ (I(A)A(I(A))_{1,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1}) \\ (A(I(A))I(A(I(A)))_{4,2})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4}) \\ (I(A)A(I(A))_{1,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (A(I(A))I(A)_{4,1}) \\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))A(I(A))_{2,4}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (A(I(A))I(A(I(A)))_{4,2})\end{matrix}$$

$$\begin{matrix}(I(A)A(I(A))_{1,4}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (A(I(A))I(A)_{4,1})\end{matrix}$$

$$\begin{matrix}(I(A)A(I(A))_{1,4}) \\ (I(A(I(A)))A(I(A))_{2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{4,2}) \\ (A(I(A))I(A)_{4,1})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4}) \\ (I(A(I(A)))A(I(A))_{2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \\ (I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1}) \\ (I(A(I(A)))^{*}A_{3,2}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{4,2}) \\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(I(A(I(A)))A(I(A))_{2,4}) \\ (A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A)A(I(A))_{1,4}) \\ (A(I(A))A(I(A))_{1,2,4})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1}) \\ (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ (I(A(I(A)))^{*}A_{3,2}) \\ (A(I(A))I(A(I(A)))_{4,2})\end{matrix}$$

$$\begin{matrix}(A(I(A))A(I(A))_{1,2,4}) \\ (A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A)A(I(A))_{1,4}) \\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2}) \\ (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ (I(A(I(A)))^{*}A_{3,2}) \\ (A(I(A))A(I(A))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (I(A)A(I(A))_{1,4}) \\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2}) \\ (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (I(A(I(A)))^{*}A_{3,2})\end{matrix}$$

$$\begin{matrix}(I(A(I(A)))A(I(A))_{2,4}) \\ (A(I(A))A(I(A))_{1,2,4}) \gg \curlyvee \succ (I(A)A(I(A))_{1,4}) \\ (A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2}) \\ (A(I(A))I(A)_{4,1}) \gg \curlyvee \succ (A(I(A))A(I(A))_{4,2,1}) \\ (A(I(A))I(A(I(A)))_{4,2})\end{matrix}$$

$$(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})$$

$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \quad (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$

$$(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \quad (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$
$$(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})$$
$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})$$

Objectal action

$$(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$
$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$
$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})$$

$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})$$
$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$
$$(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$

$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})$$
$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$
$$(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \quad (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$

$$(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \quad (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$
$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})$$
$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$

$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$
$$(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$
$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})$$

$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \quad (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$
$$(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})$$
$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$

Interpretative action

$$(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$
$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$
$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})$$

$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})$$
$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$
$$(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$

$$(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})$$
$$(\mathrm{I}(\mathrm{A})\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \times (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A})_{4,1})$$
$$(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \quad (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})$$

$$(I(A)A(I(A))_{1,4}) \gg \Upsilon \succ \begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\(I(A(I(A)))A(I(A))_{2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(A(I(A))I(A(I(A)))_{4,2})\\(A(I(A))A(I(A))_{4,2,1})\end{matrix} \gg \Upsilon \succ (A(I(A))I(A)_{4,1})$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))A(I(A))_{2,4})\\(I(A)A(I(A))_{1,4})\end{matrix} \times \begin{matrix}(A(I(A))I(A)_{4,1})\\(A(I(A))I(A(I(A)))_{4,2})\\(I(A(I(A)))^{*}A_{3,2})\end{matrix} \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(I(A)A(I(A))_{1,4})\\(I(A(I(A)))A(I(A))_{2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2})\\(A(I(A))I(A(I(A)))_{4,2})\\(A(I(A))I(A)_{4,1})\end{matrix} \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$

13. Pre-semiotic system

$$(I(A(I(A)))A(I(A))_{2,4}\ A(I(A))A(I(A))_{1,2,4}\ I(A)I(A(I(A)))_{3,4}\ A^{*}I(A(I(A)))_{2,3}) \times (I(A(I(A)))^{*}A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ A(I(A))A(I(A))_{4,2,1}\ A(I(A))I(A(I(A)))_{4,2})$$

Qualitative action

$$(I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ \begin{matrix}(I(A(I(A)))A(I(A))_{2,4})\\(A(I(A))A(I(A))_{1,2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(A(I(A))A(I(A))_{4,2,1})\\(I(A(I(A)))^{*}A_{3,2})\\(A(I(A))I(A(I(A)))_{4,2})\end{matrix} \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$

$$(I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ \begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\(I(A(I(A)))A(I(A))_{2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2})\\(I(A(I(A)))^{*}A_{3,2})\\(A(I(A))A(I(A))_{4,2,1})\end{matrix} \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(I(A(I(A)))A(I(A))_{2,4})\\(I(A)I(A(I(A)))_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2})\\(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2})\end{matrix} \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$

$$(A(I(A))A(I(A))_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(I(A)I(A(I(A)))_{3,4})\\(I(A(I(A)))A(I(A))_{2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2})\\(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))I(A)_{4,3})\end{matrix} \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \gg \Upsilon \succ \begin{matrix}(I(A)I(A(I(A)))_{3,4})\\(A(I(A))A(I(A))_{1,2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2})\\(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))I(A)_{4,3})\end{matrix} \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$

$$(I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ \begin{matrix}(I(A(I(A)))A(I(A))_{2,4})\\(A(I(A))A(I(A))_{1,2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2})\\(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))I(A)_{4,3})\end{matrix} \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$

$$(I(A(I(A)))A(I(A))_{2,4}) \gg \Upsilon \succ \begin{matrix}(A(I(A))A(I(A))_{1,2,4})\\(I(A)I(A(I(A)))_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(A(I(A))I(A(I(A)))_{4,2})\\(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))I(A)_{4,3})\end{matrix} \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$

Medial action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \times \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \quad \gg \quad \curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \quad \gg \quad \curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \quad \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \gg \curlyvee \quad \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \quad \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \gg \curlyvee \quad \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4})\end{matrix} \times \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \gg \curlyvee \quad \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \gg \curlyvee \quad \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \gg \quad \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \quad \curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \quad \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \quad \curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4})\end{matrix} \times \begin{matrix}(\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \quad \curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \gg \quad \curlyvee \quad \succ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2})\end{matrix}$$

$$\begin{matrix}(\mathrm{A}^{*}\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{2,3}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{2,4}) \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{1,2,4}) \\ (\mathrm{I}(\mathrm{A})\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{3,4})\end{matrix} \times \begin{matrix}(\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))\mathrm{I}(\mathrm{A})_{4,3}) \\ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{A}(\mathrm{I}(\mathrm{A}))_{4,2,1}) \quad \gg \curlyvee \succ (\mathrm{A}(\mathrm{I}(\mathrm{A}))\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))_{4,2}) \\ (\mathrm{I}(\mathrm{A}(\mathrm{I}(\mathrm{A})))^{*}\mathrm{A}_{3,2})\end{matrix}$$

$$(I(A)I(A(I(A)))_{3,4})$$
$$(I(A(I(A)))A(I(A))_{2,4}) \gg \Upsilon \succ (A(I(A))A(I(A))_{1,2,4})$$
$$(A^*I(A(I(A)))_{2,3})$$

$$(I(A(I(A)))^*A_{3,2})$$
$$\times(A(I(A))A(I(A))_{4,2,1}) \gg \Upsilon \succ (A(I(A))I(A(I(A)))_{4,2})$$
$$(I(A(I(A)))I(A)_{4,3})$$

Interpretative action

$$(A(I(A))A(I(A))_{1,2,4})$$
$$(A^*I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))A(I(A))_{2,4})$$
$$(I(A)I(A(I(A)))_{3,4})$$

$$(I(A(I(A)))I(A)_{4,3})$$
$$\times(A(I(A))I(A(I(A)))_{4,2}) \gg \Upsilon \succ (I(A(I(A)))^*A_{3,2})$$
$$(A(I(A))A(I(A))_{4,2,1})$$

$$(I(A)I(A(I(A)))_{3,4})$$
$$(A^*I(A(I(A)))_{2,3}) \gg \Upsilon \succ (I(A(I(A)))A(I(A))_{2,4})$$
$$(A(I(A))A(I(A))_{1,2,4})$$

$$(A(I(A))A(I(A))_{4,2,1})$$
$$\times(A(I(A))I(A(I(A)))_{4,2}) \gg \Upsilon \succ (I(A(I(A)))^*A_{3,2})$$
$$(I(A(I(A)))I(A)_{4,3})$$

$$(A^*I(A(I(A)))_{2,3})$$
$$(I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ (I(A(I(A)))A(I(A))_{2,4})$$
$$(A(I(A))A(I(A))_{1,2,4})$$

$$(A(I(A))A(I(A))_{4,2,1})$$
$$\times(A(I(A))I(A(I(A)))_{4,2}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$
$$(I(A(I(A)))^*A_{3,2})$$

$$(A(I(A))A(I(A))_{1,2,4})$$
$$(I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ (I(A(I(A)))A(I(A))_{2,4})$$
$$(A^*I(A(I(A)))_{2,3})$$

$$(I(A(I(A)))^*A_{3,2})$$
$$\times(A(I(A))I(A(I(A)))_{4,2}) \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A(I(A)))I(A)_{4,3})$$

$$(A^*I(A(I(A)))_{2,3})$$
$$(A(I(A))A(I(A))_{1,2,4}) \gg \Upsilon \succ (I(A(I(A)))A(I(A))_{2,4})$$
$$(I(A)I(A(I(A)))_{3,4})$$

$$(I(A(I(A)))A(I(A))_{4,2,1})$$
$$\times(A(I(A))I(A(I(A)))_{4,2}) \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A(I(A)))I(A)_{4,3})$$

$$(I(A)I(A(I(A)))_{3,4})$$
$$(A(I(A))A(I(A))_{1,2,4}) \gg \Upsilon \succ (I(A(I(A)))A(I(A))_{2,4})$$
$$(A^*I(A(I(A)))_{2,3})$$

$$(I(A(I(A)))^*A_{3,2})$$
$$\times(A(I(A))I(A(I(A)))_{4,2}) \gg \Upsilon \succ (A(I(A))A(I(A))_{4,2,1})$$
$$(I(A(I(A)))I(A)_{4,3})$$

14. Pre-semiotic dual system

$$(I(A(I(A)))A(I(A))_{2,4}\ A(I(A))I(A(I(A)))_{2,4}\ I(A)I(A(I(A)))_{3,4}\ A^*I(A(I(A)))_{2,3}) \times$$
$$(I(A(I(A)))^*A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ I(A(I(A)))A(I(A))_{4,2}\ A(I(A))I(A(I(A)))_{4,2})$$

Qualitative action

$$(I(A(I(A)))A(I(A))_{2,4})$$
$$(I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ (A^*I(A(I(A)))_{2,3})$$
$$(A(I(A))I(A(I(A)))_{2,4})$$

$$(I(A(I(A)))A(I(A))_{4,2})$$
$$\times\ (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$
$$(A(I(A))I(A(I(A)))_{4,2})$$

$$(A(I(A))I(A(I(A)))_{2,4})$$
$$(I(A)I(A(I(A)))_{3,4}) \gg \Upsilon \succ (A^*I(A(I(A)))_{2,3})$$
$$(I(A(I(A)))A(I(A))_{2,4})$$

$$(A(I(A))I(A(I(A)))_{4,2})$$
$$\times\ (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$
$$(I(A(I(A)))A(I(A))_{4,2})$$

$$\begin{array}{l} (I(A(I(A)))A(I(A))_{2,4}) \\ (A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \times (I(A(I(A)))^{*}A_{3,2}) \\ (I(A)I(A(I(A)))_{3,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))A(I(A))_{4,2}) \end{array}$$

$$\begin{array}{l} (I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \times (I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))A(I(A))_{2,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))I(A)_{4,3}) \end{array}$$

$$\begin{array}{l} (I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))A(I(A))_{2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \times (I(A(I(A)))^{*}A_{3,2}) \\ (A(I(A))I(A(I(A)))_{2,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (I(A(I(A)))A(I(A))_{4,2}) \\ (A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))I(A)_{4,3}) \end{array}$$

$$\begin{array}{l} (A(I(A))I(A(I(A)))_{2,4}) \\ (I(A(I(A)))A(I(A))_{2,4}) \gg \curlyvee \succ (A^{*}I(A(I(A)))_{2,3}) \times (I(A(I(A)))^{*}A_{3,2}) \\ (I(A)I(A(I(A)))_{3,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (I(A(I(A)))I(A)_{4,3}) \\ (A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))A(I(A))_{4,2}) \end{array}$$

Medial action

$$\begin{array}{l} (I(A(I(A)))A(I(A))_{2,4}) \\ (A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4}) \times (I(A(I(A)))I(A)_{4,3}) \\ (A(I(A))I(A(I(A)))_{2,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (I(A(I(A)))A(I(A))_{4,2}) \\ (A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \end{array}$$

$$\begin{array}{l} (A(I(A))I(A(I(A)))_{2,4}) \\ (A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4}) \times (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))A(I(A))_{2,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (A(I(A))I(A(I(A)))_{4,2}) \\ (A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))A(I(A))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ I(A)I(A(I(A)))_{3,4}) \times (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))A(I(A))_{2,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \end{array}$$

$$\begin{array}{l} (I(A(I(A)))A(I(A))_{2,4}) \\ (A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4}) \times (I(A(I(A)))I(A)_{4,3}) \\ (A^{*}I(A(I(A)))_{2,3}) \end{array} \gg \curlyvee \succ \begin{array}{l} (I(A(I(A)))^{*}A_{3,2}) \\ (A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))A(I(A))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^{*}I(A(I(A)))_{2,3}) \\ (I(A(I(A)))A(I(A))_{2,4}) \gg \succ (I(A)I(A(I(A)))_{3,4}) \times (I(A(I(A)))I(A)_{4,3}) \\ (A(I(A))I(A(I(A)))_{2,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \\ (A(I(A))I(A(I(A)))_{4,2}) \end{array}$$

$$\begin{array}{l} (A(I(A))I(A(I(A)))_{2,4}) \\ (I(A(I(A)))A(I(A))_{2,4}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4}) \times (I(A(I(A)))I(A)_{4,3}) \\ (A^{*}I(A(I(A)))_{2,3}) \end{array} \gg \curlyvee \succ \begin{array}{l} (I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))A(I(A))_{4,2}) \end{array}$$

Objectal action

$$\begin{array}{l} (I(A(I(A)))A(I(A))_{2,4}) \\ (A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4}) \times (I(A(I(A)))A(I(A))_{4,2}) \\ (I(A)I(A(I(A)))_{3,4}) \end{array} \gg \curlyvee \succ \begin{array}{l} (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2}) \\ (A(I(A))I(A(I(A)))_{4,2}) \end{array}$$

$$\begin{array}{l}(\mathrm{I(A)I(A(I(A)))_{3,4}})\\ (\mathrm{A^{*}I(A(I(A)))_{2,3}}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A(I(A)))_{2,4}}) \times (\mathrm{I(A(I(A)))A(I(A))_{4,2}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))^{*}A_{3,2}})\\ (\mathrm{I(A(I(A)))A(I(A))_{2,4}})\end{array} \quad \begin{array}{l}(\mathrm{A(I(A))I(A(I(A)))_{4,2}})\\ \\ (\mathrm{I(A(I(A)))I(A)_{4,3}})\end{array}$$

$$\begin{array}{l}(\mathrm{A^{*}I(A(I(A)))_{2,3}})\\ (\mathrm{I(A)I(A(I(A)))_{3,4}}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A(I(A)))_{2,4}}) \times (\mathrm{I(A(I(A)))A(I(A))_{4,2}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))I(A)_{4,3}})\\ (\mathrm{I(A(I(A)))A(I(A))_{2,4}})\end{array} \quad \begin{array}{l}(\mathrm{A(I(A))I(A(I(A)))_{4,2}})\\ \\ (\mathrm{I(A(I(A)))^{*}A_{3,2}})\end{array}$$

$$\begin{array}{l}(\mathrm{I(A(I(A)))A(I(A))_{2,4}})\\ (\mathrm{I(A)I(A(I(A)))_{3,4}}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A(I(A)))_{2,4}}) \times (\mathrm{I(A(I(A)))A(I(A))_{4,2}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))I(A)_{4,3}})\\ (\mathrm{A^{*}I(A(I(A)))_{2,3}})\end{array} \quad \begin{array}{l}(\mathrm{I(A(I(A)))^{*}A_{3,2}})\\ \\ (\mathrm{A(I(A))I(A(I(A)))_{4,2}})\end{array}$$

$$\begin{array}{l}(\mathrm{A^{*}I(A(I(A)))_{2,3}})\\ (\mathrm{I(A(I(A)))A(I(A))_{2,4}}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A(I(A)))_{2,4}}) \times (\mathrm{I(A(I(A)))A(I(A))_{4,2}}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A(I(A)))_{4,2}})\\ (\mathrm{I(A)I(A(I(A)))_{3,4}})\end{array} \quad \begin{array}{l}(\mathrm{I(A(I(A)))I(A)_{4,3}})\\ \\ (\mathrm{I(A(I(A)))^{*}A_{3,2}})\end{array}$$

$$\begin{array}{l}(\mathrm{I(A)I(A(I(A)))_{3,4}})\\ (\mathrm{I(A(I(A)))A(I(A))_{2,4}}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A(I(A)))_{2,4}}) \times (\mathrm{I(A(I(A)))A(I(A))_{4,2}}) \gg \Upsilon \succ (\mathrm{A(I(A))I(A(I(A)))_{4,2}})\\ (\mathrm{A^{*}I(A(I(A)))_{2,3}})\end{array} \quad \begin{array}{l}(\mathrm{I(A(I(A)))^{*}A_{3,2}})\\ \\ (\mathrm{I(A(I(A)))I(A)_{4,3}})\end{array}$$

Interpretative action

$$\begin{array}{l}(\mathrm{A(I(A))I(A(I(A)))_{2,4}})\\ (\mathrm{A^{*}I(A(I(A)))_{2,3}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))A(I(A))_{2,4}}) \times (\mathrm{A(I(A))I(A(I(A)))_{4,2}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))^{*}A_{3,2}})\\ (\mathrm{I(A)I(A(I(A)))_{3,4}})\end{array} \quad \begin{array}{l}(\mathrm{I(A(I(A)))I(A)_{4,3}})\\ \\ (\mathrm{I(A(I(A)))A(I(A))_{4,2}})\end{array}$$

$$\begin{array}{l}(\mathrm{I(A)I(A(I(A)))_{3,4}})\\ (\mathrm{A^{*}I(A(I(A)))_{2,3}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))A(I(A))_{2,4}}) \times (\mathrm{A(I(A))I(A(I(A)))_{4,2}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))^{*}A_{3,2}})\\ (\mathrm{A(I(A))I(A(I(A)))_{2,4}})\end{array} \quad \begin{array}{l}(\mathrm{I(A(I(A)))A(I(A))_{4,2}})\\ \\ (\mathrm{I(A(I(A)))I(A)_{4,3}})\end{array}$$

$$\begin{array}{l}(\mathrm{A^{*}I(A(I(A)))_{2,3}})\\ (\mathrm{I(A)I(A(I(A)))_{3,4}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))A(I(A))_{2,4}}) \times (\mathrm{A(I(A))I(A(I(A)))_{4,2}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))A(I(A))_{4,2}})\\ (\mathrm{A(I(A))I(A(I(A)))_{2,4}})\end{array} \quad \begin{array}{l}(\mathrm{I(A(I(A)))I(A)_{4,3}})\\ \\ (\mathrm{I(A(I(A)))^{*}A_{3,2}})\end{array}$$

$$\begin{array}{l}(\mathrm{A(I(A))I(A(I(A)))_{2,4}})\\ (\mathrm{I(A)I(A(I(A)))_{3,4}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))A(I(A))_{2,4}}) \times (\mathrm{A(I(A))I(A(I(A)))_{4,2}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))A(I(A))_{4,2}})\\ (\mathrm{A^{*}I(A(I(A)))_{2,3}})\end{array} \quad \begin{array}{l}(\mathrm{I(A(I(A)))I(A)_{4,3}})\\ \\ (\mathrm{I(A(I(A)))^{*}A_{3,2}})\end{array}$$

$$\begin{array}{l}(\mathrm{I(A)I(A(I(A)))_{3,4}})\\ (\mathrm{A(I(A))I(A(I(A)))_{2,4}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))A(I(A))_{2,4}}) \times (\mathrm{A(I(A))I(A(I(A)))_{4,2}}) \gg \Upsilon \succ (\mathrm{I(A(I(A)))A(I(A))_{4,2}})\\ (\mathrm{A^{*}I(A(I(A)))_{2,3}})\end{array} \quad \begin{array}{l}(\mathrm{I(A(I(A)))^{*}A_{3,2}})\\ \\ (\mathrm{I(A(I(A)))I(A)_{4,3}})\end{array}$$

15. Pre-semiotic dual system

$(I(A(I(A)))I(A(I(A)))_{2,3,4}\ A(I(A))I(A(I(A)))_{2,4}\ I(A)I(A(I(A)))_{3,4}\ A^*I(A(I(A)))_{2,3}) \times (I(A(I(A)))^*A_{3,2}\ I(A(I(A)))I(A)_{4,3}\ I(A(I(A)))A(I(A))_{4,2}\ I(A(I(A)))I(A(I(A)))_{4,3,2})$

Qualitative action

$$\begin{matrix}(I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))I(A(I(A)))_{2,4})\end{matrix} \gg \Upsilon \succ (A^*I(A(I(A)))_{2,3}) \times \begin{matrix}(I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^*A_{3,2}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2})\end{matrix} \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$

$$\begin{matrix}(A(I(A))I(A(I(A)))_{2,4}) \\ (I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A(I(A)))_{2,3,4})\end{matrix} \gg \Upsilon \succ (A^*I(A(I(A)))_{2,3}) \times \begin{matrix}(I(A(I(A)))I(A(I(A)))_{4,3,2}) \\ (I(A(I(A)))^*A_{3,2}) \\ (I(A(I(A)))A(I(A))_{4,2})\end{matrix} \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$

$$\begin{matrix}(I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (A(I(A))I(A(I(A)))_{2,4}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \gg \Upsilon \succ (A^*I(A(I(A)))_{2,3}) \times \begin{matrix}(I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2})\end{matrix} \gg \Upsilon \succ (I(A(I(A)))A(I(A))_{4,2})$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))I(A(I(A)))_{2,4}) \\ (I(A(I(A)))I(A(I(A)))_{2,3,4})\end{matrix} \gg \Upsilon \succ (A^*I(A(I(A)))_{2,3}) \times \begin{matrix}(I(A(I(A)))I(A(I(A)))_{4,3,2}) \\ (I(A(I(A)))^*A_{3,2}) \\ (I(A(I(A)))A(I(A))_{4,2})\end{matrix} \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (A(I(A))I(A(I(A)))_{2,4})\end{matrix} \gg \Upsilon \succ (A^*I(A(I(A)))_{2,3}) \times \begin{matrix}(I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^*A_{3,2}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2})\end{matrix} \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$

$$\begin{matrix}(A(I(A))I(A(I(A)))_{2,4}) \\ (I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \gg \Upsilon \succ (A^*I(A(I(A)))_{2,3}) \times \begin{matrix}(I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^*A_{3,2}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2})\end{matrix} \gg \Upsilon \succ (I(A(I(A)))I(A)_{4,3})$$

Medial action

$$\begin{matrix}(I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (A^*I(A(I(A)))_{2,3}) \\ (A(I(A))I(A(I(A)))_{2,4})\end{matrix} \gg \Upsilon \succ \begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^*A_{3,2})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A(I(A)))_{2,4}) \\ (A^*I(A(I(A)))_{2,3}) \\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \gg \Upsilon \succ \begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))^*A_{3,2})\end{matrix}$$

$$\begin{matrix}(A^*I(A(I(A)))_{2,3}) \\ (A(I(A))I(A(I(A)))_{2,4}) \\ (I(A(I(A)))A(I(A))_{2,4})\end{matrix} \gg \Upsilon \succ \begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))A(I(A))_{4,2})\end{matrix} \gg \Upsilon \succ \begin{matrix}(A(I(A))I(A(I(A)))_{4,2}) \\ (I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))^*A_{3,2})\end{matrix}$$

$$\begin{array}{l}(I(A(I(A)))I(A(I(A)))_{2,3,4})\\(A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{array} \times \begin{array}{l}(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))A(I(A))_{4,2})\\(I(A(I(A)))I(A(I(A)))_{4,3,2})\end{array}$$

$$\begin{array}{l}(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))I(A(I(A)))_{2,3,4}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4})\\(A(I(A))I(A(I(A)))_{2,4})\end{array} \times \begin{array}{l}(I(A(I(A)))A(I(A))_{4,2})\\(I(A(I(A)))I(A)_{4,3}) \gg \curlyvee \succ (I(A(I(A)))I(A(I(A)))_{4,3,2})\\(I(A(I(A)))^{*}A_{3,2})\end{array}$$

$$\begin{array}{l}(A(I(A))I(A(I(A)))_{2,4})\\(I(A(I(A)))I(A(I(A)))_{2,3,4}) \gg \curlyvee \succ (I(A)I(A(I(A)))_{3,4})\\(A^{*}I(A(I(A)))_{2,3})\end{array} \times \begin{array}{l}(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))I(A)_{4,3}) \gg \curlyvee \succ (I(A(I(A)))I(A(I(A)))_{4,3,2})\\(I(A(I(A)))A(I(A))_{4,2})\end{array}$$

Objectal action

$$\begin{array}{l}(I(A(I(A)))I(A(I(A)))_{2,3,4})\\(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(I(A)I(A(I(A)))_{3,4})\end{array} \times \begin{array}{l}(I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))I(A(I(A)))_{4,3,2})\end{array}$$

$$\begin{array}{l}(I(A)I(A(I(A)))_{3,4})\\(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(I(A(I(A)))I(A(I(A)))_{2,3,4})\end{array} \times \begin{array}{l}(I(A(I(A)))A(I(A))_{4,2})\\(I(A(I(A)))I(A(I(A)))_{4,3,2}) \gg \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))I(A)_{4,3})\end{array}$$

$$\begin{array}{l}(A^{*}I(A(I(A)))_{2,3})\\(I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(I(A(I(A)))I(A(I(A)))_{2,3,4})\end{array} \times \begin{array}{l}(I(A(I(A)))I(A(I(A)))_{4,3,2})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))^{*}A_{3,2})\end{array}$$

$$\begin{array}{l}(I(A(I(A)))I(A(I(A)))_{2,3,4})\\(I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{array} \times \begin{array}{l}(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))I(A(I(A)))_{4,3,2})\end{array}$$

$$\begin{array}{l}(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))I(A(I(A)))_{2,3,4}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(I(A)I(A(I(A)))_{3,4})\end{array} \times \begin{array}{l}(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))I(A(I(A)))_{4,3,2})\end{array}$$

$$\begin{array}{l}(I(A(I(A)))I(A(I(A)))_{2,3,4})\\(I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{array} \times \begin{array}{l}(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))I(A(I(A)))_{4,3,2})\end{array}$$

$$\begin{array}{l}(A^{*}I(A(I(A)))_{2,3})\\(I(A(I(A)))I(A(I(A)))_{2,3,4}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(I(A)I(A(I(A)))_{3,4})\end{array} \times \begin{array}{l}(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))I(A(I(A)))_{4,3,2})\end{array}$$

$$\begin{array}{l}(I(A(I(A)))I(A(I(A)))_{2,3,4})\\(I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{array} \times \begin{array}{l}(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))I(A(I(A)))_{4,3,2})\end{array}$$

$$\begin{array}{l}(I(A(I(A)))I(A(I(A)))_{2,3,4})\\(I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (A(I(A))I(A(I(A)))_{2,4})\\(A^{*}I(A(I(A)))_{2,3})\end{array} \times \begin{array}{l}(I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))I(A(I(A)))_{4,3,2})\end{array}$$

Interpretative action

$$\begin{array}{l}(A(I(A))I(A(I(A)))_{2,4})\\(A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A(I(A)))I(A(I(A)))_{2,3,4})\\(I(A)I(A(I(A)))_{3,4})\end{array} \times \begin{array}{l}(I(A(I(A)))I(A)_{4,3})\\(I(A(I(A)))I(A(I(A)))_{4,3,2}) \gg \curlyvee \succ (I(A(I(A)))^{*}A_{3,2})\\(I(A(I(A)))A(I(A))_{4,2})\end{array}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (A^{*}I(A(I(A)))_{2,3}) \gg \curlyvee \succ (I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (A(I(A))I(A(I(A)))_{2,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2}) \gg \curlyvee \succ (I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))I(A)_{4,3})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (A(I(A))I(A(I(A)))_{2,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))A(I(A))_{4,2}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2}) \gg \curlyvee \succ (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))^{*}A_{3,2})\end{matrix}$$

$$\begin{matrix}(A(I(A))I(A(I(A)))_{2,4}) \\ (I(A)I(A(I(A)))_{3,4}) \gg \curlyvee \succ (I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))A(I(A))_{4,2})\end{matrix}$$

$$\begin{matrix}(A^{*}I(A(I(A)))_{2,3}) \\ (A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ (I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (I(A)I(A(I(A)))_{3,4})\end{matrix} \times \begin{matrix}(I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2}) \gg \curlyvee \succ (I(A(I(A)))A(I(A))_{4,2})\end{matrix}$$

$$\begin{matrix}(I(A)I(A(I(A)))_{3,4}) \\ (I(A)I(A(I(A)))_{3,4}) \\ (A(I(A))I(A(I(A)))_{2,4}) \gg \curlyvee \succ (I(A(I(A)))I(A(I(A)))_{2,3,4}) \\ (A^{*}I(A(I(A)))_{2,3})\end{matrix} \times \begin{matrix}(I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))^{*}A_{3,2}) \\ (I(A(I(A)))I(A)_{4,3}) \\ (I(A(I(A)))I(A(I(A)))_{4,3,2}) \gg \curlyvee \succ (I(A(I(A)))A(I(A))_{4,2})\end{matrix}$$

Chapter Six: The Regional Night

Preliminary remarks. While a logical theory of the Will rises from negativity of meontics (cf. Günther 1980), s semiotic theory of the Will rises from a regional semiotics (cf. Toth 2011), which is capable of representing the positions of objects in the 3-dimensional space in a non-trivial way. The present chapter, based on the concept of a complex semiotics (cf. Toth 2007), requires the linearized order of spheric semiotic sub-relations

(-a.-b) < (-a.b) < (a.-b) < (a.b),

which tries to display the structural possibilities of a "meontological semiotics" on the basis of the following combinations of sub-relations in a framework of minimal contexturation

$(a.b)_{1.2.3}$, $(a.b)_{1.3.2}$, $(a.b)_{2.1.3}$, $(a.b)_{2.3.1}$, $(a.b)_{3.1.2}$, $(a.b)_{3.2.1}$

$(b.a)_{1.2.3}$, $(b.a)_{1.3.2}$, $(b.a)_{2.1.3}$, $(b.a)_{2.3.1}$, $(b.a)_{3.1.2}$, $(b.a)_{3.2.1}$

$(-a.b)_{1.2.3}$, $(-a.b)_{1.3.2}$, $(-a.b)_{2.1.3}$, $(-a.b)_{2.3.1}$, $(-a.b)_{3.1.2}$, $(-a.b)_{3.2.1}$

$(b.-a)_{1.2.3}$, $(b.-a)_{1.3.2}$, $(b.-a)_{2.1.3}$, $(b.-a)_{2.3.1}$, $(b.-a)_{3.1.2}$, $(b.-a)_{3.2.1}$

$(a.-b)_{1.2.3}$, $(a.-b)_{1.3.2}$, $(a.-b)_{2.1.3}$, $(a.-b)_{2.3.1}$, $(a.-b)_{3.1.2}$, $(a.-b)_{3.2.1}$

$(-b.a)_{1.2.3}$, $(-b.a)_{1.3.2}$, $(-b.a)_{2.1.3}$, $(-b.a)_{2.3.1}$, $(-b.a)_{3.1.2}$, $(-b.a)_{3.2.1}$

$(-a.-b)_{1.2.3}$, $(-a.-b)_{1.3.2}$, $(-a.-b)_{2.1.3}$, $(-a.-b)_{2.3.1}$, $(-a.-b)_{3.1.2}$, $(-a.-b)_{3.2.1}$

$(-b.-a)_{1.2.3}$, $(-b.-a)_{1.3.2}$, $(-b.-a)_{2.1.3}$, $(-b.-a)_{2.3.1}$, $(-b.-a)_{3.1.2}$, $(-b.-a)_{3.2.1}$

on the background of the following triadic-tetratomic model of cyclic semiotic subrelations

-3.-3 < -3.-2 < -3.-1 < -3.1 < -3.2 < -3.3 <

-2.-3 < -2.-2 < -2.-1 < -2.1 < -2.2 < -2.3 <

-1.-3 < -1.-2 < -1.-1 < -1.1 < -1.2 < -1.3 <

-0.-3 < -0.-2 < -0.-1 < -0.1 < -0.2 < -0.3 <

0.-3 < 0.-2 < 0.-1 < ■ < 0.1 < 0.2 < 0.3 <

1.-3 < 1.-2 < 1.-1 < 1.1 < 1.2 < 1.3 <

2.-3 < 2.-2 < 2.-1 < 2.1 < 2.2 < 2.3 <

3.-3 < 3.-2 < 3.-1 < 3.1 < 3.2 < 3.3 <

I. Action schemata of the 2 · 24 triadic semiotic partial relations

1. Pre-semiotic dual system
(-1.-3 $_{3,4}$ -1.-2 $_{1,4}$ -1.-1 $_{1, 3,4}$ -0.-1 $_{1, 3}$) × (-0.-1 $_{3, 1}$ -1.-1$_{4, 3, 1}$ -1.-2$_{4, 1}$ -1.-3$_{4, 3}$)

Qualitative action

(-1.-2 $_{1,4}$) (-1.-1$_{4, 3, 1}$)
↿ ≫ (-0.-1 $_{1, 3}$) × ↿ ≫ (-0.-1 $_{3, 1}$)
(-1.-1 $_{1, 3,4}$) (-1.-2$_{4, 1}$)

(-1.-3 $_{3,4}$) (-1.-1$_{4, 3, 1}$)
↿ ≫ (-0.-1 $_{1, 3}$) × ↿ ≫ (-0.-1 $_{3, 1}$)
(-1.-1 $_{1, 3,4}$) (-1.-3$_{4, 3}$)

(-1.-1 $_{1, 3,4}$) (-1.-2$_{4, 1}$)
↿ ≫ (-0.-1 $_{1, 3}$) × ↿ ≫ (-0.-1 $_{3, 1}$)
(-1.-2 $_{1,4}$) (-1.-1$_{4, 3, 1}$)

(-1.-3 $_{3,4}$) (-1.-2$_{4, 1}$)
↿ ≫ (-0.-1 $_{1, 3}$) × ↿ ≫ (-0.-1 $_{3, 1}$)
(1.-2 $_{1,4}$) (-1.-3$_{4, 3}$)

(-1.-1 $_{1, 3,4}$) (-1.-3$_{4, 3}$)
↿ ≫ (-0.-1 $_{1, 3}$) × ↿ ≫ (-0.-1 $_{3, 1}$)
(-1.-3 $_{3,4}$) (-1.-1$_{4, 3, 1}$)

(-1.-2 $_{1,4}$) (-1.-3$_{4, 3}$)
↿ ≫ (-0.-1 $_{1, 3}$) × ↿ ≫ (-0.-1 $_{3, 1}$)
(-1.-3 $_{3,4}$) (-1.-2$_{4, 1}$)

Medial action

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}0.\text{-}1_{\,3,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}1_{4,\,3,\,1}) \\ (\text{-}0.\text{-}1_{\,1,\,3}) & & (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}1_{\,3,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}1_{4,\,3,\,1}) \\ (\text{-}0.\text{-}1_{\,1,\,3}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}1_{\,1,\,3}) & & (\text{-}1.\text{-}2_{4,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}1_{4,\,3,\,1}) \\ (\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}0.\text{-}1_{\,3,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}1.\text{-}2_{4,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}1_{4,\,3,\,1}) \\ (\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}1_{\,1,\,3}) & & (\text{-}1.\text{-}3_{4,\,3}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}1_{4,\,3,\,1}) \\ (\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}1_{\,3,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}1.\text{-}3_{4,\,3}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}1_{4,\,3,\,1}) \\ (\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}1_{\,1,3,4}) & & (\text{-}0.\text{-}1_{\,3,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}1_{\,1,\,3}) & & (\text{-}1.\text{-}1_{4,\,3,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}1_{\,3,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}1_{\,1,\,3}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$(\text{-}0.\text{-}1_{1,3}) \quad (\text{-}1.\text{-}1_{4,3,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}1_{1,3,4}) \quad (\text{-}0.\text{-}1_{3,1})$$

$$(1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}1_{4,3,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}1_{1,3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}1_{1,3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}1_{4,3,1})$$

$$(\text{-}0.\text{-}1_{1,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}1_{3,1})$$

Interpretative action

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}1_{3,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}1_{1,3}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}1_{1,3,4}) \quad (\text{-}0.\text{-}1_{3,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}1_{1,3}) \quad (\text{-}1.\text{-}1_{4,3,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}1_{4,3,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}1_{1,3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}1_{1,3}) \quad (\text{-}1.\text{-}1_{4,3,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}1_{1,3,4}) \quad (\text{-}0.\text{-}1_{3,1})$$

$$(-1.-1_{1,3,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \quad (-1.-1_{4,3,1})$$

$$(-0.-1_{1,3}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \quad (-0.-1_{3,1})$$

2. Pre-semiotic dual system

$$(-1.-3_{3,4}\ -1.-2_{1,4}\ -1.-1_{1,3,4}\ -0.-2_{1,2}) \times (-0.-2_{2,1}\ -1.-1_{4,3,1}\ -1.-2_{4,1}\ -1.-3_{4,3})$$

Qualitative action

$$(-1.-2_{1,4}) \quad (-1.-1_{4,3,1})$$
$$\curlywedge \gg (-0.-2_{1,2}) \times \curlywedge \gg (-0.-2_{2,1})$$
$$(-1.-1_{1,3,4}) \quad (-1.-2_{4,1})$$

$$(-1.-3_{3,4}) \quad (-1.-1_{4,3,1})$$
$$\curlywedge \gg (-0.-2_{1,2}) \times \curlywedge \gg (-0.-2_{2,1})$$
$$(-1.-1_{1,3,4}) \quad (-1.-3_{4,3})$$

$$(-1.-1_{1,3,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-0.-2_{1,2}) \times \curlywedge \gg (-0.-2_{2,1})$$
$$(-1.-2_{1,4}) \quad (-1.-1_{4,3,1})$$

$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-0.-2_{1,2}) \times \curlywedge \gg (-0.-2_{2,1})$$
$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$

$$(-1.-1_{1,3,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-2_{1,2}) \times \curlywedge \gg (-0.-2_{2,1})$$
$$(-1.-3_{3,4}) \quad (-1.-1_{4,3,1})$$

$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-2_{1,2}) \times \curlywedge \gg (-0.-2_{2,1})$$
$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}0.\text{-}2_{\,1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{\,2,1}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}0.\text{-}2_{\,1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{\,2,1}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,2}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}0.\text{-}2_{\,2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,2}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}0.\text{-}2_{\,2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}1_{\,1,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{\,2,1}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{\,2,1}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

(-0.-2 1, 2) (-1.-1 4, 3, 1)
ʌ ≫ (-1.-2 1,4) × ʌ ≫ (-1.-2 4, 1)
(-1.-1 1, 3,4) (-0.-2 2, 1)

(-1.-3 3,4) (-1.-1 4, 3, 1)
ʌ ≫ (-1.-2 1,4) × ʌ ≫ (-1.-2 4, 1)
(-1.-1 1, 3,4) (-1.-3 4, 3)

(-1.-1 1, 3,4) (-1.-3 4, 3)
ʌ ≫ (-1.-2 1,4) × ʌ ≫ (-1.-2 4, 1)
(-1.-3 3,4) (-1.-1 4, 3, 1)

(-0.-2 1, 2) (-1.-3 4, 3)
ʌ ≫ (-1.-2 1,4) × ʌ ≫ (-1.-2 4, 1)
(-1.-3 3,4) (-0.-2 2, 1)

Interpretative action

(-1.-2 1,4) (-0.-2 2, 1)
ʌ ≫ (-1.-3 3,4) × ʌ ≫ (-1.-3 4, 3)
(-0.-2 1, 2) (-1.-2 4, 1)

(-1.-1 1, 3,4) (-1.-1 4, 3, 1)
ʌ ≫ (-1.-3 3,4) × ʌ ≫ (-1.-3 4, 3)
(-0.-2 1, 2) (-0.-2 1, 2)

(-1.-2 1,4) (-1.-1 4, 3, 1)
ʌ ≫ (-1.-3 3,4) × ʌ ≫ (-1.-3 4, 3)
(-1.-1 1, 3,4) (-1.-2 4, 1)

(-0.-2 1, 2) (-1.-1 4, 3, 1)
ʌ ≫ (-1.-3 3,4) × ʌ ≫ (-1.-3 4, 3)
(-1.-1 1, 3,4) (-0.-2 2, 1)

$(-1.-1_{1,3,4})$ $(-1.-2_{4,1})$
$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$
$(-1.-2_{1,4})$ $(-1.-1_{4,3,1})$

$(-0.-2_{1,2})$ $(-1.-2_{4,1})$
$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$
$(-1.-2_{1,4})$ $(-0.-2_{2,1})$

3. Pre-semiotic dual system

$(-1.-3_{3,4}\ -1.-2_{1,4}\ -1.-1_{1,3,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-1_{4,3,1}\ -1.-2_{4,1}\ -1.-3_{4,3})$

Qualitative action

$(-1.-2_{1,4})$ $(-1.-1_{4,3,1})$
$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$
$(-1.-1_{1,3,4})$ $(-1.-2_{4,1})$

$(-1.-3_{3,4})$ $(-1.-1_{4,3,1})$
$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$
$(-1.-1_{1,3,4})$ $(-1.-3_{4,3})$

$(-1.-1_{1,3,4})$ $(-1.-2_{4,1})$
$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$
$(-1.-2_{1,4})$ $(-1.-1_{4,3,1})$

$(-1.-3_{3,4})$ $(-1.-2_{4,1})$
$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$
$(-1.-2_{1,4})$ $(-1.-3_{4,3})$

$(-1.-1_{1,3,4})$ $(-1.-3_{4,3})$
$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$
$(-1.-3_{3,4})$ $(-1.-1_{4,3,1})$

$(-1.-2_{1,4})$ $(-1.-3_{4,3})$
$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$
$(-1.-3_{3,4})$ $(-1.-2_{4,1})$

Medial action

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}1_{1,3,4}) \times \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}1_{1,3,4}) \times \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}1_{1,3,4}) \times \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}1_{1,3,4}) \times \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}1_{1,3,4}) \times \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}1_{1,3,4}) \times \curlywedge \gg (\text{-}1.\text{-}1_{4,3,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

Objectal action

$$(\text{-}1.\text{-}1_{1,3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}1_{4,3,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$

(-0.-3 $_{2,3}$) (-1.-1$_{4,3,1}$)
ʎ ≫ (-1.-2 $_{1,4}$) × ʎ ≫ (-1.-2$_{4,1}$)
(-1.-1 $_{1,3,4}$) (-0.-3 $_{3,2}$)

(-1.-3 $_{3,4}$) (-1.-1$_{4,3,1}$)
ʎ ≫ (-1.-2 $_{1,4}$) × ʎ ≫ (-1.-2$_{4,1}$)
(-1.-1 $_{1,3,4}$) (-1.-3$_{4,3}$)

(-1.-1 $_{1,3,4}$) (-1.-3 $_{3,4}$)
ʎ ≫ (-1.-2 $_{1,4}$) × ʎ ≫ (-1.-2$_{4,1}$)
(-1.-3 $_{3,4}$) (-1.-1$_{4,3,1}$)

(-0.-3 $_{2,3}$) (-1.-3$_{4,3}$)
ʎ ≫ (-1.-2 $_{1,4}$) × ʎ ≫ (-1.-2$_{4,1}$)
(-1.-3 $_{3,4}$) (-0.-3 $_{3,2}$)

Interpretative action

(-1.-2 $_{1,4}$) (-0.-3 $_{3,2}$)
ʎ ≫ (-1.-3 $_{3,4}$) × ʎ ≫ (-1.-3$_{4,3}$)
(-0.-3 $_{2,3}$) (-1.-2$_{4,1}$)

(-1.-1 $_{1,3,4}$) (-0.-3 $_{3,2}$)
ʎ ≫ (-1.-3 $_{3,4}$) × ʎ ≫ (-1.-3$_{4,3}$)
(-0.-3 $_{2,3}$) (-1.-1$_{4,3,1}$)

(-1.-2 $_{1,4}$) (-1.-1$_{4,3,1}$)
ʎ ≫ (-1.-3 $_{3,4}$) × ʎ ≫ (-1.-3$_{4,3}$)
(-1.-1 $_{1,3,4}$) (-1.-2$_{4,1}$)

(-0.-3 $_{2,3}$) (-1.-1$_{4,3,1}$)
ʎ ≫ (-1.-3 $_{3,4}$) × ʎ ≫ (-1.-3$_{4,3}$)
(-1.-1 $_{1,3,4}$) (-0.-3 $_{3,2}$)

(-1.-1 1, 3,4) (-1.-2 4, 1)
ʌ ≫ (-1.-3 3,4) × ʌ ≫ (-1.-3 4, 3)
(-1.-2 1,4) (-1.-1 4, 3, 1)

(-0.-3 2, 3) (-1.-2 4, 1)
ʌ ≫ (-1.-3 3,4) × ʌ ≫ (-1.-3 4, 3)
(-1.-2 1,4) (-0.-3 3, 2)

4. Pre-semiotic dual system
(-1.-3 3,4 -1.-2 1,4 -1.-2 1,4 -0.-2 1, 2) × (-0.-2 2, 1 -1.-2 4, 1 -1.-2 4, 1 -1.-3 4, 3)

Qualitative action

(-1.-2 1,4) (-1.-2 4, 1)
ʌ ≫ (-0.-2 1, 2) × ʌ ≫ (-0.-2 2, 1)
(-1.-2 1,4) (-1.-2 4, 1)

(-1.-3 3,4) (-1.-2 4, 1)
ʌ ≫ (-0.-2 1, 2) × ʌ ≫ (-0.-2 2, 1)
(-1.-2 1,4) (-1.-3 4, 3)

(-1.-2 1,4) (-1.-2 4, 1)
ʌ ≫ (-0.-2 1, 2) × ʌ ≫ (-0.-2 2, 1)
(-1.-2 1,4) (-1.-2 4, 1)

(-1.-3 3,4) (-1.-2 4, 1)
ʌ ≫ (-0.-2 1, 2) × ʌ ≫ (-0.-2 2, 1)
(-1.-2 1,4) (-1.-3 4, 3)

(-1.-2 1,4) (-1.-3 4, 3)
ʌ ≫ (-0.-2 1, 2) × ʌ ≫ (-0.-2 2, 1)
(-1.-3 3,4) (-1.-2 4, 1)

(-1.-2 1,4) (-1.-3 4, 3)
ʌ ≫ (-0.-2 1, 2) × ʌ ≫ (-0.-2 2, 1)
(-1.-3 3,4) (-1.-2 4, 1)

Medial action

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{\,2,1}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{\,2,1}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,2}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}2_{\,2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,2}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}2_{\,2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{\,2,1}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{\,2,1}) \\ \curlywedge \gg (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

Interpretative action

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

$$(-1.-2_{1,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \quad (-1.-2_{4,1})$$

$$(-0.-2_{1,2}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \quad (-0.-2_{2,1})$$

5. Pre-semiotic dual system

$$(-1.-3_{3,4}\ -1.-2_{1,4}\ -1.-2_{1,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-2_{4,1}\ -1.-2_{4,1}\ -1.-3_{4,3})$$

Qualitative action

$$(-1.-2_{1,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-2_{1,4}) \quad (-1.-2_{4,1})$$

$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$

$$(-1.-2_{1,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-2_{1,4}) \quad (-1.-2_{4,1})$$

$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$

$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$

$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}2_{4,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}1.\text{-}2_{4,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}3_{4,\,3}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}1.\text{-}3_{4,\,3}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

Interpretative action

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(-1.-2_{1,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \quad (-1.-2_{4,1})$$

$$(-0.-3_{2,3}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \quad (-0.-3_{3,2})$$

6. Pre-semiotic dual system

$$(-1.-3_{3,4}\ -1.-2_{1,4}\ -1.-3_{3,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-3_{4,3}\ -1.-2_{4,1}\ -1.-3_{4,3})$$

Qualitative action

$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$

$$(-1.-3_{3,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-1.-3_{4,3})$$

$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$

$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$

$$(-1.-3_{3,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-1.-3_{4,3})$$

$$(-1.-2_{1,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-1.-2_{4,1})$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}2_{4,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}1.\text{-}2_{4,\,1}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}3_{4,\,3}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) & & (\text{-}1.\text{-}3_{4,\,3}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ \quad \curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) & \times & \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) & & (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

Interpretative action

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

7. Pre-semiotic dual system

$$(\text{-}1.\text{-}3_{3,4}\ \text{-}2.\text{-}2_{1,2,4}\ \text{-}1.\text{-}2_{1,4}\ \text{-}0.\text{-}2_{1,2}) \times (\text{-}0.\text{-}2_{2,1}\ \text{-}1.\text{-}2_{4,1}\ \text{-}2.\text{-}2_{4,2,1}\ \text{-}1.\text{-}3_{4,3})$$

Qualitative action

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

Medial action

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}2_{\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}0.\text{-}2_{\,1,\,2}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}0.\text{-}2_{\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}0.\text{-}2_{\,1,\,2}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}0.\text{-}2_{\,1,\,2}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}2_{\,2,\,1})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}0.\text{-}2_{\,1,\,2}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}0.\text{-}2_{\,2,\,1})$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

Objectal action

$$(\text{-}1.\text{-}2_{\,1,4}) \qquad\qquad (\text{-}0.\text{-}2_{\,2,\,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}2_{\,1,\,2}) \qquad\qquad (\text{-}1.\text{-}2_{4,\,1})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}0.\text{-}2_{\,2,\,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}2_{\,1,\,2}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

Interpretative action

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

8. Pre-semiotic dual system

$$(\text{-}1.\text{-}3_{3,4}\ \text{-}2.\text{-}2_{1,2,4}\ \text{-}1.\text{-}2_{1,4}\ \text{-}0.\text{-}3_{2,3}) \times (\text{-}0.\text{-}3_{3,2}\ \text{-}1.\text{-}2_{4,1}\ \text{-}2.\text{-}2_{4,2,1}\ \text{-}1.\text{-}3_{4,3})$$

Qualitative action

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

Medial action

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}1.\text{-}3_{4,\,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad (\text{-}1.\text{-}3_{4,\,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

Objectal action

$$(\text{-}1.\text{-}2_{\,1,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}1.\text{-}2_{4,\,1})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}1.\text{-}3_{4,\,3})$$

(-0.-3 $_{2,3}$) (-1.-2$_{4,1}$)
ʌ ≫ (-2.-2 $_{1,2,4}$) × ʌ ≫ (-2.-2$_{4,2,1}$)
(-1.-2 $_{1,4}$) (-0.-3 $_{3,2}$)

(-1.-3 $_{3,4}$) (-1.-2$_{4,1}$)
ʌ ≫ (-2.-2 $_{1,2,4}$) × ʌ ≫ (-2.-2$_{4,2,1}$)
(-1.-2 $_{1,4}$) (-1.-3$_{4,3}$)

(-1.-2 $_{1,4}$) (-1.-3$_{4,3}$)
ʌ ≫ (-2.-2 $_{1,2,4}$) × ʌ ≫ (-2.-2$_{4,2,1}$)
(-1.-3 $_{3,4}$) (-1.-2$_{4,1}$)

(-0.-3 $_{2,3}$) (-1.-3$_{4,3}$)
ʌ ≫ (-2.-2 $_{1,2,4}$) × ʌ ≫ (-2.-2$_{4,2,1}$)
(-1.-3 $_{3,4}$) (-0.-3 $_{3,2}$)

Interpretative action

(-2.-2 $_{1,2,4}$) (-0.-3 $_{3,2}$)
ʌ ≫ (-1.-3 $_{3,4}$) × ʌ ≫ (-1.-3$_{4,3}$)
(-0.-3 $_{2,3}$) (-2.-2$_{4,2,1}$)

(-1.-2 $_{1,4}$) (-0.-3 $_{3,2}$)
ʌ ≫ (-1.-3 $_{3,4}$) × ʌ ≫ (-1.-3$_{4,3}$)
(-0.-3 $_{2,3}$) (-1.-2$_{4,1}$)

(-2.-2 $_{1,2,4}$) (-1.-2$_{4,1}$)
ʌ ≫ (-1.-3 $_{3,4}$) × ʌ ≫ (-1.-3$_{4,3}$)
(-1.-2 $_{1,4}$) (-2.-2$_{4,2,1}$)

(-0.-3 $_{2,3}$) (-1.-2$_{4,1}$)
ʌ ≫ (-1.-3 $_{3,4}$) × ʌ ≫ (-1.-3$_{4,3}$)
(-1.-2 $_{1,4}$) (-0.-3 $_{3,2}$)

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

9. Pre-semiotic dual system

$$(\text{-}1.\text{-}3_{3,4}\ \text{-}2.\text{-}2_{1,2,4}\ \text{-}1.\text{-}3_{4,3}\ \text{-}0.\text{-}3_{2,3}) \times (\text{-}0.\text{-}3_{3,2}\ \text{-}1.\text{-}3_{4,3}\ \text{-}2.\text{-}2_{4,2,1}\ \text{-}1.\text{-}3_{4,3})$$

Qualitative action

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

Medial action

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad\quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad\quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \quad\quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad\quad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad\quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad\quad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \quad\quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad\quad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad\quad (\text{-}1.\text{-}3_{4,\,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \quad\quad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad\quad (\text{-}1.\text{-}3_{4,\,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \quad\quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

Objectal action

$$(\text{-}1.\text{-}3_{\,3,4}) \quad\quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad\quad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \quad\quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad\quad (\text{-}1.\text{-}3_{4,\,3})$$

$(-0.-3_{2,3})$ $(-1.-3_{4,3})$
人 ≫ $(-2.-2_{1,2,4})$ × 人 ≫ $(-2.-2_{4,2,1})$
$(-1.-3_{3,4})$ $(-0.-3_{3,2})$

$(-1.-3_{3,4})$ $(-1.-3_{4,3})$
人 ≫ $(-2.-2_{1,2,4})$ × 人 ≫ $(-2.-2_{4,2,1})$
$(-1.-3_{3,4})$ $(-1.-3_{4,3})$

$(-1.-3_{3,4})$ $(-1.-3_{4,3})$
人 ≫ $(-2.-2_{1,2,4})$ × 人 ≫ $(-2.-2_{4,2,1})$
$(-1.-3_{3,4})$ $(-1.-3_{4,3})$

$(-0.-3_{2,3})$ $(-1.-3_{4,3})$
人 ≫ $(-2.-2_{1,2,4})$ × 人 ≫ $(-2.-2_{4,2,1})$
$(-1.-3_{3,4})$ $(-0.-3_{3,2})$

Interpretative action

$(-2.-2_{1,2,4})$ $(-0.-3_{3,2})$
人 ≫ $(-1.-3_{3,4})$ × 人 ≫ $(-1.-3_{4,3})$
$(-0.-3_{2,3})$ $(-2.-2_{4,2,1})$

$(-1.-3_{3,4})$ $(-0.-3_{3,2})$
人 ≫ $(-1.-3_{3,4})$ × 人 ≫ $(-1.-3_{4,3})$
$(-0.-3_{2,3})$ $(-1.-3_{4,3})$

$(-2.-2_{1,2,4})$ $(-1.-3_{4,3})$
人 ≫ $(-1.-3_{3,4})$ × 人 ≫ $(-1.-3_{4,3})$
$(-1.-3_{3,4})$ $(-2.-2_{4,2,1})$

$(-0.-3_{2,3})$ $(-1.-3_{4,3})$
人 ≫ $(-1.-3_{3,4})$ × 人 ≫ $(-1.-3_{4,3})$
$(-1.-3_{3,4})$ $(-0.-3_{3,2})$

$$(-1.-3_{3,4}) \quad (-2.-2_{1,2,4})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-2.-2_{4,2,1}) \quad (-0.-3_{2,3})$$

$$(-0.-3_{2,3}) \quad (-2.-2_{4,2,1})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-2.-2_{1,2,4}) \quad (-0.-3_{3,2})$$

10. Pre-semiotic dual system

$$(-1.-3_{3,4}\ -2.-3_{2,4}\ -1.-3_{3,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-3_{4,3}\ -2.-3_{4,2}\ -1.-3_{4,3})$$

Qualitative action

$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$

$$(-1.-3_{3,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-1.-3_{4,3})$$

$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$

$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$

$$(-1.-3_{3,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-1.-3_{4,3})$$

$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$

Medial action

$$(-2.-3_{2,4}) \quad (-0.-3_{3,2})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-0.-3_{2,3}) \quad (-2.-3_{4,2})$$

$$(-1.-3_{3,4}) \quad (-0.-3_{3,2})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-0.-3_{2,3}) \quad (-1.-3_{4,3})$$

$$(-0.-3_{2,3}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-2.-3_{2,4}) \quad (-0.-3_{3,2})$$

$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$

$$(-0.-3_{2,3}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-1.-3_{3,4}) \quad (-0.-3_{3,2})$$

$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-1.-3_{3,4}) \times \curlywedge \gg (-1.-3_{4,3})$$
$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$

Objectal action

$$(-1.-3_{3,4}) \quad (-0.-3_{3,2})$$
$$\curlywedge \gg (-2.-3_{2,4}) \times \curlywedge \gg (-2.-3_{4,2})$$
$$(-0.-3_{2,3}) \quad (-1.-3_{4,3})$$

$$(-1.-3_{3,4}) \quad (-0.-3_{3,2})$$
$$\curlywedge \gg (-2.-3_{2,4}) \times \curlywedge \gg (-2.-3_{4,2})$$
$$(-0.-3_{2,3}) \quad (-1.-3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

Interpretative action

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{3,4}) \times \curlywedge \gg (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

11. Pre-semiotic dual system

$$(\text{-}2.\text{-}3_{2,4}\ \text{-}2.\text{-}2_{1,2,4}\ \text{-}1.\text{-}2_{1,4}\ \text{-}0.\text{-}2_{1,2}) \times (\text{-}0.\text{-}2_{2,1}\ \text{-}1.\text{-}2_{4,1}\ \text{-}2.\text{-}2_{4,2,1}\ \text{-}2.\text{-}3_{4,2})$$

Qualitative action

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}0.\text{-}2_{1,2}) \times \curlywedge \gg (\text{-}0.\text{-}2_{2,1})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

Medial action

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{1,4}) \times \curlywedge \gg (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

Objectal action

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{1,4})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{1,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,2,1})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

Interpretative action

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}2_{1,2}) \quad (\text{-}2.\text{-}2_{1,2,4})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}0.\text{-}2_{2,1})$$

12. Pre-semiotic dual system

$$(\text{-}2.\text{-}3_{2,4}\ \text{-}2.\text{-}2_{1,2,4}\ \text{-}1.\text{-}2_{1,4}\ \text{-}0.\text{-}3_{2,3}) \times (\text{-}0.\text{-}3_{3,2}\ \text{-}1.\text{-}2_{4,1}\ \text{-}2.\text{-}2_{4,2,1}\ \text{-}2.\text{-}3_{4,2})$$

Qualitative action

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}2.\text{-}2_{1,2,})$$

$$(\text{-}1.\text{-}2_{1,4}) \quad (\text{-}2.\text{-}3_{4,2}$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}2_{1,2,4}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}0.\text{-}3_{2,3}) \times \curlywedge \gg (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}2.\text{-}2_{4,2,1})$$

Medial action

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}2_{\,1,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}2_{4,\,1})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

Objectal action

$$(\text{-}1.\text{-}2_{\,1,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}1.\text{-}2_{4,\,1})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}1.\text{-}2_{4,\,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}1.\text{-}2_{\,1,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \quad (\text{-}1.\text{-}2_{4,\,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}1.\text{-}2_{\,1,4}) \quad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}1.\text{-}2_{\,1,4}) \quad (\text{-}2.\text{-}3_{4,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \quad (\text{-}1.\text{-}2_{4,\,1})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}2.\text{-}3_{4,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$

Interpretative action

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{\,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}1.\text{-}2_{\,1,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{\,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}1.\text{-}2_{4,\,1})$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \quad (\text{-}1.\text{-}2_{4,\,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{\,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}1.\text{-}2_{\,1,4}) \quad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \quad (\text{-}1.\text{-}2_{4,\,1})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{\,2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}1.\text{-}2_{\,1,4}) \quad (\text{-}0.\text{-}3_{\,3,\,2})$$

(-1.-2 1,4) (-2.-2 4, 2, 1)
  ʌ ≫ (-2.-3 2,4) × ʌ ≫ (-2.-3 4, 2)
(-2.-2 1, 2,4) (-1.-2 4, 1)

(-0.-3 2, 3) (-2.-2 4, 2, 1)
  ʌ ≫ (-2.-3 2,4) × ʌ ≫ (-2.-3 4, 2)
(-2.-2 1, 2,4) (-0.-3 3, 2)

13. Pre-semiotic dual system

(-2.-3 2,4 -2.-2 1, 2,4 -1.-3 3,4 -0.-3 2, 3) × (-0.-3 3, 2 -1.-3 4, 3 -2.-2 4, 2, 1 -2.-3 4, 2)

Qualitative action

(-2.-2 1, 2,4) (-1.-3 4, 3)
  ʌ ≫ (-0.-3 2, 3) × ʌ ≫ (-0.-3 3, 2)
(-1.-3 3,4) (-2.-2 4, 2, 1)

(-2.-3 2,4) (-1.-3 4, 3)
  ʌ ≫ (-0.-3 2, 3) × ʌ ≫ (-0.-3 3, 2)
(-1.-3 3,4) (-2.-3 4, 2)

(-1.-3 3,4) (-2.-2 4, 2, 1)
  ʌ ≫ (-0.-3 2, 3) × ʌ ≫ (-0.-3 3, 2)
(-2.-2 1, 2,4) (-1.-3 4, 3)

(-2.-3 2,4) (-2.-2 4, 2, 1)
  ʌ ≫ (-0.-3 2, 3) × ʌ ≫ (-0.-3 3, 2)
(-2.-2 1, 2,4) (-2.-3 4, 2)

(-1.-3 3,4) (-2.-3 4, 2)
  ʌ ≫ (-0.-3 2, 3) × ʌ ≫ (-0.-3 3, 2)
(-2.-3 2,4) (-1.-3 4, 3)

(-2.-2 1, 2,4) (-2.-3 4, 2)
  ʌ ≫ (-0.-3 2, 3) × ʌ ≫ (-0.-3 3, 2)
(-2.-3 2,4) (-2.-2 4, 2, 1)

Medial action

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$
$$\curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

Objectal action

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad \curlywedge \gg (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

(-0.-3 $_{2,3}$) (-1.-3$_{4,3}$)
ʌ ≫ (-2.-2 $_{1,2,4}$) × ʌ ≫ (-2.-2$_{4,2,1}$)
(-1.-3 $_{3,4}$) (-0.-3 $_{3,2}$)

(-2.-3 $_{2,4}$) (-1.-3$_{4,3}$)
ʌ ≫ (-2.-2 $_{1,2,4}$) × ʌ ≫ (-2.-2$_{4,2,1}$)
(-1.-3 $_{3,4}$) (-2.-3$_{4,2}$)

(-1.-3 $_{3,4}$) (-2.-3$_{4,2}$)
ʌ ≫ (-2.-2 $_{1,2,4}$) × ʌ ≫ (-2.-2$_{4,2,1}$)
(-2.-3 $_{2,4}$) (-1.-3$_{4,3}$)

(-0.-3 $_{2,3}$) (-2.-3$_{4,2}$)
ʌ ≫ (-2.-2 $_{1,2,4}$) × ʌ ≫ (-2.-2$_{4,2,1}$)
(-2.-3 $_{2,4}$) (-0.-3 $_{3,2}$)

Interpretative action

(-2.-2 $_{1,2,4}$) (-0.-3 $_{3,2}$)
ʌ ≫ (-2.-3 $_{2,4}$) × ʌ ≫ (-2.-3$_{4,2}$)
(-0.-3 $_{2,3}$) (-2.-2$_{4,2,1}$)

(-1.-3 $_{3,4}$) (-0.-3 $_{3,2}$)
ʌ ≫ (-2.-3 $_{2,4}$) × ʌ ≫ (-2.-3$_{4,2}$)
(-0.-3 $_{2,3}$) (-1.-3$_{4,3}$)

(-2.-2 $_{1,2,4}$) (-1.-3$_{4,3}$)
ʌ ≫ (-2.-3 $_{2,4}$) × ʌ ≫ (-2.-3$_{4,2}$)
(-1.-3 $_{3,4}$) (-2.-2$_{4,2,1}$)

(-0.-3 $_{2,3}$) (-1.-3$_{4,3}$)
ʌ ≫ (-2.-3 $_{2,4}$) × ʌ ≫ (-2.-3$_{4,2}$)
(-1.-3 $_{3,4}$) (-0.-3 $_{3,2}$)

$(-1.-3_{3,4})$ $(-2.-2_{4,2,1})$
$\curlywedge \gg (-2.-3_{2,4})$ $\times$ $\curlywedge \gg (-2.-3_{4,2})$
$(-2.-2_{1,2,4})$ $(-1.-3_{4,3})$

$(-0.-3_{2,3})$ $(-2.-2_{4,2,1})$
$\curlywedge \gg (-2.-3_{2,4})$ $\times$ $\curlywedge \gg (-2.-3_{4,2})$
$(-2.-2_{1,2,4})$ $(-0.-3_{3,2})$

14. Pre-semiotic dual system

$(-2.-3_{2,4}\ -2.-3_{2,4}\ -1.-3_{3,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-3_{4,3}\ -2.-3_{4,2}\ -2.-3_{4,2})$

Qualitative action

$(-2.-3_{2,4})$ $(-1.-3_{4,3})$
$\curlywedge \gg (-0.-3_{2,3})$ $\times$ $\curlywedge \gg (-0.-3_{3,2})$
$(-1.-3_{3,4})$ $(-2.-3_{4,2})$

$(-2.-3_{2,4})$ $(-1.-3_{4,3})$
$\curlywedge \gg (-0.-3_{2,3})$ $\times$ $\curlywedge \gg (-0.-3_{3,2})$
$(-1.-3_{3,4})$ $(-2.-3_{4,2})$

$(-1.-3_{3,4})$ $(-2.-3_{4,2})$
$\curlywedge \gg (-0.-3_{2,3})$ $\times$ $\curlywedge \gg (-0.-3_{3,2})$
$(-2.-3_{2,4})$ $(-1.-3_{4,3})$

$(-2.-3_{2,4})$ $(-2.-3_{4,2})$
$\curlywedge \gg (-0.-3_{2,3})$ $\times$ $\curlywedge \gg (-0.-3_{3,2})$
$(-2.-3_{2,4})$ $(-2.-3_{4,2})$

$(-1.-3_{3,4})$ $(-2.-3_{4,2})$
$\curlywedge \gg (-0.-3_{2,3})$ $\times$ $\curlywedge \gg (-0.-3_{3,2})$
$(-2.-3_{2,4})$ $(-1.-3_{4,3})$

$(-2.-3_{2,4})$ $(-2.-3_{4,2})$
$\curlywedge \gg (-0.-3_{2,3})$ $\times$ $\curlywedge \gg (-0.-3_{3,2})$
$(-2.-3_{2,4})$ $(-2.-3_{4,2})$

Medial action

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ \curlywedge \gg (\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ \curlywedge \gg (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ \curlywedge \gg (\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ \curlywedge \gg (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}2.\text{-}3_{4,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

Interpretative action

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-2.-3_{2,4}) \times \curlywedge \gg (-2.-3_{4,2})$$
$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$

$$(-0.-3_{2,3}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-2.-3_{2,4}) \times \curlywedge \gg (-2.-3_{4,2})$$
$$(-2.-3_{2,4}) \quad (-0.-3_{3,2})$$

15. Pre-semiotic dual system

$$(-3.-3_{2,3,4} -2.-3_{2,4} -1.-3_{3,4} -0.-3_{2,3}) \times (-0.-3_{3,2} -1.-3_{4,3} -2.-3_{4,2} -3.-3_{4,3,2})$$

Qualitative action

$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$

$$(-3.-3_{2,3,4}) \quad (-1.-3_{4,3})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-1.-3_{3,4}) \quad (-3.-3_{4,3,2})$$

$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$

$$(-2.-3_{2,4}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-2.-3_{2,4}) \quad (-2.-3_{4,2})$$

$$(-1.-3_{3,4}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-2.-3_{2,4}) \quad (-1.-3_{4,3})$$

$$(-2.-3_{2,4}) \quad (-2.-3_{4,2})$$
$$\curlywedge \gg (-0.-3_{2,3}) \times \curlywedge \gg (-0.-3_{3,2})$$
$$(-2.-3_{2,4}) \quad (-2.-3_{4,2})$$

Medial action

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}3_{4,2})\end{matrix}$$

$$\begin{matrix}(\text{-}3.\text{-}3_{\,2,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}3.\text{-}3_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,3}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{\,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}3.\text{-}3_{\,2,3,4}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}3.\text{-}3_{4,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,3}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}3.\text{-}3_{\,2,3,4})\end{matrix} \times \begin{matrix}(\text{-}3.\text{-}3_{4,3,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{\,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}3.\text{-}3_{\,2,3,4})\end{matrix} \times \begin{matrix}(\text{-}3.\text{-}3_{4,3,2}) \\ \curlywedge \gg (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}3_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ \curlywedge \gg (\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ \curlywedge \gg (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}3.\text{-}3_{\,2,3,4}) \\ \curlywedge \gg (\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ \curlywedge \gg (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}3.\text{-}3_{4,3,2})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}3.\text{-}3_{2,3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}3.\text{-}3_{4,3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}3.\text{-}3_{4,3,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}3.\text{-}3_{2,3,4}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}3.\text{-}3_{4,3,2})$$
$$\curlywedge \gg (\text{-}2.\text{-}3_{2,4}) \times \curlywedge \gg (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}3.\text{-}3_{2,3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

Interpretative action

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}3.\text{-}3_{2,3,4}) \times \curlywedge \gg (\text{-}3.\text{-}3_{4,3,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$
$$\curlywedge \gg (\text{-}3.\text{-}3_{2,3,4}) \times \curlywedge \gg (\text{-}3.\text{-}3_{4,3,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}3.\text{-}3_{2,3,4}) \times \curlywedge \gg (\text{-}3.\text{-}3_{4,3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad (\text{-}1.\text{-}3_{4,3})$$
$$\curlywedge \gg (\text{-}3.\text{-}3_{2,3,4}) \times \curlywedge \gg (\text{-}3.\text{-}3_{4,3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad (\text{-}0.\text{-}3_{3,2})$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ \curlywedge \gg (\text{-}3.\text{-}3_{2,3,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ \curlywedge \gg (\text{-}3.\text{-}3_{4,3,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ \curlywedge \gg (\text{-}3.\text{-}3_{2,3,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ \curlywedge \gg (\text{-}3.\text{-}3_{4,3,2}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

II. Action schemata of the 2 · 24 tetradic semiotic partial relations

1. Pre-semiotic dual system

(-1.-3 -1.-2 -1.-1 -0.-1) × (-0.-1 -1.-1 -1.-2 -1.-3)

Qualitative action

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}1_{1,3,4}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{1,3}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}1_{3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}1_{1,4,3}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{1,3}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}1_{3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{1,3}) \\ (\text{-}1.\text{-}1_{1,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}0.\text{-}1_{3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}1_{1,3,4}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{1,3}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}1_{3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}1_{1,3,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{1,3}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}1_{3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{\,1,3}) \\ (\text{-}1.\text{-}1_{\,1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}0.\text{-}1_{\,3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}1_{\,1,3}) \gg \curlyvee \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{\,3,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}1_{\,1,3}) \gg \curlyvee \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{\,3,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}1_{\,1,3}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}1_{\,3,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}0.\text{-}1_{\,1,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}1_{\,3,1}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}1_{\,1,3}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}1_{\,3,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}0.\text{-}1_{\,1,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}1_{\,3,1}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}1_{\,1,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}1_{\,1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}0.\text{-}1_{\,3,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}0.\text{-}1_{1,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\ (\text{-}1.\text{-}2_{1,4})\\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\ (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}0.\text{-}1_{3,1})\\ (\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}1_{1,3})\\ (\text{-}1.\text{-}2_{1,4})\\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\ (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{4,3,1})\\ (\text{-}0.\text{-}1_{3,1})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\ (\text{-}1.\text{-}2_{1,4})\\ (\text{-}0.\text{-}1_{1,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}1_{3,1})\\ (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{4,3,1})\\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}1_{1,3})\\ (\text{-}1.\text{-}2_{1,4})\\ (\text{-}1.\text{-}1_{1,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}1_{4,3,1})\\ (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})\\ (\text{-}0.\text{-}1_{3,1})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\ (\text{-}1.\text{-}2_{1,4})\\ (\text{-}0.\text{-}1_{1,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}1_{3,1})\\ (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})\\ (\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

Interpretative action

$$(\text{-}0.\text{-}1_{1,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\ (\text{-}1.\text{-}3_{3,4})\\ (\text{-}1.\text{-}1_{1,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}1_{4,3,1})\\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}0.\text{-}1_{3,1})\\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}0.\text{-}1_{1,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\ (\text{-}1.\text{-}3_{3,4})\\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}0.\text{-}1_{3,1})\\ (\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}1_{1,3})\\ (\text{-}1.\text{-}3_{3,4})\\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{4,3,1})\\ (\text{-}0.\text{-}1_{3,1})\end{matrix}$$

$$(-1.-1_{1,3,4}) \gg \succ \begin{matrix}(-1.-2_{1,4})\\(-1.-3_{3,4})\\(-0.-1_{1,3})\end{matrix} \times (-1.-3_{4,3}) \gg \succ \begin{matrix}(-0.-1_{3,1})\\(-1.-1_{4,3,1})\\(-1.-2_{4,1})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \succ \begin{matrix}(-0.-1_{1,3})\\(-1.-3_{3,4})\\(-1.-1_{1,3,4})\end{matrix} \times (-1.-3_{4,3}) \succ \begin{matrix}(-1.-1_{4,3,1})\\(-0.-1_{3,1})\\(-1.-2_{4,1})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \succ \begin{matrix}(-1.-1_{1,3,4})\\(-1.-3_{3,4})\\(-0.-1_{1,3})\end{matrix} \times (-1.-3_{4,3}) \gg \succ \begin{matrix}(-0.-1_{3,1})\\(-1.-2_{4,1})\\(-1.-1_{4,3,1})\end{matrix}$$

2. Pre-semiotic dual system

$(-1.-3_{3,4}\ -1.-2_{1,4}\ -1.-1_{1,3,4}\ -0.-2_{1,2}) \times (-0.-2_{2,1}\ -1.-1_{4,3,1}\ -1.-2_{1,4}\ -1.-3_{4,3})$

Qualitative action

$$(-1.-1_{1,3,4}) \gg \succ \begin{matrix}(-1.-3_{3,4})\\(-0.-2_{1,2})\\(-1.-2_{1,4})\end{matrix} \times (-0.-2_{2,1}) \gg \succ \begin{matrix}(-1.-2_{4,1})\\(-1.-1_{4,3,1})\\(-1.-3_{4,3})\end{matrix}$$

$$(-1.-1_{1,3,4}) \gg \succ \begin{matrix}(-1.-2_{1,4})\\(-0.-2_{1,2})\\(-1.-3_{3,4})\end{matrix} \times (-0.-2_{2,1}) \gg \succ \begin{matrix}(-1.-3_{4,3})\\(-1.-1_{4,3,1})\\(-1.-2_{4,1})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \succ \begin{matrix}(-1.-3_{3,4})\\(-0.-2_{1,2})\\(-1.-1_{1,3,4})\end{matrix} \times (-0.-2_{2,1}) \gg \succ \begin{matrix}(-1.-1_{4,3,1})\\(-1.-2_{4,1})\\(-1.-3_{4,3})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \succ \begin{matrix}(-1.-1_{1,3,4})\\(-0.-2_{1,2})\\(-1.-3_{3,4})\end{matrix} \times (-0.-2_{2,1}) \gg \succ \begin{matrix}(-1.-3_{4,3})\\(-1.-1_{4,3,1})\\(-1.-2_{4,1})\end{matrix}$$

$$(-1.-3_{3,4}) \gg \succ \begin{matrix}(-1.-1_{1,3,4})\\(-0.-2_{1,2})\\(-1.-2_{1,4})\end{matrix} \times (-0.-2_{2,1}) \gg \succ \begin{matrix}(-1.-2_{4,1})\\(-1.-3_{4,3})\\(-1.-1_{4,3,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}1.\text{-}1_{\,1,\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}1_{4,\,3,\,1}) \\ (\text{-}0.\text{-}2_{\,2,\,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}1_{4,\,3,\,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,\,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}1_{4,\,3,\,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,\,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}1_{4,\,3,\,1}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}2_{\,2,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,\,3,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}1_{4,\,3,\,1}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}1_{4,\,3,\,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}2_{\,2,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,\,3,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}1_{4,\,3,\,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}1_{\,1,\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}1_{4,\,3,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}2_{1,2})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}0.\text{-}2_{1,2})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}2_{1,2})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}1_{1,3,4})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}1.\text{-}3_{4,3})\\(\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}0.\text{-}2_{1,2})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

Interpretative action

$$(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}1_{1,3,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}2_{1,2})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$(-1.-2_{1,4}) \qquad\qquad (-0.-2_{2,1})$$
$$(-1.-1_{1,3,4}) \gg \Upsilon \succ (-1.-3_{3,4}) \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ (-1.-1_{4,3,1})$$
$$(-0.-2_{1,2}) \qquad\qquad (-1.-2_{4,1})$$

$$(-0.-2_{1,2}) \qquad\qquad (-1.-1_{4,3,1})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-1.-3_{3,4}) \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-1.-1_{1,3,4}) \qquad\qquad (-0.-2_{2,1})$$

$$(-1.-1_{1,3,4}) \qquad\qquad (-0.-2_{2,1})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-1.-3_{3,4}) \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-0.-2_{1,2}) \qquad\qquad (-1.-1_{4,3,1})$$

3. Pre-semiotic dual system

$(-1.-3_{3,4}\ -1.-2_{1,4}\ -1.-1_{1,3,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-1_{4,3,1}\ -1.-2_{4,1}\ -1.-3_{4,3})$

Qualitative action

$$(-1.-3_{3,4}) \qquad\qquad (-1.-2_{4,1})$$
$$(-1.-1_{1,3,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-1_{4,3,1})$$
$$(-1.-2_{1,4}) \qquad\qquad (-1.-3_{4,3})$$

$$(-1.-2_{1,4}) \qquad\qquad (-1.-3_{4,3})$$
$$(-1.-1_{1,3,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-1_{4,3,1})$$
$$(-1.-3_{3,4}) \qquad\qquad (-1.-2_{4,1})$$

$$(-1.-3_{3,4}) \qquad\qquad (-1.-1_{4,3,1})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-1.-1_{1,3,4}) \qquad\qquad (-1.-3_{4,3})$$

$$(-1.-1_{1,3,4}) \qquad\qquad (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-1.-3_{3,4}) \qquad\qquad (-1.-1_{4,3,1})$$

$$(-1.-1_{1,3,4}) \qquad\qquad (-1.-2_{4,1})$$
$$(-1.-3_{3,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \qquad\qquad (-1.-1_{4,3,1})$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,2,3}) \\ (\text{-}1.\text{-}1_{\,1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}0.\text{-}3_{\,3,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}3_{\,2,3}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,3}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}3_{\,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,3}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{\,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}1_{\,1,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}1_{4,3,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}1_{\,1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}1_{4,3,1}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}0.\text{-}3_{2,3})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}1_{1,3,4})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}1.\text{-}3_{4,3})\\(\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\(\text{-}1.\text{-}2_{1,4})\\(\text{-}0.\text{-}3_{2,3})\end{matrix} \times (\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

Interpretative action

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}1_{1,3,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{4,3,1})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}1_{1,3,4})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$(\text{-}1.\text{-}1_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}1_{4,3,1})\end{matrix}$$

$$\begin{array}{llll} & (-1.-2_{1,4}) & & (-0.-3_{3,2}) \\ (-1.-1_{1,3,4}) & \gg \curlyvee \succ (-1.-3_{3,4}) & \times \quad (-1.-3_{4,3}) & \gg \curlyvee \succ (-1.-1_{4,3,1}) \\ & (-0.-3_{2,3}) & & (-1.-2_{4,1}) \end{array}$$

$$\begin{array}{llll} & (-0.-3_{2,3}) & & (-1.-1_{4,3,1}) \\ (-1.-2_{1,4}) & \gg \curlyvee \succ (-1.-3_{3,4}) & \times \quad (-1.-3_{4,3}) & \gg \curlyvee \succ (-1.-2_{4,1}) \\ & (-1.-1_{1,3,4}) & & (-0.-3_{3,2}) \end{array}$$

$$\begin{array}{llll} & (-1.-1_{1,3,4}) & & (-0.-3_{3,2}) \\ (-1.-2_{1,4}) & \gg \curlyvee \succ (-1.-3_{3,4}) & \times \quad (-1.-3_{4,3}) & \gg \curlyvee \succ (-1.-2_{4,1}) \\ & (-0.-3_{2,3}) & & (-1.-1_{4,3,1}) \end{array}$$

4. Pre-semiotic system

$(-1.-3_{3,4}\ -1.-2_{1,4}\ -1.-2_{1,4}\ -0.-2_{1,2}) \times (-0.-2_{2,1}\ -1.-2_{4,1}\ -1.-2_{4,1}\ -1.-3_{4,3})$

Qualitative action

$$\begin{array}{llll} & (-1.-3_{3,4}) & & (-1.-2_{4,1}) \\ (-1.-2_{1,4}) & \gg \curlyvee \succ (-0.-2_{1,2}) & \times \quad (-0.-2_{2,1}) & \gg \curlyvee \succ (-1.-2_{4,1}) \\ & (-1.-2_{1,4}) & & (-1.-3_{4,3}) \end{array}$$

$$\begin{array}{llll} & (-1.-2_{1,4}) & & (-1.-3_{4,3}) \\ (-1.-2_{1,4}) & \gg \curlyvee \succ (-0.-2_{1,2}) & \times \quad (-0.-2_{2,1}) & \gg \curlyvee \succ (-1.-2_{4,1}) \\ & (-1.-3_{3,4}) & & (-1.-2_{4,1}) \end{array}$$

$$\begin{array}{llll} & (-1.-3_{3,4}) & & (-1.-2_{4,1}) \\ (-1.-2_{1,4}) & \gg \curlyvee \succ (-0.-2_{1,2}) & \times \quad (-0.-2_{2,1}) & \gg \curlyvee \succ (-1.-2_{4,1}) \\ & (-1.-2_{1,4}) & & (-1.-3_{4,3}) \end{array}$$

$$\begin{array}{llll} & (-1.-2_{1,4}) & & (-1.-3_{3,4}) \\ (-1.-2_{1,4}) & \gg \curlyvee \succ (-0.-2_{1,2}) & \times \quad (-0.-2_{2,1}) & \gg \curlyvee \succ (-1.-2_{4,1}) \\ & (-1.-3_{3,4}) & & (-1.-2_{4,1}) \end{array}$$

$$\begin{array}{llll} & (-1.-2_{1,4}) & & (-1.-2_{4,1}) \\ (-1.-3_{3,4}) & \gg \curlyvee \succ (-0.-2_{1,2}) & \times \quad (-0.-2_{2,1}) & \gg \curlyvee \succ (-1.-3_{4,3}) \\ & (-1.-2_{1,4}) & & (-1.-2_{4,1}) \end{array}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}2_{\,2,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}2_{\,2,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}2_{\,2,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}2_{1,2}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}0.\text{-}2_{2,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{1,2}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}2_{1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{2,1}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{1,2}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}2_{1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{2,1}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}2_{1,2}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}0.\text{-}2_{2,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}2_{1,2}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}0.\text{-}2_{2,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{1,2}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \Upsilon \succ (-1.-3_{3,4}) \times (-1.-3_{4,3}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-0.-2_{1,2}) \qquad\qquad (-1.-2_{4,1})$$

$$(-0.-2_{1,2}) \qquad\qquad (-1.-2_{4,1})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-1.-3_{3,4}) \times (-1.-3_{4,3}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-1.-2_{1,4}) \qquad\qquad (-0.-2_{2,1})$$

$$(-1.-2_{1,4}) \qquad\qquad (-0.-2_{2,1})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-1.-3_{3,4}) \times (-1.-3_{4,3}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-0.-2_{1,2}) \qquad\qquad (-1.-2_{4,1})$$

5. Pre-semiotic dual system

$(-1.-3_{3,4}\ -1.-2_{1,4}\ -1.-2_{1,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-2_{4,1}\ -1.-2_{4,1}\ -1.-3_{3,4})$

Qualitative action

$$(-1.-2_{1,4}) \gg \Upsilon \succ (-1.-3_{3,4}) \times (-1.-2_{4,1}) \gg \Upsilon \succ (-0.-3_{3,2})$$
$$(-1.-2_{1,4}) \qquad\qquad (-1.-3_{4,3})$$

$$(-1.-2_{1,4}) \qquad\qquad (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \times (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-1.-3_{3,4}) \qquad\qquad (-1.-2_{4,1})$$

$$(-1.-3_{3,4}) \qquad\qquad (-1.-2_{4,1})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \times (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-1.-2_{1,4}) \qquad\qquad (-1.-3_{3,4})$$

$$(-1.-2_{1,4}) \qquad\qquad (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \times (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-2_{4,1})$$
$$(-1.-3_{3,4}) \qquad\qquad (-1.-2_{4,1})$$

$$(-1.-2_{1,4}) \qquad\qquad (-1.-2_{4,1})$$
$$(-1.-3_{3,4}) \gg \Upsilon \succ (-0.-3_{2,3}) \times (-0.-3_{3,2}) \gg \Upsilon \succ (-1.-3_{4,3})$$
$$(-1.-2_{1,4}) \qquad\qquad (-1.-2_{4,1})$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{\,2,3}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,3,2}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}3_{\,2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,3}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}3_{4})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,3}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}3_{\,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \ \curlyvee \ \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}2_{4,\,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

6. Pre-semiotic dual system

$(\text{-}1.\text{-}3_{3,4}\ \text{-}1.\text{-}2_{1,4}\ \text{-}1.\text{-}3_{3,4}\ \text{-}0.\text{-}3_{2,3}) \times (\text{-}0.\text{-}3_{3,2}\ \text{-}1.\text{-}3_{4,3}\ \text{-}1.\text{-}2_{4,1}\ \text{-}1.\text{-}3_{4,3})$

Qualitative action

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}1.\text{-}2_{1,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{2,3}) \quad \times \quad (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \qquad\qquad (\text{-}1.\text{-}2_{4,1})$$

Medial action

$$(\text{-}1.\text{-}3_{3,4}) \qquad\qquad (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}2_{1,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \qquad\qquad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}0.\text{-}3_{2,3}) \qquad\qquad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \qquad\qquad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \qquad\qquad (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}0.\text{-}3_{2,3}) \qquad\qquad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \qquad\qquad (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \qquad\qquad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}2_{1,4}) \qquad\qquad (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \qquad\qquad (\text{-}1.\text{-}2_{4,1})$$

Objectal action

$$(\text{-}1.\text{-}3_{3,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{1,4}) \quad \times \quad (\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \quad \times \quad (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \quad \times \quad (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \quad \times \quad (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \quad \times \quad (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{1,4}) \quad \times \quad (\text{-}1.\text{-}2_{4,1}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}3_{3,4})$$

Interpretative action

$$(\text{-}1.\text{-}2_{1,4}) \quad\quad (\text{-}1.\text{-}3_{3,4})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad\quad (\text{-}1.\text{-}3_{3,4})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}2_{4,1})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{3,4}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}2_{1,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,3}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}3_{\,3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{\,3,2}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

7. Pre-semiotic dual system

$(\text{-}1.\text{-}3_{\,3,4}\ \text{-}2.\text{-}2_{\,1,2,4}\ \text{-}1.\text{-}2_{\,1,4}\ \text{-}0.\text{-}2_{\,1,2}) \times (\text{-}0.\text{-}2_{\,2,1}\ \text{-}1.\text{-}2_{4,1}\ \text{-}2.\text{-}2_{4,2,1}\ \text{-}1.\text{-}3_{4,3})$

Qualitative action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,1,2}) \\ (\text{-}2.\text{-}2_{\,1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}0.\text{-}2_{\,2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{\,1,2,4}) \\ (\text{-}1.\text{-}2_{\,1,4}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,1,2}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}2_{\,2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1}) \\ (\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}2_{\,1,2,4}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,1,2}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}0.\text{-}2_{\,2,1}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}2_{\,1,2,4}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,1,2}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}2_{\,2,1}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,1,2}) \\ (\text{-}2.\text{-}2_{\,1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}0.\text{-}2_{\,2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}0.\text{-}2_{1,2})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}2_{2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})\\(\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4})\\(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{1,4})\\(\text{-}2.\text{-}2_{1,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{2,1})\\(\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{1,2})\\(\text{-}2.\text{-}2_{1,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,2,1})\\(\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4})\\(\text{-}2.\text{-}2_{1,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{1,4})\\(\text{-}0.\text{-}2_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{1,2})\\(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{1,4})\\(\text{-}2.\text{-}2_{1,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})\\(\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{1,4})\\(\text{-}0.\text{-}2_{1,2})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}2_{4,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})\\(\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4})\\(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{1,2,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-1.-2}_{1,4}) \\ (\text{-0.-2}_{1,2}) \gg \Upsilon \succ (\text{-2.-2}_{1,2,4}) \\ (\text{-1.-3}_{3,4})\end{matrix} \times \begin{matrix}(\text{-1.-3}_{4,3}) \\ (\text{-2.-2}_{4,2,1}) \gg \Upsilon \succ (\text{-0.-2}_{2,1}) \\ (\text{-1.-2}_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-0.-2}_{1,2}) \\ (\text{-1.-2}_{1,4}) \gg \Upsilon \succ (\text{-2.-2}_{1,2,4}) \\ (\text{-1.-3}_{3,4})\end{matrix} \times \begin{matrix}(\text{-1.-3}_{4,3}) \\ (\text{-2.-2}_{4,2,1}) \gg \Upsilon \succ (\text{-1.-2}_{4,1}) \\ (\text{-0.-2}_{2,1})\end{matrix}$$

$$\begin{matrix}(\text{-1.-3}_{3,4}) \\ (\text{-1.-2}_{1,4}) \gg \Upsilon \succ (\text{-2.-2}_{1,2,4}) \\ (\text{-0.-2}_{1,2})\end{matrix} \times \begin{matrix}(\text{-0.-2}_{2,1}) \\ (\text{-2.-2}_{4,2,1}) \gg \Upsilon \succ (\text{-1.-2}_{4,1}) \\ (\text{-1.-3}_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-0.-2}_{1,2}) \\ (\text{-1.-3}_{3,4}) \gg \Upsilon \succ (\text{-2.-2}_{1,2,4}) \\ (\text{-1.-2}_{1,4})\end{matrix} \times \begin{matrix}(\text{-1.-2}_{4,1}) \\ (\text{-2.-2}_{4,2,1}) \gg \Upsilon \succ (\text{-1.-3}_{4,3}) \\ (\text{-0.-2}_{2,1})\end{matrix}$$

$$\begin{matrix}(\text{-1.-2}_{1,4}) \\ (\text{-1.-3}_{3,4}) \gg \Upsilon \succ (\text{-2.-2}_{1,2,4}) \\ (\text{-0.-2}_{1,2})\end{matrix} \times \begin{matrix}(\text{-0.-2}_{2,1}) \\ (\text{-2.-2}_{4,2,1}) \gg \Upsilon \succ (\text{-1.-3}_{4,3}) \\ (\text{-1.-2}_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\text{-2.-2}_{1,2,4}) \\ (\text{-0.-2}_{1,2}) \gg \Upsilon \succ (\text{-1.-3}_{3,4}) \\ (\text{-1.-2}_{1,4})\end{matrix} \times \begin{matrix}(\text{-1.-2}_{4,1}) \\ (\text{-1.-3}_{4,3}) \gg \Upsilon \succ (\text{-0.-2}_{2,1}) \\ (\text{-2.-2}_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\text{-1.-2}_{1,4}) \\ (\text{-0.-2}_{1,2}) \gg \Upsilon \succ (\text{-1.-3}_{3,4}) \\ (\text{-2.-2}_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-2.-2}_{4,2,1}) \\ (\text{-1.-3}_{4,3}) \gg \Upsilon \succ (\text{-0.-2}_{2,1}) \\ (1.\text{-2}_{4,1})\end{matrix}$$

$$\begin{matrix}(\text{-0.-2}_{1,2}) \\ (\text{-1.-2}_{1,4}) \gg \Upsilon \succ (\text{-1.-3}_{3,4}) \\ (\text{-2.-2}_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-2.-2}_{4,2,1}) \\ (\text{-1.-3}_{4,3}) \gg \Upsilon \succ (\text{-1.-2}_{4,1}) \\ (\text{-0.-2}_{2,1})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{1,2,4})\\(-1.-3_{3,4})\\(-0.-2_{1,2})\end{matrix} \times (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-0.-2_{2,1})\\(-1.-2_{4,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-0.-2_{1,2})\\(-1.-3_{3,4})\\(-1.-2_{1,4})\end{matrix} \times (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{4,1})\\(-0.-2_{2,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-1.-3_{3,4})\\(-0.-2_{1,2})\end{matrix} \times (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-0.-2_{2,1})\\(-1.-2_{4,1})\\(-2.-2_{4,2,1})\end{matrix}$$

8. Pre-semiotic dual system

$$(-1.-3_{3,4}\ -2.-2_{1,2,4}\ -1.-2_{1,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-2_{4,1}\ -2.-2_{4,2,1}\ -1.-3_{4,3})$$

Qualitative action

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-0.-3_{2,3})\\(-2.-2_{1,2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{4,2,1})\\(-1.-2_{4,1})\\(-1.-3_{4,3})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{1,2,4})\\(-0.-3_{2,3})\\(-1.-3_{3,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-1.-2_{4,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-0.-3_{2,3})\\(-1.-2_{1,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{4,1})\\(-1.-3_{4,3})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-0.-3_{2,3})\\(-1.-3_{3,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-1.-2_{4,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-1.-3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-0.-3_{2,3})\\(-2.-2_{1,2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{4,2,1})\\(-1.-2_{4,1})\\(-1.-3_{4,3})\end{matrix}$$

$$\begin{matrix} & (\text{-}2.\text{-}2_{\,1,\,2,4}) & & & (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ & (\text{-}0.\text{-}3_{\,2,\,3}) & \times & (\text{-}0.\text{-}3_{\,3,\,2}) \gg \Upsilon \succ & (\text{-}1.\text{-}3_{4,\,3}) \\ & (\text{-}1.\text{-}2_{\,1,4}) & & & (\text{-}2.\text{-}2_{4,\,2,\,1}) \end{matrix}$$

Medial action

$$\begin{matrix} & (\text{-}1.\text{-}3_{\,3,4}) & & & (\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ & (\text{-}1.\text{-}2_{\,1,4}) & \times & (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ & (\text{-}0.\text{-}3_{\,3,\,2}) \\ & (\text{-}2.\text{-}2_{\,1,\,2,4}) & & & (\text{-}1.\text{-}3_{4,\,3}) \end{matrix}$$

$$\begin{matrix} & (\text{-}2.\text{-}2_{\,1,\,2,4}) & & & (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ & (\text{-}1.\text{-}2_{\,1,4}) & \times & (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ & (\text{-}0.\text{-}3_{\,3,\,2}) \\ & (\text{-}1.\text{-}3_{\,3,4}) & & & (\text{-}2.\text{-}2_{4,\,2,\,1}) \end{matrix}$$

$$\begin{matrix} & (\text{-}0.\text{-}3_{\,2,\,3}) & & & (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \Upsilon \succ & (\text{-}1.\text{-}2_{\,1,4}) & \times & (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ & (\text{-}2.\text{-}2_{4,\,2,\,1}) \\ & (\text{-}1.\text{-}3_{\,3,4}) & & & (\text{-}0.\text{-}3_{\,3,\,2}) \end{matrix}$$

$$\begin{matrix} & (\text{-}1.\text{-}3_{\,3,4}) & & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \Upsilon \succ & (\text{-}1.\text{-}2_{\,1,4}) & \times & (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ & (\text{-}2.\text{-}2_{4,\,2,\,1}) \\ & (\text{-}0.\text{-}3_{\,2,\,3}) & & & (\text{-}1.\text{-}3_{4,\,3}) \end{matrix}$$

$$\begin{matrix} & (\text{-}0.\text{-}3_{\,2,\,3}) & & & (\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ & (\text{-}1.\text{-}2_{\,1,4}) & \times & (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ & (\text{-}1.\text{-}3_{4,\,3}) \\ & (\text{-}2.\text{-}2_{\,1,\,2,4}) & & & (\text{-}0.\text{-}3_{\,3,\,2}) \end{matrix}$$

$$\begin{matrix} & (\text{-}2.\text{-}2_{\,1,\,2,4}) & & & (\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ & (\text{-}1.\text{-}2_{\,1,4}) & \times & (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ & (\text{-}1.\text{-}3_{4,\,3}) \\ & (\text{-}0.\text{-}3_{\,2,\,3}) & & & (\text{-}2.\text{-}2_{4,\,2,\,1}) \end{matrix}$$

Objectal action

$$\begin{matrix} & (\text{-}1.\text{-}3_{\,3,4}) & & & (\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ & (\text{-}2.\text{-}2_{\,1,\,2,4}) & \times & (\text{-}2.\text{-}2_{4,\,2,\,1}) \gg \Upsilon \succ & (\text{-}0.\text{-}3_{\,3,\,2}) \\ & (\text{-}1.\text{-}2_{\,1,4}) & & & (\text{-}1.\text{-}3_{4,\,3}) \end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \times (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \times (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}0.\text{-}3_{2,3})\end{matrix} \times (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}3_{4,3})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \times (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}0.\text{-}3_{2,3})\end{matrix} \times (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

Interpretative action

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}0.\text{-}3_{3,2})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\(\text{-}1.\text{-}3_{3,4})\\(\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{1,2,4})\\(-0.-3_{2,3})\end{matrix} (-1.-3_{3,4}) \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{3,2})\\(-2.-2_{4,2,1})\end{matrix} (-1.-2_{4,1})$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{2,3})\\(-1.-2_{1,4})\end{matrix} (-1.-3_{3,4}) \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{4,1})\\(-0.-3_{3,2})\end{matrix} (-2.-2_{4,2,1})$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-0.-3_{2,3})\end{matrix} (-1.-3_{3,4}) \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{3,2})\\(-1.-2_{4,1})\end{matrix} (-2.-2_{4,2,1})$$

9. Pre-semiotic dual system

$$(-1.-3_{3,4}\ -2.-2_{1,2,4}\ -1.-3_{3,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-3_{4,3}\ -2.-2_{4,2,1}\ -1.-3_{4,3})$$

Qualitative action

$$(-1.-3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-2.-2_{1,2,4})\end{matrix} (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{4,2,1})\\(-1.-3_{4,3})\end{matrix} (-1.-3_{4,3})$$

$$(-1.-3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{1,2,4})\\(-1.-3_{3,4})\end{matrix} (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-2.-2_{4,2,1})\end{matrix} (-1.-3_{4,3})$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-1.-3_{3,4})\end{matrix} (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-2.-2_{4,2,1})\end{matrix} (-1.-3_{4,3})$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-1.-3_{3,4})\end{matrix} (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-1.-3_{4,3})\end{matrix} (-2.-2_{4,2,1})$$

$$(-1.-3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-2.-2_{1,2,4})\end{matrix} (-0.-3_{2,3}) \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{4,2,1})\\(-1.-3_{4,3})\end{matrix} (-1.-3_{4,3})$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\ (\text{-}0.\text{-}3_{2,3})\\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \quad \times \quad (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\ (\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

Medial action

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\ (\text{-}2.\text{-}2_{1,2,4})\end{matrix} \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\ (\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

$$(\text{-}2.\text{-}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$(\text{-}2.\text{-}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\ (\text{-}2.\text{-}2_{1,2,4})\end{matrix} \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{3,2})\\ (\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

Objectal action

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\ (\text{-}2.\text{-}2_{1,2,4})\\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\ (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})\\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{3,4}) \\ (\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}1.\text{-}3_{4,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

10. Pre-semiotic dual system

$(\text{-}1.\text{-}3_{\,3,4}\ \text{-}2.\text{-}3_{\,2,4}\ \text{-}1.\text{-}3_{\,3,4}\ \text{-}0.\text{-}3_{\,2,\,3}) \times (\text{-}0.\text{-}3_{\,3,\,2}\ \text{-}1.\text{-}3_{4,\,3}\ \text{-}2.\text{-}3_{4,\,2}\ \text{-}1.\text{-}3_{4,\,3})$

Qualitative action

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,2,\,3}) \quad \times \quad (\text{-}0.\text{-}3_{\,3,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,2,\,3}) \quad \times \quad (\text{-}0.\text{-}3_{\,3,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,2,\,3}) \quad \times \quad (\text{-}0.\text{-}3_{\,3,\,2}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,2,\,3}) \quad \times \quad (\text{-}0.\text{-}3_{\,3,\,2}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,2,\,3}) \quad \times \quad (\text{-}0.\text{-}3_{\,3,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$

$$\begin{matrix}(\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,2,\,3}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}3_{\,3,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}3_{4,\,2}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \succ (\text{-}2.\text{-}3_{2,4}) \quad \times \quad (\text{-}2.\text{-}3_{4,2}) \gg \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \succ (\text{-}2.\text{-}3_{2,4}) \quad \times \quad (\text{-}2.\text{-}3_{4,2}) \gg \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \succ (\text{-}2.\text{-}3_{2,4}) \quad \times \quad (\text{-}2.\text{-}3_{4,2}) \gg \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \succ (\text{-}2.\text{-}3_{2,4}) \quad \times \quad (\text{-}2.\text{-}3_{4,2}) \gg \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \succ (\text{-}2.\text{-}3_{2,4}) \quad \times \quad (\text{-}2.\text{-}3_{4,2}) \gg \succ (\text{-}1.\text{-}3_{3,4})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$

Interpretative action

$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \gg \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \succ (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$

$$(-1.-3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-1.-3_{3,4})\\(-0.-3_{2,3})\end{matrix} \times (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{3,2})\\(-1.-3_{4,3})\\(-2.-3_{4,2})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{2,3})\\(-1.-3_{3,4})\\(-1.-3_{3,4})\end{matrix} \times (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-0.-3_{3,2})\\(-2.-3_{4,2})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-1.-3_{3,4})\\(-0.-3_{2,3})\end{matrix} \times (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{3,2})\\(-2.-3_{4,2})\\(-1.-3_{4,3})\end{matrix}$$

11. Pre-semiotic dual system

$$(-2.-3_{2,4}\ -2.-2_{1,2,4}\ -1.-2_{1,4}\ -0.-2_{1,2}) \times (-0.-2_{2,1}\ -1.-2_{4,1}\ -2.-2_{4,2,1}\ -2.-3_{4,2})$$

Qualitative action

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-0.-2_{1,2})\\(-2.-2_{1,2,4})\end{matrix} \times (-0.-2_{2,1}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{4,2,1})\\(-1.-2_{4,1})\\(-2.-3_{4,2})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{1,2,4})\\(-0.-2_{1,2})\\(-2.-3_{2,4})\end{matrix} \times (-0.-2_{2,1}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-1.-2_{4,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-0.-2_{1,2})\\(-1.-2_{1,4})\end{matrix} \times (-0.-2_{2,1}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{4,1})\\(-2.-3_{4,2})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-0.-2_{1,2})\\(-2.-3_{2,4})\end{matrix} \times (-0.-2_{2,1}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-2.-2_{4,2,1})\\(-1.-2_{4,1})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-0.-2_{1,2})\\(-2.-2_{1,2,4})\end{matrix} \times (-0.-2_{2,1}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{4,2,1})\\(-1.-2_{4,1})\\(-2.-3_{4,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}2_{\,2,\,1}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}0.\text{-}2_{\,2,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}2_{\,1,\,2}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}0.\text{-}2_{\,2,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}2_{\,1,\,2}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{\,2,\,1}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2})\\(\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}2_{1,2})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2})\\(\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}3_{2,4})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}0.\text{-}2_{1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{2,1})\\(\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1})\\(\text{-}2.\text{-}3_{4,2})\end{matrix}$$

$$(\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}2_{1,2})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}1.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,2})\\(\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$(\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}0.\text{-}2_{1,2})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}2_{2,1})\\(\text{-}2.\text{-}2_{4,2,1}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,2})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

Interpretative action

$$(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}2.\text{-}3_{2,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{2,1})\\(\text{-}2.\text{-}2_{4,2,1})\end{matrix}$$

$$(\text{-}0.\text{-}2_{1,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}2.\text{-}3_{2,4})\\(\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}0.\text{-}2_{2,1})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}2_{1,2})\\(\text{-}2.\text{-}3_{2,4})\\(\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1})\\(\text{-}0.\text{-}2_{2,1})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{1,2,4})\\(-2.-3_{2,4})\\(-0.-2_{1,2})\end{matrix} \times (-2.-3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-0.-2_{2,1})\\(-1.-2_{4,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-0.-2_{1,2})\\(-2.-3_{2,4})\\(-1.-2_{1,4})\end{matrix} \times (-2.-3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{4,1})\\(-0.-2_{2,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-2.-3_{2,4})\\(-0.-2_{1,2})\end{matrix} \times (-2.-3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-0.-2_{2,1})\\(-2.-2_{4,2,1})\\(-1.-2_{4,1})\end{matrix}$$

12. Pre-semiotic dual system

$$(-2.-3_{2,4}\ -2.-2_{1,2,4}\ -1.-2_{1,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-2_{4,1}\ -2.-2_{4,2,1}\ -2.-3_{4,2})$$

Qualitative action

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-0.-3_{2,3})\\(-2.-2_{1,2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{4,2,1})\\(-1.-2_{4,1})\\(-2.-3_{4,2})\end{matrix}$$

$$(-1.-2_{1,4}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{1,2,4})\\(-0.-3_{2,3})\\(-2.-3_{2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-1.-2_{4,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-0.-3_{2,3})\\(-1.-2_{1,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{4,1})\\(-2.-3_{4,2})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-0.-3_{2,3})\\(-2.-3_{2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-1.-2_{4,1})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-2_{1,4})\\(-0.-3_{2,3})\\(-2.-2_{1,2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{4,2,1})\\(-1.-2_{4,1})\\(-2.-3_{4,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{\,2,\,3}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}0.\text{-}3_{\,3,\,2}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1})\end{matrix}$$

Medial action

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}3_{\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}2.\text{-}2_{\,1,\,2,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}2.\text{-}2_{4,\,2,\,1}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \curlyvee \succ (\text{-}1.\text{-}2_{\,1,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}1.\text{-}2_{4,\,1}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1})\end{matrix}$$

Objectal action

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3}) \gg \curlyvee \succ (\text{-}2.\text{-}2_{\,1,\,2,4}) \\ (\text{-}1.\text{-}2_{\,1,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}2_{4,\,1}) \\ (\text{-}2.\text{-}2_{4,\,2,\,1}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix} \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix} \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}2.\text{-}3_{4,2})\end{matrix} \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix} \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix} \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,2})$$

Interpretative action

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}1.\text{-}2_{1,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}2_{4,1}) \\ (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}2_{4,2,1})\end{matrix} \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4}) \\ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}1.\text{-}2_{4,1})\end{matrix} \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix} \gg \Upsilon \succ (\text{-}1.\text{-}2_{4,1})$$

$$(\text{-}1.\text{-}2_{1,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}2.\text{-}3_{2,4})\\(\text{-}0.\text{-}3_{2,3})\end{matrix} \times (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{3,2})\\(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

$$(\text{-}2.\text{-}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3})\\(\text{-}2.\text{-}3_{2,4})\\(\text{-}1.\text{-}2_{1,4})\end{matrix} \times (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{4,1})\\(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$(\text{-}2.\text{-}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}2_{1,4})\\(\text{-}2.\text{-}3_{2,4})\\(\text{-}0.\text{-}3_{2,3})\end{matrix} \times (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{3,2})\\(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}2_{4,1})\end{matrix}$$

13. Pre-semiotic system

$$(\text{-}2.\text{-}3_{2,4}\ \text{-}2.\text{-}2_{1,2,4}\ \text{-}1.\text{-}3_{3,4}\ \text{-}0.\text{-}3_{2,3}) \times (\text{-}0.\text{-}3_{3,2}\ \text{-}1.\text{-}3_{4,3}\ \text{-}2.\text{-}2_{4,2,1}\ \text{-}2.\text{-}3_{4,2})$$

Qualitative action

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}3_{2,4})\\(\text{-}0.\text{-}3_{2,3})\\(\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}3_{4,3})\\(\text{-}2.\text{-}3_{4,2})\end{matrix}$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4})\\(\text{-}0.\text{-}3_{2,3})\\(\text{-}2.\text{-}3_{2,4})\end{matrix} \times (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}3_{4,2})\\(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}2.\text{-}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}3_{2,4})\\(\text{-}0.\text{-}3_{2,3})\\(\text{-}1.\text{-}3_{3,4})\end{matrix} \times (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{4,3})\\(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}2.\text{-}3_{4,2})\end{matrix}$$

$$(\text{-}2.\text{-}2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\(\text{-}0.\text{-}3_{2,3})\\(\text{-}2.\text{-}3_{2,4})\end{matrix} \times (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}3_{4,2})\\(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4})\\(\text{-}0.\text{-}3_{2,3})\\(\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times (\text{-}0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{4,2,1})\\(\text{-}2.\text{-}3_{4,2})\\(\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,2,\,3}) \quad \times \quad (\text{-}0.\text{-}3_{\,3,\,2}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

Medial action

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,\,2})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,\,2})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$

$$(\text{-}2.\text{-}2_{\,1,\,2,4}) \qquad\qquad (\text{-}0.\text{-}3_{\,3,\,2})$$
$$(\text{-}2.\text{-}3_{\,2,4}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{\,3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,\,2})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \qquad\qquad (\text{-}2.\text{-}2_{4,\,2,\,1})$$

Objectal action

$$(\text{-}2.\text{-}3_{\,2,4}) \qquad\qquad (\text{-}1.\text{-}3_{4,\,3})$$
$$(\text{-}0.\text{-}3_{\,2,\,3}) \gg \Upsilon \succ (\text{-}2.\text{-}2_{\,1,\,2,4}) \quad \times \quad (\text{-}2.\text{-}2_{4,\,2,\,1}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{\,3,\,2})$$
$$(\text{-}1.\text{-}3_{\,3,4}) \qquad\qquad (\text{-}2.\text{-}3_{4,\,2})$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix} \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix} \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}2.\text{-}3_{4,2})\end{matrix} \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})$$

$$(\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix} \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix} \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,2})$$

Interpretative action

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}2.\text{-}2_{1,2,4}) \\ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}2_{4,2,1})\end{matrix} \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix} \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}2_{1,2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}2_{4,2,1}) \\ (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix} \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3})$$

$$(-1.-3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-2.-2_{1,2,4})\\(-2.-3_{2,4})\\(-0.-3_{2,3})\end{matrix} \times (-2.-3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{3,2})\\(-1.-3_{4,3})\\(-2.-2_{4,2,1})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{2,3})\\(-2.-3_{2,4})\\(-1.-3_{3,4})\end{matrix} \times (-2.-3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-2.-2_{4,2,1})\\(-0.-3_{3,2})\end{matrix}$$

$$(-2.-2_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-2.-3_{2,4})\\(-0.-3_{2,3})\end{matrix} \times (-2.-3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{3,2})\\(-2.-2_{4,2,1})\\(-1.-3_{4,3})\end{matrix}$$

14. Pre-semiotic dual system

$$(-2.-3_{2,4}\ -2.-3_{2,4}\ -1.-3_{3,4}\ -0.-3_{2,3}) \times (-0.-3_{3,2}\ -1.-3_{4,3}\ -2.-3_{4,2}\ -2.-3_{4,2})$$

Qualitative action

$$(-1.-3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-0.-3_{2,3})\\(-2.-3_{2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-1.-3_{4,3})\\(-2.-3_{4,2})\end{matrix}$$

$$(-1.-3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-0.-3_{2,3})\\(-2.-3_{2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-1.-3_{4,3})\\(-2.-3_{4,2})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-0.-3_{2,3})\\(-1.-3_{3,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-2.-3_{4,2})\\(-2.-3_{4,2})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-0.-3_{2,3})\\(-2.-3_{2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-2.-3_{4,2})\\(-1.-3_{4,3})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{3,4})\\(-0.-3_{2,3})\\(-2.-3_{2,4})\end{matrix} \times (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-2.-3_{4,2})\\(-1.-3_{4,3})\end{matrix}$$

$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}2.\text{-}3_{2,4}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{2,3}) \quad \times \quad (\text{-}0.\text{-}3_{3,2}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$

Medial action

$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \gg \curlyvee \succ \text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$

$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \gg \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$

$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}2.\text{-}3_{2,4}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{3,4}) \quad \times \quad (\text{-}1.\text{-}3_{4,3}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,2})$$
$$(\text{-}0.\text{-}3_{2,3}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$

Objectal action

$$(\text{-}2.\text{-}3_{2,4}) \quad\quad (\text{-}1.\text{-}3_{4,3})$$
$$(\text{-}0.\text{-}3_{2,3}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{2,4}) \quad \times \quad (\text{-}2.\text{-}3_{4,2}) \gg \curlyvee \succ (\text{-}0.\text{-}3_{3,2})$$
$$(\text{-}1.\text{-}3_{3,4}) \quad\quad (\text{-}2.\text{-}3_{4,2})$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{2,4}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}3_{4,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}2.\text{-}3_{2,4}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}0.\text{-}3_{2,3})\end{matrix} \times \begin{matrix}(\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{4,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}(\text{-}2.\text{-}3_{2,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}1.\text{-}3_{3,4})\end{matrix} \times \begin{matrix}(\text{-}1.\text{-}3_{4,3}) \\ (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}2.\text{-}3_{4,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{3,4}) \\ (\text{-}0.\text{-}3_{2,3}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}0.\text{-}3_{3,2}) \\ (\text{-}1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{2,3}) \\ (\text{-}1.\text{-}3_{3,4}) \gg \Upsilon \succ (\text{-}2.\text{-}3_{2,4}) \\ (\text{-}2.\text{-}3_{2,4})\end{matrix} \times \begin{matrix}(\text{-}2.\text{-}3_{4,2}) \\ (\text{-}2.\text{-}3_{4,2}) \gg \Upsilon \succ (\text{-}1.\text{-}3_{4,3}) \\ (\text{-}0.\text{-}3_{3,2})\end{matrix}$$

$$(-1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-2.\text{-}3_{2,4})\\(-0.\text{-}3_{2,3})\end{matrix} \times (-2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-0.\text{-}3_{3,2})\\(-1.\text{-}3_{4,3})\\(-2.\text{-}3_{4,2})\end{matrix}$$

$$(-2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-0.\text{-}3_{2,3})\\(-2.\text{-}3_{2,4})\\(-1.\text{-}3_{3,4})\end{matrix} \times (-2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{4,3})\\(-2.\text{-}3_{4,2})\\(-0.\text{-}3_{3,2})\end{matrix}$$

$$(-2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{3,4})\\(-2.\text{-}3_{2,4})\\(-0.\text{-}3_{2,3})\end{matrix} \times (-2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-0.\text{-}3_{3,2})\\(-2.\text{-}3_{4,2})\\(-1.\text{-}3_{4,3})\end{matrix}$$

15. Pre-semiotic dual system

$$(-3.\text{-}3_{2,3,4}\ -2.\text{-}3_{2,4}\ -1.\text{-}3_{3,4}\ -0.\text{-}3_{2,3}) \times (-0.\text{-}3_{3,2}\ -1.\text{-}3_{4,3}\ -2.\text{-}3_{4,2}\ -3.\text{-}3_{4,3,2})$$

Qualitative action

$$(-1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-3.\text{-}3_{2,3,4})\\(-0.\text{-}3_{2,3})\\(-2.\text{-}3_{2,4})\end{matrix} \times (-0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.\text{-}3_{4,2})\\(-1.\text{-}3_{4,3})\\(-3.\text{-}3_{4,3,2})\end{matrix}$$

$$(-1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-2.\text{-}3_{2,4})\\(-0.\text{-}3_{2,3})\\(-3.\text{-}3_{2,3,4})\end{matrix} \times (-0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-3.\text{-}3_{4,3,2})\\(-1.\text{-}3_{4,3})\\(-2.\text{-}3_{4,2})\end{matrix}$$

$$(-2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-3.\text{-}3_{2,3,4})\\(-0.\text{-}3_{2,3})\\(-1.\text{-}3_{3,4})\end{matrix} \times (-0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{4,3})\\(-2.\text{-}3_{4,2})\\(-3.\text{-}3_{4,3,2})\end{matrix}$$

$$(-2.\text{-}3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{3,4})\\(-0.\text{-}3_{2,3})\\(-3.\text{-}3_{2,3,4})\end{matrix} \times (-0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-3.\text{-}3_{4,3,2})\\(-2.\text{-}3_{4,2})\\(-1.\text{-}3_{4,3})\end{matrix}$$

$$(-3.\text{-}3_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{3,4})\\(-0.\text{-}3_{2,3})\\(-2.\text{-}3_{2,4})\end{matrix} \times (-0.\text{-}3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-2.\text{-}3_{4,2})\\(-3.\text{-}3_{4,3,2})\\(-1.\text{-}3_{4,3})\end{matrix}$$

$$(-3.-3_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-0.-3_{2,3})\\(-1.-3_{3,4})\end{matrix} \quad \times \quad (-0.-3_{3,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-3.-3_{4,3,2})\\(-2.-3_{4,2})\end{matrix}$$

Medial action

$$(-0.-3_{2,3}) \gg \Upsilon \succ \begin{matrix}(-3.-3_{2,3,4})\\(-1.-3_{3,4})\\(-2.-3_{2,4})\end{matrix} \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-0.-3_{3,2})\\(-3.-3_{4,3,2})\end{matrix}$$

$$(-0.-3_{2,3}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-1.-3_{3,4})\\(-2.-3_{2,4})\end{matrix} \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-0.-3_{3,2})\\(-2.-3_{4,2})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{2,3})\\(-1.-3_{3,4})\\(-2.-3_{2,4})\end{matrix} \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-2.-3_{4,2})\\(-0.-3_{3,2})\end{matrix}$$

$$(-2.-3_{2,4}) \gg \Upsilon \succ \begin{matrix}(-3.-3_{2,3,4})\\(-1.-3_{3,4})\\(-0.-3_{2,3})\end{matrix} \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{3,2})\\(-2.-3_{4,2})\\(-3.-3_{4,3,2})\end{matrix}$$

$$(-3.-3_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{2,3})\\(-1.-3_{3,4})\\(-2.-3_{2,4})\end{matrix} \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{4,2})\\(-3.-3_{4,3,2})\\(-0.-3_{3,2})\end{matrix}$$

$$(-3.-3_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(-2.-3_{2,4})\\(-1.-3_{3,4})\\(-0.-3_{2,3})\end{matrix} \quad \times \quad (-1.-3_{4,3}) \gg \Upsilon \succ \begin{matrix}(-0.-3_{3,2})\\(-2.-3_{4,2})\\(-3.-3_{4,3,2})\end{matrix}$$

Objectal action

$$(-0.-3_{2,3}) \gg \Upsilon \succ \begin{matrix}(-3.-3_{2,3,4})\\(-2.-3_{2,4})\\(-1.-3_{3,4})\end{matrix} \quad \times \quad (-2.-3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-1.-3_{4,3})\\(-0.-3_{3,2})\\(-3.-3_{4,3,2})\end{matrix}$$

$$(-0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{3,4})\\(-2.\text{-}3_{2,4})\\(-3.\text{-}3_{2,3,4})\end{matrix} \times (-2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-3.\text{-}3_{4,3,2})\\(-0.\text{-}3_{3,2})\\(-1.\text{-}3_{4,3})\end{matrix}$$

$$(-1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-0.\text{-}3_{2,3})\\(-2.\text{-}3_{2,4})\\(-3.\text{-}3_{2,3,4})\end{matrix} \times (-2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-3.\text{-}3_{4,3,2})\\(-1.\text{-}3_{4,3})\\(-0.\text{-}3_{3,2})\end{matrix}$$

$$(-1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-3.\text{-}3_{2,3,4})\\(-2.\text{-}3_{2,4})\\(-0.\text{-}3_{2,3})\end{matrix} \times (-2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-0.\text{-}3_{3,2})\\(-1.\text{-}3_{4,3})\\(-3.\text{-}3_{4,3,2})\end{matrix}$$

$$(-3.\text{-}3_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(-0.\text{-}3_{2,3})\\(-2.\text{-}3_{2,4})\\(-1.\text{-}3_{3,4})\end{matrix} \times (-2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{4,3})\\(-3.\text{-}3_{2,3,4})\\(-0.\text{-}3_{3,2})\end{matrix}$$

$$(-3.\text{-}3_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{3,4})\\(-2.\text{-}3_{2,4})\\(-0.\text{-}3_{2,3})\end{matrix} \times (-2.\text{-}3_{4,2}) \gg \Upsilon \succ \begin{matrix}(-0.\text{-}3_{3,2})\\(-3.\text{-}3_{4,3,2})\\(-1.\text{-}3_{4,3})\end{matrix}$$

Interpretative action

$$(-0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(-2.\text{-}3_{2,4})\\(-3.\text{-}3_{2,3,4})\\(-1.\text{-}3_{3,4})\end{matrix} \times (-3.\text{-}3_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{4,3})\\(-0.\text{-}3_{3,2})\\(-2.\text{-}3_{4,2})\end{matrix}$$

$$(-0.\text{-}3_{2,3}) \gg \Upsilon \succ \begin{matrix}(-1.\text{-}3_{3,4})\\(-3.\text{-}3_{2,3,4})\\(-2.\text{-}3_{2,4})\end{matrix} \times (-3.\text{-}3_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(-2.\text{-}3_{4,2})\\(-0.\text{-}3_{3,2})\\(-1.\text{-}3_{4,3})\end{matrix}$$

$$(-1.\text{-}3_{3,4}) \gg \Upsilon \succ \begin{matrix}(-0.\text{-}3_{2,3})\\(-3.\text{-}3_{2,3,4})\\(-2.\text{-}3_{2,4})\end{matrix} \times (-3.\text{-}3_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(-2.\text{-}3_{4,2})\\(-0.\text{-}3_{3,2})\\(-1.\text{-}3_{4,3})\end{matrix}$$

$$\begin{matrix}(\text{-}2.\text{-}3_{\,2,4}) \\ (\text{-}1.\text{-}3_{\,3,4}) \gg \curlyvee \succ (\text{-}3.\text{-}3_{\,2,\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}3.\text{-}3_{4,\,3,\,2}) \gg \curlyvee \succ (\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}2.\text{-}3_{4,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}0.\text{-}3_{\,2,\,3}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \curlyvee \succ (\text{-}3.\text{-}3_{\,2,\,3,4}) \\ (\text{-}1.\text{-}3_{\,3,4})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}1.\text{-}3_{4,\,3}) \\ (\text{-}3.\text{-}3_{4,\,3,\,2}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}0.\text{-}3_{\,3,\,2})\end{matrix}$$

$$\begin{matrix}(\text{-}1.\text{-}3_{\,3,4}) \\ (\text{-}2.\text{-}3_{\,2,4}) \gg \curlyvee \succ (\text{-}3.\text{-}3_{\,2,\,3,4}) \\ (\text{-}0.\text{-}3_{\,2,\,3})\end{matrix} \quad \times \quad \begin{matrix}(\text{-}0.\text{-}3_{\,3,\,2}) \\ (\text{-}3.\text{-}3_{4,\,3,\,2}) \gg \curlyvee \succ (\text{-}2.\text{-}3_{4,\,2}) \\ (\text{-}1.\text{-}3_{4,\,3})\end{matrix}$$

Chapter Seven: The Relational Night

Notation:
0.1 = [0[1]] 1.0 = 1[0]
0.2 = [0[2]] 2.0 = 1[0]
0.3 = [0[2]] 3.0 = 1[0], ans., i.e. n = f(1) instead of $[1_n]$.

I. Action schemata of the 2 · 24 triadic semiotic partial relations

1. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[1]_{1,3,4}\ 0[1]_{1,3}) \times (1[0]_{3,1}\ 1[1]_{4,3,1}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualitative action

$(2[1]_{1,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (0[1]_{1,3})$ $\times$ $\curlywedge \gg (1[0]_{3,1})$
$(1[1]_{1,3,4})$ $(1[2]_{4,1})$

$(3[1]_{3,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (0[1]_{1,3})$ $\times$ $\curlywedge \gg (1[0]_{3,1})$
$(1[1]_{1,3,4})$ $(1[3]_{4,3})$

$(1[1]_{1,3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (0[1]_{1,3})$ $\times$ $\curlywedge \gg (1[0]_{3,1})$
$(2[1]_{1,4})$ $(1[1]_{4,3,1})$

$(3[1]_{3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (0[1]_{1,3})$ $\times$ $\curlywedge \gg (1[0]_{3,1})$
$(2[1]_{1,4})$ $(1[3]_{4,3})$

$(1[1]_{1,3,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[1]_{1,3})$ $\times$ $\curlywedge \gg (1[0]_{3,1})$
$(3[1]_{3,4})$ $(1[1]_{4,3,1})$

$(2[1]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[1]_{1,3})$ $\times$ $\curlywedge \gg (1[0]_{3,1})$
$(3[1]_{3,4})$ $(1[2]_{4,1})$

Medial action

$$(2[1]_{1,4}) \quad (1[0]_{3,1})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(0[1]_{1,3}) \quad (1[2]_{4,1})$$

$$(3[1]_{3,4}) \quad (1[0]_{3,1})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(0[1]_{1,3}) \quad (1[3]_{4,3})$$

$$(0[1]_{1,3}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(2[1]_{1,4}) \quad (1[0]_{3,1})$$

$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$

$$(0[1]_{1,3}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(3[1]_{3,4}) \quad (1[0]_{3,1})$$

$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$

Objectal action

$$(1[1]_{1,3,4}) \quad (1[0]_{3,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[1]_{1,3}) \quad (1[1]_{4,3,1})$$

$$(3[1]_{3,4}) \quad (1[0]_{3,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[1]_{1,3}) \quad (1[3]_{4,3})$$

$$(0[1]_{1,3}) \quad (1[1]_{4,3,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(1[1]_{1,3,4}) \quad (1[0]_{3,1})$$

$(3[1]_{3,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(1[1]_{1,3,4})$ $(1[3]_{4,3})$

$(1[1]_{1,3,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(3[1]_{3,4})$ $(1[1]_{4,3,1})$

$(0[1]_{1,3})$ $(1[3]_{4,3})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(3[1]_{3,4})$ $(1[0]_{3,1})$

Interpretative action

$(2[1]_{1,4})$ $(1[0]_{3,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(0[1]_{1,3})$ $(1[2]_{4,1})$

$(1[1]_{1,3,4})$ $(1[0]_{3,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(0[1]_{1,3})$ $(1[1]_{4,3,1})$

$(2[1]_{1,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[1]_{1,3,4})$ $(1[2]_{4,1})$

$(0[1]_{1,3})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[1]_{1,3,4})$ $(1[0]_{3,1})$

$(1[1]_{1,3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(1[1]_{4,3,1})$

$(0[1]_{1,3})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(1[0]_{3,1})$

2. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[1]_{1,3,4}\ 0[2]_{1,2}) \times (2[0]_{2,1}\ 1[1]_{4,3,1}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualitative action

$(2[1]_{1,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (0[2]_{1,2}) \times \curlywedge \gg (2[0]_{2,1})$
$(1[1]_{1,3,4})$ $(1[2]_{4,1})$

$(3[1]_{3,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (0[2]_{1,2}) \times \curlywedge \gg (2[0]_{2,1})$
$(1[1]_{1,3,4})$ $(1[3]_{4,3})$

$(1[1]_{1,3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (0[2]_{1,2}) \times \curlywedge \gg (2[0]_{2,1})$
$(2[1]_{1,4})$ $(1[1]_{4,3,1})$

$(3[1]_{3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (0[2]_{1,2}) \times \curlywedge \gg (2[0]_{2,1})$
$(2[1]_{1,4})$ $(1[3]_{4,3})$

$(1[1]_{1,3,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[2]_{1,2}) \times \curlywedge \gg (2[0]_{2,1})$
$(3[1]_{3,4})$ $(1[1]_{4,3,1})$

$(2[1]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[2]_{1,2}) \times \curlywedge \gg (2[0]_{2,1})$
$(3[1]_{3,4})$ $(1[2]_{4,1})$

Medial action

$(2[1]_{1,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$
$(0[2]_{1,2})$ $(1[2]_{4,1})$

$(3[1]_{3,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$
$(0[2]_{1,2})$ $(1[3]_{4,3})$

$$(0[2]_{1,2}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(2[1]_{1,4}) \quad (2[0]_{2,1})$$

$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$

$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$

$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$

Objectal action

$$(1[1]_{1,3,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[2]_{1,2}) \quad (1[1]_{4,3,1})$$

$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$

$$(0[2]_{1,2}) \quad (1[1]_{4,3,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(1[1]_{1,3,4}) \quad (2[0]_{2,1})$$

$$(3[1]_{3,4}) \quad (1[1]_{4,3,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(1[1]_{1,3,4}) \quad (1[3]_{4,3})$$

$$(1[1]_{1,3,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(3[1]_{3,4}) \quad (1[1]_{4,3,1})$$

$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$

Interpretative action

$(2[1]_{1,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$
$(0[2]_{1,2})$ $(1[2]_{4,1})$

$(1[1]_{1,3,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$
$(0[2]_{1,2})$ $(0[2]_{1,2})$

$(2[1]_{1,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$
$(1[1]_{1,3,4})$ $(1[2]_{4,1})$

$(0[2]_{1,2})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$
$(1[1]_{1,3,4})$ $(2[0]_{2,1})$

$(1[1]_{1,3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(1[1]_{4,3,1})$

$(0[2]_{1,2})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(2[0]_{2,1})$

3. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[1]_{1,3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 1[1]_{4,3,1}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualitative Action

$(2[1]_{1,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$
$(1[1]_{1,3,4})$ $(1[2]_{4,1})$

$(3[1]_{3,4})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$
$(1[1]_{1,3,4})$ $(1[3]_{4,3})$

$$(1[1]_{1,3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(2[1]_{1,4}) \quad (1[1]_{4,3,1})$$

$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$

$$(1[1]_{1,3,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(3[1]_{3,4}) \quad (1[1]_{4,3,1})$$

$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$

Medial action

$$(2[1]_{1,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(0[3]_{2,3}) \quad (1[2]_{4,1})$$

$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(2[1]_{1,4}) \quad (3[0]_{3,2})$$

$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$

$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[1]_{1,3,4}) \times \curlywedge \gg (1[1]_{4,3,1})$$
$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$

Objectal action

$$(1[1]_{1,3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[3]_{2,3}) \quad (1[1]_{4,3,1})$$

$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[1]_{4,3,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(1[1]_{1,3,4}) \quad (3[0]_{3,2})$$

$$(3[1]_{3,4}) \quad (1[1]_{4,3,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(1[1]_{1,3,4}) \quad (1[3]_{4,3})$$

$$(1[1]_{1,3,4}) \quad (1[3]_{3,4})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(3[1]_{3,4}) \quad (1[1]_{4,3,1})$$

$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$

Interpretative action

$$(2[1]_{1,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(0[3]_{2,3}) \quad (1[2]_{4,1})$$

$$(1[1]_{1,3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(0[3]_{2,3}) \quad (1[1]_{4,3,1})$$

$$(2[1]_{1,4}) \quad (1[1]_{4,3,1})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(1[1]_{1,3,4}) \quad (1[2]_{4,1})$$

$(0[3]_{2,3})$ $(1[1]_{4,3,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[1]_{1,3,4})$ $(3[0]_{3,2})$

$(1[1]_{1,3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(1[1]_{4,3,1})$

$(0[3]_{2,3})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(3[0]_{3,2})$

4. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[2]_{1,4}\ 0[2]_{1,2}) \times (2[0]_{2,1}\ 2[1]_{4,1}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualitative action

$(2[1]_{1,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(1[2]_{1,4})$ $(1[2]_{4,1})$

$(3[1]_{3,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(1[2]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(2[1]_{1,4})$ $(2[1]_{4,1})$

$(3[1]_{3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(2[1]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(3[1]_{3,4})$ $(2[1]_{4,1})$

$(2[1]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(3[1]_{3,4})$ $(1[2]_{4,1})$

Medial action

$$(2[1]_{1,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(0[2]_{1,2}) \quad (1[2]_{4,1})$$

$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$

$$(0[2]_{1,2}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(2[1]_{1,4}) \quad (2[0]_{2,1})$$

$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$

$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$

$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$

Objectal action

$$(1[2]_{1,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[2]_{1,2}) \quad (2[1]_{4,1})$$

$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$

$$(0[2]_{1,2}) \quad (2[1]_{4,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(1[2]_{1,4}) \quad (2[0]_{2,1})$$

$$(3[1]_{3,4}) \quad (2[1]_{4,1})$$
$$\curlywedge \gg (2[1]_{1,4}) \quad \times \quad \curlywedge \gg (1[2]_{4,1})$$
$$(1[2]_{1,4}) \quad (1[3]_{4,3})$$

$$(1[2]_{1,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \quad \times \quad \curlywedge \gg (1[2]_{4,1})$$
$$(3[1]_{3,4}) \quad (2[1]_{4,1})$$

$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \quad \times \quad \curlywedge \gg (1[2]_{4,1})$$
$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$

Interpretative action

$$(2[1]_{1,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (3[1]_{3,4}) \quad \times \quad \curlywedge \gg (1[3]_{4,3})$$
$$(0[2]_{1,2}) \quad (1[2]_{4,1})$$

$$(1[2]_{1,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (3[1]_{3,4}) \quad \times \quad \curlywedge \gg (1[3]_{4,3})$$
$$(0[2]_{1,2}) \quad (2[1]_{4,1})$$

$$(2[1]_{1,4}) \quad (2[1]_{4,1})$$
$$\curlywedge \gg (3[1]_{3,4}) \quad \times \quad \curlywedge \gg (1[3]_{4,3})$$
$$(1[2]_{1,4}) \quad (1[2]_{4,1})$$

$$(0[2]_{1,2}) \quad (2[1]_{4,1})$$
$$\curlywedge \gg (3[1]_{3,4}) \quad \times \quad \curlywedge \gg (1[3]_{4,3})$$
$$(1[2]_{1,4}) \quad (2[0]_{2,1})$$

$$(1[2]_{1,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (3[1]_{3,4}) \quad \times \quad \curlywedge \gg (1[3]_{4,3})$$
$$(2[1]_{1,4}) \quad (2[1]_{4,1})$$

$$(0[2]_{1,2}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (3[1]_{3,4}) \quad \times \quad \curlywedge \gg (1[3]_{4,3})$$
$$(2[1]_{1,4}) \quad (2[0]_{2,1})$$

5. Pre-Semiotic dual system
$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[2]_{1,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 2[1]_{4,1}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualtitative action

$(2[1]_{1,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$
$(1[2]_{1,4})$ $(1[2]_{4,1})$

$(3[1]_{3,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$
$(1[2]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[2]_{4,1})|$
$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$
$(2[1]_{1,4})$ $(2[1]_{4,1})$

$(3[1]_{3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$
$(2[1]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$
$(3[1]_{3,4})$ $(2[1]_{4,1})$

$(2[1]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$
$(3[1]_{3,4})$ $(1[2]_{4,1})$

Medial action

$(2[1]_{1,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$
$(0[3]_{2,3})$ $(1[2]_{4,1})$

$(3[1]_{3,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$
$(0[3]_{2,3})$ $(1[3]_{4,3})$

$(0[3]_{2,3})$ $(1[2]_{4,1})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(2[1]_{1,4})$ $(3[0]_{3,2})$

$(3[1]_{3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(2[1]_{1,4})$ $(1[3]_{4,3})$

$(0[3]_{2,3})$ $(1[3]_{4,3})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(3[1]_{3,4})$ $(3[0]_{3,2})$

$(2[1]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge 2[1]_{4,1})$
$(3[1]_{3,4})$ $(1[2]_{4,1})$

Objectal action

$(1[2]_{1,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(0[3]_{2,3})$ $(2[1]_{4,1})$

$(3[1]_{3,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(0[3]_{2,3})$ $(1[3]_{4,3})$

$(0[3]_{2,3})$ $(2[1]_{4,1})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(1[2]_{1,4})$ $(3[0]_{3,2})$

$(3[1]_{3,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(1[2]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(3[1]_{3,4})$ $(2[1]_{4,1})$

$(0[3]_{2,3})$ $(1[3]_{4,3})$
$\curlywedge \gg (2[1]_{1,4})$ $\times$ $\curlywedge \gg (1[2]_{4,1})$
$(3[1]_{3,4})$ $(3[0]_{3,2})$

Interpretative action

$(2[1]_{1,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (3[1]_{3,4})$ × $\curlywedge \gg (1[3]_{4,3})$
$(0[3]_{2,3})$ $(1[2]_{4,1})$

$(1[2]_{1,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (3[1]_{3,4})$ × $\curlywedge \gg (1[3]_{4,3})$
$(0[3]_{2,3})$ $(2[1]_{4,1})$

$(2[1]_{1,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ × $\curlywedge \gg (1[3]_{4,3})$
$(1[2]_{1,4})$ $(1[2]_{4,1})$

$(0[3]_{2,3})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ × $\curlywedge \gg (1[3]_{4,3})$
$(1[2]_{1,4})$ $(3[0]_{3,2})$

$(1[2]_{1,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ × $\curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(2[1]_{4,1})$

$(0[3]_{2,3})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ × $\curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(3[0]_{3,2})$

6. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualitative action

$(2[1]_{1,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ × $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(1[2]_{4,1})$

$(3[1]_{3,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ × $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(1[3]_{4,3})$

$$(1[3]_{3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(2[1]_{1,4}) \quad (3[1]_{4,3})$$

$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$

$$(1[3]_{3,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(3[1]_{3,4}) \quad (3[1]_{4,3})$$

$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$

Medial action

$$(2[1]_{1,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(0[3]_{2,3}) \quad (1[2]_{4,1})$$

$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[1]_{1,4}) \quad (3[0]_{3,2})$$

$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$

$$(2[1]_{1,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[1]_{3,4}) \quad (1[2]_{4,1})$$

Objectal action

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$

$$(3[1]_{3,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(1[3]_{3,4}) \quad (1[3]_{4,3})$$

$$(1[3]_{3,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(3[1]_{3,4}) \quad (3[1]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[1]_{1,4}) \times \curlywedge \gg (1[2]_{4,1})$$
$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$

Interpretative action

$$(2[1]_{1,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(0[3]_{2,3}) \quad (1[2]_{4,1})$$

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(2[1]_{1,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(1[3]_{3,4}) \quad (1[2]_{4,1})$$

$(0[3]_{2,3})$ $(3[1]_{4,3})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[3]_{3,4})$ $(3[0]_{3,2})$

$(1[3]_{3,4})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(3[1]_{4,3})$

$(0[3]_{2,3})$ $(1[2]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[1]_{1,4})$ $(3[0]_{3,2})$

7. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[2]_{1,2,4}\ 1[2]_{1,4}\ 0[2]_{1,2}) \times (2[0]_{2,1}\ 2[1]_{4,1}\ 2[2]_{4,2,1}\ 1[3]_{4,3})$

Qualitative action

$(2[2]_{1,2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(1[2]_{1,4})$ $(2[2]_{4,2,1})$

$(3[1]_{3,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(1[2]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(2[2]_{1,2,4})$ $(2[1]_{4,1})$

$(3[1]_{3,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(2[2]_{1,2,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(3[1]_{3,4})$ $(2[1]_{4,1})$

$(2[2]_{1,2,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(3[1]_{3,4})$ $(2[2]_{4,2,1})$

Medial action

$$(2[2]_{1,2,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(0[2]_{1,2}) \quad (2[2]_{4,2,1})$$

$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$

$$(0[2]_{1,2}) \quad (2[2]_{4,2,1})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(2[2]_{1}) \quad (2[0]_{2,1})$$

$$(3[1]_{3,4}) \quad (2[2]_{4,2,1})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(2[2]_{1,2,4}) \quad (1[3]_{4,3})$$

$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$

$$(2[2]_{1,2,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[2]_{1,4}) \times \curlywedge \gg (2[1]_{4,1})$$
$$(3[1]_{3,4}) \quad (2[2]_{4,2,1})$$

Objectal action

$$(1[2]_{1,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(0[2]_{1,2}) \quad (2[1]_{4,1})$$

$$(3[1]_{3,4}) \quad (2[0]_{2,1})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(0[2]_{1,2}) \quad (1[3]_{4,3})$$

$$(0[2]_{1,2}) \quad (2[1]_{4,1})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(1[2]_{1,4}) \quad (2[0]_{2,1})$$

$(3[1]_{3,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(1[2]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(3[1]_{3,4})$ $(2[1]_{4,1})$

$(0[2]_{1,2})$ $(1[3]_{4,3})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(3[1]_{3,4})$ $(2[0]_{2,1})$

Interpretative action

$(2[2]_{1,2,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(0[2]_{1,2})$ $(2[2]_{4,2,1})$

$(1[2]_{1,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(0[2]_{1,2})$ $(2[1]_{4,1})$

$(2[2]_{1,2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[2]_{1,4})$ $(2[2]_{4,2,1})$

$(0[2]_{1,2})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[2]_{1,4})$ $(2[0]_{2,1})$

$(1[2]_{1,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[2]_{1,2,4})$ $(2[1]_{4,1})$

$(0[2]_{1,2})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[2]_{1,2,4})$ $(2[0]_{2,1})$

8. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[2]_{1,2,4}\ 1[2]_{1,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 2[1]_{4,1}\ 2[2]_{4,2,1}\ 1[3]_{4,3})$

Qualitative action

$(2[2]_{1,2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[2]_{1,4})$ $(2[2]_{4,2,1})$

$(3[1]_{3,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[2]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(2[2]_{1,2,4})$ $(2[1]_{4,1})$

$(3[1]_{3,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(2[2]_{1,2,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(3[1]_{3,4})$ $(2[1]_{4,1})$

$(2[2]_{1,2,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(3[1]_{3,4})$ $(2[2]_{4,2,1})$

Medial action

$(2[2]_{1,2,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(0[3]_{2,3})$ $(2[2]_{4,2,1})$

$(3[1]_{3,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(0[3]_{2,3})$ $(1[3]_{4,3})$

$(0[3]_{2,3})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(2[2]_{1,2,4})$ $(3[0]_{3,2})$

$(3[1]_{3,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(2[2]_{1,2,4})$ $(1[3]_{4,3})$

$(0[3]_{2,3})$ $(1[3]_{4,3})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(3[1]_{3,4})$ $(3[0]_{3,2})$

$(2[2]_{1,2,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(3[1]_{3,4})$ $(2[2]_{4,2,1})$

Objectal action

$(1[2]_{1,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(0[3]_{2,3})$ $(2[1]_{4,1})$

$(3[1]_{3,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(0[3]_{2,3})$ $(1[3]_{4,3})$

$(0[3]_{2,3})$ $(2[1]_{4,1})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(1[2]_{1,4})$ $(3[0]_{3,2})$

$(3[1]_{3,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(1[2]_{1,4})$ $(1[3]_{4,3})$

$(1[2]_{1,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(3[1]_{3,4})$ $(2[1]_{4,1})$

$(0[3]_{2,3})$ $(1[3]_{4,3})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(3[1]_{3,4})$ $(3[0]_{3,2})$

Interpretative action

$(2[2]_{1,2,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(0[3]_{2,3})$ $(2[2]_{4,2,1})$

$(1[2]_{1,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(0[3]_{2,3})$ $(2[1]_{4,1})$

$(2[2]_{1,2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[2]_{1,4})$ $(2[2]_{4,2,1})$

$(0[3]_{2,3})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[2]_{1,4})$ $(3[0]_{3,2})$

$(1[2]_{1,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[2]_{1,2,4})$ $(2[1]_{4,1})$

$(0[3]_{2,3})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[2]_{1,2,4})$ $(3[0]_{3,2})$

9. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[2]_{1,2,4}\ 1[3]_{4,3}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 2[2]_{4,2,1}\ 1[3]_{4,3})$

Qualitative action

$(2[2]_{1,2,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(2[2]_{4,2,1})$

$(3[1]_{3,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(1[3]_{4,3})$

$(1[3]_{3,4})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $(2[2]_{4,2,1})$
$(2[2]_{1,2,4})$ $\curlywedge \gg (3[0]_{3,2})$
$(3[1]_{4,3})$

$(3[1]_{3,4})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $(2[2]_{4,2,1})$
$(2[2]_{1,2,4})$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{4,3})$

$(1[3]_{3,4})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $(1[3]_{4,3})$
$(3[1]_{3,4})$ $\curlywedge \gg (3[0]_{3,2})$
$(3[1]_{4,3})$

$(2[2]_{1,2,4})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $(1[3]_{4,3})$
$(3[1]_{3,4})$ $\curlywedge \gg (3[0]_{3,2})$
$(2[2]_{4,2,1})$

Medial action

$(2[2]_{1,2,4})$
$\curlywedge \gg (1[3]_{3,4})$ $\times$ $(3[0]_{3,2})$
$(0[3]_{2,3})$ $\curlywedge \gg (3[1]_{4,3})$
$(2[2]_{4,2,1})$

$(3[1]_{3,4})$
$\curlywedge \gg (1[3]_{3,4})$ $\times$ $(3[0]_{3,2})$
$(0[3]_{2,3})$ $\curlywedge \gg (3[1]_{4,3})$
$(1[3]_{4,3})$

$(0[3]_{2,3})$
$\curlywedge \gg (1[3]_{3,4})$ $\times$ $(2[2]_{4,2,1})$
$(2[2]_{1,2,4})$ $\curlywedge \gg (3[1]_{4,3})$
$(3[0]_{3,2})$

$(3[1]_{3,4})$
$\curlywedge \gg (1[3]_{3,4})$ $\times$ $(2[2]_{4,2,1})$
$(2[2]_{1,2,4})$ $\curlywedge \gg (3[1]_{4,3})$
$(1[3]_{4,3})$

$(0[3]_{2,3})$
$\curlywedge \gg (1[3]_{3,4})$ $\times$ $(1[3]_{4,3})$
$(3[1]_{3,4})$ $\curlywedge \gg (3[1]_{4,3})$
$(3[0]_{3,2})$

$(2[2]_{1,2,4})$
$\curlywedge \gg (1[3]_{3,4})$ $\times$ $(1[3]_{4,3})$
$(3[1]_{3,4})$ $\curlywedge \gg (3[1]_{4,3})$
$(2[2]_{4,2,1})$

Objectal action

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$

$$(3[1]_{3,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(1[3]_{3,4}) \quad (1[3]_{4,3})$$

$$(1[3]_{3,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(3[1]_{3,4}) \quad (3[1]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$

Interpretative action

$$(2[2]_{1,2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(0[3]_{2,3}) \quad (2[2]_{4,2,1})$$

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(2[2]_{1,2,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(1[3]_{3,4}) \quad (2[2]_{4,2,1})$$

$(0[3]_{2,3})$ $(3[1]_{4,3})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(1[3]_{3,4})$ $(3[0]_{3,2})$

$(1[3]_{3,4})$ $(2[2]_{1,2,4})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (3[1]_{4,3})$
$(2[2]_{4,2,1})$ $(0[3]_{2,3})$

$(0[3]_{2,3})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[1]_{3,4})$ $\times$ $\curlywedge \gg (1[3]_{4,3})$
$(2[2]_{1,2,4})$ $(3[0]_{3,2})$

10. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[3]_{2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 3[2]_{4,2}\ 1[3]_{4,3})$

Qualitative action

$(2[3]_{2,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(3[2]_{4,2})$

$(3[1]_{3,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(1[3]_{4,3})$

$(1[3]_{3,4})$ $(3[2]_{4,2})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(2[3]_{2,4})$ $(3[1]_{4,3})$

$(3[1]_{3,4})$ $(3[2]_{4,2})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(2[3]_{2,4})$ $(1[3]_{4,3})$

$(1[3]_{3,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(3[1]_{3,4})$ $(3[1]_{4,3})$

$(2[3]_{2,4})$ $(1[3]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(3[1]_{3,4})$ $(3[2]_{4,2})$

Medial action

$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$

$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$

$$(3[1]_{3,4}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[3]_{2,4}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$

$$(2[3]_{2,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[1]_{3,4}) \quad (3[2]_{4,2})$$

Objectal action

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$

$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$

$$(3[1]_{3,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(1[3]_{3,4}) \quad (1[3]_{4,3})$$

$$(1[3]_{3,4}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(3[1]_{3,4}) \quad (3[1]_{4,3})$$

$$(0[3]_{2,3}) \quad (1[3]_{4,3})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(3[1]_{3,4}) \quad (3[0]_{3,2})$$

Interpretative action

$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(2[3]_{2,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(1[3]_{3,4}) \quad (3[2]_{4,2})$$

$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$

$$(1[3]_{3,4}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(2[3]_{2,4}) \quad (3[1]_{4,3})$$

$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (3[1]_{3,4}) \times \curlywedge \gg (1[3]_{4,3})$$
$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$

11. Pre-semiotic dual system
$(3[2]_{2,4}\ 2[2]_{1,2,4}\ 1[2]_{1,4}\ 0[2]_{1,2}) \times (2[0]_{2,1}\ 2[1]_{4,1}\ 2[2]_{4,2,1}\ 2[3]_{4,2})$

Qualitative action

$(2[2]_{1,2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(1[2]_{1,4})$ $(2[2]_{4,2,1})$

$(3[2]_{2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(1[2]_{1,4})$ $(2[3]_{4,2})$

$(1[2]_{1,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(2[2]_{1,2,4})$ $(2[1]_{4,1})$

$(3[2]_{2,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(2[2]_{1,2,4})$ $(2[3]_{4,2})$

$(1[2]_{1,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(3[2]_{2,4})$ $(2[1]_{4,1})$

$(2[2]_{1,2,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (0[2]_{1,2})$ $\times$ $\curlywedge \gg (2[0]_{2,1})$
$(3[2]_{2,4})$ $(2[2]_{4,2,1})$

Medial action

$(3[2]_{2,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(0[2]_{1,2})$ $(2[3]_{4,2})$

$(3[2]_{2,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (1[2]_{1,4})$ $\times$ $\curlywedge \gg (2[1]_{4,1})$
$(0[2]_{1,2})$ $(2[3]_{4,2})$

$$(0[2]_{1,2}) \curlywedge\!\gg (1[2]_{1,4}) (2[2]_{1,2,4}) \times (2[2]_{4,2,1}) \curlywedge\!\gg (2[1]_{4,1}) (2[0]_{2,1})$$

$$(3[2]_{2,4}) \curlywedge\!\gg (1[2]_{1,4}) (2[2]_{1,2,4}) \times (2[2]_{4,2,1}) \curlywedge\!\gg (2[1]_{4,1}) (2[3]_{4,2})$$

$$(0[2]_{1,2}) \curlywedge\!\gg (1[2]_{1,4}) (3[2]_{2,4}) \times (2[3]_{4,2}) \curlywedge\!\gg (2[1]_{4,1}) (2[0]_{2,1})$$

$$(2[2]_{1,2,4}) \curlywedge\!\gg (1[2]_{1,4}) (3[2]_{2,4}) \times (2[3]_{4,2}) \curlywedge\!\gg (2[1]_{4,1}) (2[2]_{4,2,1})$$

Objectal action

$$(1[2]_{1,4}) \curlywedge\!\gg (2[2]_{1,2,4}) (0[2]_{1,2}) \times (2[0]_{2,1}) \curlywedge\!\gg (2[2]_{4,2,1}) (2[1]_{4,1})$$

$$(3[2]_{2,4}) \curlywedge\!\gg (2[2]_{1,2,4}) (0[2]_{1,2}) \times (2[0]_{2,1}) \curlywedge\!\gg (2[2]_{4,2,1}) (2[3]_{4,2})$$

$$(0[2]_{1,2}) \curlywedge\!\gg (2[2]_{1,2,4}) (1[2]_{1,4}) \times (2[1]_{1,4}) \curlywedge\!\gg (2[2]_{4,2,1}) (2[0]_{2,1})$$

$$(3[2]_{2,4}) \curlywedge\!\gg (2[2]_{1,2,4}) (1[2]_{1,4}) \times (2[1]_{4,1}) \curlywedge\!\gg (2[2]_{4,2,1}) (2[3]_{4,2})$$

$$(1[2]_{1,4}) \curlywedge\!\gg (2[2]_{1,2,4}) (3[2]_{2,4}) \times (2[3]_{4,2}) \curlywedge\!\gg (2[2]_{4,2,1}) (2[1]_{4,1})$$

$$(0[2]_{1,2}) \curlywedge\!\gg (2[2]_{1,2,4}) (3[2]_{2,4}) \times (2[3]_{4,2}) \curlywedge\!\gg (2[2]_{4,2,1}) (2[0]_{2,1})$$

Interpretative action

$(2[2]_{1,2,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(0[2]_{1,2})$ $(2[2]_{4,2,1})$

$(1[2]_{1,4})$ $(2[0]_{2,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(0[2]_{1,2})$ $(2[1]_{4,1})$

$(2[2]_{1,2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(1[2]_{1,4})$ $(2[2]_{4,2,1})$

$(0[2]_{1,2})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(1[2]_{1,4})$ $(2[0]_{2,1})$

$(1[2]_{1,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(2[2]_{1,2,4})$ $(2[1]_{4,1})$

$(0[2]_{1,2})$ $(2[2]_{1,2,4})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(2[2]_{1,2,4})$ $(2[0]_{2,1})$

12. Pre-semiotic dual system
$(3[2]_{2,4}\ 2[2]_{1,2,4}\ 1[2]_{1,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 2[1]_{4,1}\ 2[2]_{4,2,1}\ 2[3]_{4,2})$

Qualitative action

$(2[2]_{1,2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[2]_{1,4})$ $(2[2]_{4,2,1})$

$(3[2]_{2,4})$ $(2[1]_{4,1})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[2]_{1,4})$ $(2[3]_{4,2})$

$(1[2]_{1,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[3]_{2,3}) \quad \times \quad \curlywedge \gg (3[0]_{3,2})$
$(2[2]_{1,2,4})$ $(2[1]_{4,1})$

$(3[2]_{2,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[3]_{2,3}) \quad \times \quad \curlywedge \gg (3[0]_{3,2})$
$(2[3]_{2,4})$ $(2[2]_{1,2,4})$

$(1[2]_{1,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (0[3]_{2,3}) \quad \times \quad \curlywedge \gg (3[0]_{3,2})$
$(3[2]_{2,4})$ $(2[1]_{4,1})$

$(2[2]_{1,2,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (0[3]_{2,3}) \quad \times \quad \curlywedge \gg (3[0]_{3,2})$
$(3[2]_{2,4})$ $(2[2]_{4,2,1})$

Medial action

$(2[2]_{1,2,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (1[2]_{1,4}) \quad \times \quad \curlywedge \gg (2[1]_{4,1})$
$(0[3]_{2,3})$ $(2[2]_{4,2,1})$

$(3[2]_{2,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (1[2]_{1,4}) \quad \times \quad \curlywedge \gg (2[1]_{4,1})$
$(0[3]_{2,3})$ $(2[3]_{4,2})$

$(0[3]_{2,3})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (1[2]_{1,4}) \quad \times \quad \curlywedge \gg (2[1]_{4,1})$
$(2[2]_{1,2,4})$ $(3[0]_{3,2})$

$(3[2]_{2,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (1[2]_{1,4}) \quad \times \quad \curlywedge \gg (2[1]_{4,1})$
$(2[2]_{1,2,4})$ $(2[3]_{4,2})$

$(0[3]_{2,3})$ $(2[3]_{4,2})$
$\curlywedge \gg (1[2]_{1,4}) \quad \times \quad \curlywedge \gg (2[1]_{4,1})$
$(3[2]_{2,4})$ $(3[0]_{3,2})$

$(2[2]_{1,2,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (1[2]_{1,4}) \quad \times \quad \curlywedge \gg (2[1]_{4,1})$
$(3[2]_{2,4})$ $(2[2]_{4,2,1})$

Objectal action

$$(1[2]_{1,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(0[3]_{2,3}) \quad (2[1]_{4,1})$$

$$(3[2]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(0[3]_{2,3}) \quad (2[3]_{4,2})$$

$$(0[3]_{2,3}) \quad (2[1]_{4,1})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(1[2]_{1,4}) \quad (3[0]_{3,2})$$

$$(3[2]_{2,4}) \quad (2[1]_{4,1})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(1[2]_{1,4}) \quad (2[3]_{4,2})$$

$$(1[2]_{1,4}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(3[2]_{2,4}) \quad (2[1]_{4,1})$$

$$(0[3]_{2,3}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(3[2]_{2,4}) \quad (3[0]_{3,2})$$

Interpretative action

$$(2[2]_{1,2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(0[3]_{2,3}) \quad (2[2]_{4,2,1})$$

$$(1[2]_{1,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(0[3]_{2,3}) \quad (2[1]_{4,1})$$

$$(2[2]_{1,2,4}) \quad (2[1]_{4,1})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(1[2]_{1,4}) \quad (2[2]_{4,2,1})$$

$(0[3]_{2,3})$ $(2[1]_{4,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(1[2]_{1,4})$ $(3[0]_{3,2})$

$(1[2]_{1,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(2[2]_{1,2,4})$ $(2[1]_{4,1})$

$(0[3]_{2,3})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(2[2]_{1,2,4})$ $(3[0]_{3,2})$

13. Pre-semiotic dual system
$(3[2]_{2,4}\ 2[2]_{1,2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 2[2]_{4,2,1}\ 2[3]_{4,2})$

Qualitative action

$(2[2]_{1,2,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(2[2]_{4,2,1})$

$(3[2]_{2,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(2[3]_{4,2})$

$(1[3]_{3,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(2[2]_{1,2,4})$ $(3[1]_{4,3})$

$(3[2]_{2,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(2[2]_{1,2,4})$ $(2[3]_{4,2})$

$(1[3]_{3,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(3[2]_{2,4})$ $(3[1]_{4,3})$

$(2[2]_{1,2,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(3[2]_{2,4})$ $(2[2]_{4,2,1})$

Medial action

$$(2[2]_{1,2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(0[3]_{2,3}) \quad (2[2]_{4,2,1})$$

$$(3[2]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(0[3]_{2,3}) \quad (2[3]_{4,2})$$

$$(0[3]_{2,3}) \quad (2[2]_{4,2,1})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[2]_{1,2,4}) \quad (3[0]_{3,2})$$

$$(3[2]_{2,4}) \quad (2[2]_{4,2,1})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[2]_{1,2,4}) \quad (2[3]_{4,2})$$

$$(0[3]_{2,3}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[2]_{2,4}) \quad (3[0]_{3,2})$$

$$(2[2]_{1,2,4}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[2]_{2,4}) \quad (2[2]_{4,2,1})$$

Objectal action

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(3[2]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(0[3]_{2,3}) \quad (2[3]_{4,2})$$

$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[2]_{1,2,4}) \times \curlywedge \gg (2[2]_{4,2,1})$$
$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$

$(3[2]_{2,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(1[3]_{3,4})$ $(2[3]_{4,2})$

$(1[3]_{3,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(3[2]_{2,4})$ $(3[1]_{4,3})$

$(0[3]_{2,3})$ $(2[3]_{4,2})$
$\curlywedge \gg (2[2]_{1,2,4})$ $\times$ $\curlywedge \gg (2[2]_{4,2,1})$
$(3[2]_{2,4})$ $(3[0]_{3,2})$

Interpretative action

$(2[2]_{1,2,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(0[3]_{2,3})$ $(2[2]_{4,2,1})$

$(1[3]_{3,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(0[3]_{2,3})$ $(3[1]_{4,3})$

$(2[2]_{1,2,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(1[3]_{3,4})$ $(2[2]_{4,2,1})$

$(0[3]_{2,3})$ $(3[1]_{4,3})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(1[3]_{3,4})$ $(3[0]_{3,2})$

$(1[3]_{3,4})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(2[2]_{1,2,4})$ $(3[1]_{4,3})$

$(0[3]_{2,3})$ $(2[2]_{4,2,1})$
$\curlywedge \gg (3[2]_{2,4})$ $\times$ $\curlywedge \gg (2[3]_{4,2})$
$(2[2]_{1,2,4})$ $(3[0]_{3,2})$

14. Pre-semiotic dual system
$(3[2]_{2,4}\ 2[3]_{2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 3[2]_{4,2}\ 2[3]_{4,2})$

Qualitative action

$(2[3]_{2,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(3[2]_{4,2})$

$(3[2]_{2,4})$ $(3[1]_{4,3})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(1[3]_{3,4})$ $(2[3]_{4,2})$

$(1[3]_{3,4})$ $(3[2]_{4,2})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(2[3]_{2,4})$ $(3[1]_{4,3})$

$(3[2]_{2,4})$ $(3[2]_{4,2})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(2[3]_{2,4})$ $(2[3]_{4,2})$

$(1[3]_{3,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(3[2]_{2,4})$ $(3[1]_{4,3})$

$(2[3]_{2,4})$ $(2[3]_{4,2})$
$\curlywedge \gg (0[3]_{2,3})$ $\times$ $\curlywedge \gg (3[0]_{3,2})$
$(3[2]_{2,4})$ $(3[2]_{4,2})$

Medial action

$(2[3]_{2,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (1[3]_{3,4})$ $\times$ $\curlywedge \gg (3[1]_{4,3})$
$(0[3]_{2,3})$ $(3[2]_{4,2})$

$(3[2]_{2,4})$ $(3[0]_{3,2})$
$\curlywedge \gg (1[3]_{3,4})$ $\times$ $\curlywedge \gg (3[1]_{4,3})$
$(0[3]_{2,3})$ $(2[3]_{4,2})$

$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$

$$(3[2]_{2,4}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[3]_{2,4}) \quad (2[3]_{4,2})$$

$$(0[3]_{2,3}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[2]_{2,4}) \quad (3[0]_{3,2})$$

$$(2[3]_{2,4}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[2]_{2,4}) \quad (3[2]_{4,2})$$

Objectal action

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(3[2]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(0[3]_{2,3}) \quad (2[3]_{4,2})$$

$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$

$$(3[2]_{2,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(1[3]_{3,4}) \quad (2[3]_{4,2})$$

$$(1[3]_{3,4}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(3[2]_{2,4}) \quad (3[1]_{4,3})$$

$$(0[3]_{2,3}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(3[2]_{2,4}) \quad (3[0]_{3,2})$$

Interpretative action

$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(2[3]_{2,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(1[3]_{3,4}) \quad (3[2]_{4,2})$$

$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$

$$(1[3]_{3,4}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(2[3]_{2,4}) \quad (3[1]_{4,3})$$

$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (3[2]_{2,4}) \times \curlywedge \gg (2[3]_{4,2})$$
$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$

15. Pre-semiotic dual system

$(3[3]_{2,3,4}\ 2[3]_{2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 3[2]_{4,2}\ 3[3]_{4,3,2})$

Qualitative action

$$(2[3]_{2,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(1[3]_{3,4}) \quad (3[2]_{4,2})$$

$$(3[3]_{2,3,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(1[3]_{3,4}) \quad (3[3]_{4,3,2})$$

$$(1[3]_{3,4}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(2[3]_{2,4}) \quad (3[1]_{4,3})$$

$$(3[2]_{2,4}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(2[3]_{2,4}) \quad (2[3]_{4,2})$$

$$(1[3]_{3,4}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(3[2]_{2,4}) \quad (3[1]_{4,3})$$

$$(2[3]_{2,4}) \quad (2[3]_{4,2})$$
$$\curlywedge \gg (0[3]_{2,3}) \times \curlywedge \gg (3[0]_{3,2})$$
$$(3[2]_{2,4}) \quad (3[2]_{4,2})$$

Medial action

$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$

$$(3[3]_{2,3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(0[3]_{2,3}) \quad (3[3]_{4,3,2})$$

$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$

$$(3[3]_{2,3,4}) \quad (3[2]_{4,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(2[3]_{2,4}) \quad (3[3]_{4,3,2})$$

$$(0[3]_{2,3}) \quad (3[3]_{4,3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[3]_{2,3,4}) \quad (3[0]_{3,2})$$

$$(2[3]_{2,4}) \quad (3[3]_{4,3,2})$$
$$\curlywedge \gg (1[3]_{3,4}) \times \curlywedge \gg (3[1]_{4,3})$$
$$(3[3]_{2,3,4}) \quad (3[2]_{4,2})$$

Objectal action

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(3[3]_{2,3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(0[3]_{2,3}) \quad (3[3]_{4,3,2})$$

$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$

$$(3[3]_{2,3,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(1[3]_{3,4}) \quad (3[3]_{4,3,2})$$

$$(1[3]_{3,4}) \quad (3[3]_{4,3,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(3[3]_{2,3,4}) \quad (3[1]_{4,3})$$

$$(0[3]_{2,3}) \quad (3[3]_{4,3,2})$$
$$\curlywedge \gg (2[3]_{2,4}) \times \curlywedge \gg (3[2]_{4,2})$$
$$(3[3]_{2,3,4}) \quad (3[0]_{3,2})$$

Interpretative action

$$(2[3]_{2,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[3]_{2,3,4}) \times \curlywedge \gg (3[3]_{4,3,2})$$
$$(0[3]_{2,3}) \quad (3[2]_{4,2})$$

$$(1[3]_{3,4}) \quad (3[0]_{3,2})$$
$$\curlywedge \gg (3[3]_{2,3,4}) \times \curlywedge \gg (3[3]_{4,3,2})$$
$$(0[3]_{2,3}) \quad (3[1]_{4,3})$$

$$(2[3]_{2,4}) \quad (3[1]_{4,3})$$
$$\curlywedge \gg (3[3]_{2,3,4}) \times \curlywedge \gg (3[3]_{4,3,2})$$
$$(1[3]_{3,4}) \quad (3[2]_{4,2})$$

$$\begin{matrix}(0[3]_{2,3}) \\ \curlywedge \gg (3[3]_{2,3,4}) \\ (1[3]_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(3[1]_{4,3}) \\ \curlywedge \gg (3[3]_{4,3,2}) \\ (3[0]_{3,2})\end{matrix}$$

$$\begin{matrix}(1[3]_{3,4}) \\ \curlywedge \gg (3[3]_{2,3,4}) \\ (2[3]_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(3[2]_{4,2}) \\ \curlywedge \gg (3[3]_{4,3,2}) \\ (3[1]_{4,3})\end{matrix}$$

$$\begin{matrix}(0[3]_{2,3}) \\ \curlywedge \gg (3[3]_{2,3,4}) \\ (2[3]_{2,4})\end{matrix} \quad \times \quad \begin{matrix}(3[2]_{4,2}) \\ \curlywedge \gg (3[3]_{4,3,2}) \\ (3[0]_{3,2})\end{matrix}$$

II. Action schemata of the 2 · 24 tetradic semiotic partial relations

1. Pre-semiotic dual system
(3[1] 2[1] 1[1] 0[1]) × (1[0] 1[1] 1[2] 1[3])

Qualitative action

$$\begin{matrix}(1[1]_{1,3,4}) \gg \curlyvee \succ (0[1]_{1,3}) \\ \end{matrix} \begin{matrix}(3[1]_{3,4}) \\ (2[1]_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(1[0]_{3,1}) \gg \curlyvee \succ (1[1]_{4,3,1}) \\ \end{matrix} \begin{matrix}(1[2]_{4,1}) \\ (1[3]_{4,3})\end{matrix}$$

$$\begin{matrix}(1[1]_{1,4,3}) \gg \curlyvee \succ (0[1]_{1,3}) \\ \end{matrix} \begin{matrix}(2[1]_{1,4}) \\ (3[1]_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(1[0]_{3,1}) \gg \curlyvee \succ (1[1]_{4,3,1}) \\ \end{matrix} \begin{matrix}(1[3]_{4,3}) \\ (1[2]_{4,1})\end{matrix}$$

$$\begin{matrix}(2[1]_{1,4}) \gg \curlyvee \succ (0[1]_{1,3}) \\ \end{matrix} \begin{matrix}(3[1]_{3,4}) \\ (1[1]_{1,3,4})\end{matrix} \quad \times \quad \begin{matrix}(1[0]_{3,1}) \gg \curlyvee \succ (1[2]_{4,1}) \\ \end{matrix} \begin{matrix}(1[1]_{4,3,1}) \\ (1[3]_{4,3})\end{matrix}$$

$$\begin{matrix}(2[1]_{1,4}) \gg \curlyvee \succ (0[1]_{1,3}) \\ \end{matrix} \begin{matrix}(1[1]_{1,3,4}) \\ (3[1]_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(1[0]_{3,1}) \gg \curlyvee \succ (1[2]_{4,1}) \\ \end{matrix} \begin{matrix}(1[3]_{4,3}) \\ (1[1]_{4,3,1})\end{matrix}$$

$$\begin{matrix}(3[1]_{3,4}) \gg \curlyvee \succ (0[1]_{1,3}) \\ \end{matrix} \begin{matrix}(1[1]_{1,3,4}) \\ (2[1]_{1,4})\end{matrix} \quad \times \quad \begin{matrix}(1[0]_{3,1}) \gg \curlyvee \succ (1[3]_{4,3}) \\ \end{matrix} \begin{matrix}(1[2]_{4,1}) \\ (1[1]_{4,3,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \begin{matrix}(2[1]_{1,4})\\ \curlyvee\\ (1[1]_{1,3,4})\end{matrix} \succ (0[1]_{1,3}) \quad \times \quad (1[0]_{3,1}) \gg \begin{matrix}(1[1]_{4,3,1})\\ \curlyvee\\ (1[2]_{4,1})\end{matrix} \succ (1[3]_{4,3})$$

Medial action

$$(0[1]_{1,3}) \gg \begin{matrix}(3[1]_{3,4})\\ \curlyvee\\ (2[1]_{1,4})\end{matrix} \succ (1[1]_{1,3,4}) \quad \times \quad (1[1]_{4,3,1}) \gg \begin{matrix}(1[2]_{4,1})\\ \curlyvee\\ (1[3]_{4,3})\end{matrix} \succ (1[0]_{3,1})$$

$$(0[1]_{1,3}) \gg \begin{matrix}(2[1]_{1,4})\\ \curlyvee\\ (3[1]_{3,4})\end{matrix} \succ (1[1]_{1,3,4}) \quad \times \quad (1[1]_{4,3,1}) \gg \begin{matrix}(1[3]_{4,3})\\ \curlyvee\\ (1[2]_{4,1})\end{matrix} \succ (1[0]_{3,1})$$

$$(2[1]_{1,4}) \gg \begin{matrix}(0[1]_{1,3})\\ \curlyvee\\ (3[1]_{3,4})\end{matrix} \succ (1[1]_{1,3,4}) \quad \times \quad (1[1]_{4,3,1}) \gg \begin{matrix}(1[3]_{4,3})\\ \curlyvee\\ (1[0]_{3,1})\end{matrix} \succ (1[2]_{4,1})$$

$$(2[1]_{1,4}) \gg \begin{matrix}(3[1]_{3,4})\\ \curlyvee\\ (0[1]_{1,3})\end{matrix} \succ (1[1]_{1,3,4}) \quad \times \quad (1[1]_{4,3,1}) \gg \begin{matrix}(1[0]_{3,1})\\ \curlyvee\\ (1[3]_{4,3})\end{matrix} \succ (1[2]_{4,1})$$

$$(3[1]_{3,4}) \gg \begin{matrix}(0[1]_{1,3})\\ \curlyvee\\ (2[1]_{1,4})\end{matrix} \succ (1[1]_{1,3,4}) \quad \times \quad (1[1]_{4,3,1}) \gg \begin{matrix}(1[2]_{4,1})\\ \curlyvee\\ (1[0]_{3,1})\end{matrix} \succ (1[3]_{4,3})$$

$$(3[1]_{3,4}) \gg \begin{matrix}(2[1]_{1,4})\\ \curlyvee\\ (0[1]_{1,3})\end{matrix} \succ (1[1]_{1,3,4}) \quad \times \quad (1[1]_{4,3,1}) \gg \begin{matrix}(1[0]_{3,1})\\ \curlyvee\\ (1[2]_{4,1})\end{matrix} \succ (1[3]_{4,3})$$

Objectal action

$$(0[1]_{1,3}) \gg \begin{matrix}(3[1]_{3,4})\\ \curlyvee\\ (1[1]_{1,3,4})\end{matrix} \succ (2[1]_{1,4}) \quad \times \quad (1[2]_{4,1}) \gg \begin{matrix}(1[1]_{4,3,1})\\ \curlyvee\\ (1[3]_{4,3})\end{matrix} \succ (1[0]_{3,1})$$

$$(0[1]_{1,3}) \gg \begin{matrix}(1[1]_{1,3,4})\\ \curlyvee\\ (3[1]_{3,4})\end{matrix} \succ (2[1]_{1,4}) \quad \times \quad (1[2]_{4,1}) \gg \begin{matrix}(1[3]_{4,3})\\ \curlyvee\\ (1[1]_{4,3,1})\end{matrix} \succ (1[0]_{3,1})$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(0[1]_{1,3})\\(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(1[1]_{4,3,1})\\(1[0]_{3,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[1]_{1,4})\\(0[1]_{1,3})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[0]_{3,1})\\(1[1]_{4,3,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[1]_{1,3})\\(2[1]_{1,4})\\(1[1]_{1,3,4})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(1[3]_{4,3})\\(1[0]_{3,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(2[1]_{1,4})\\(0[1]_{1,3})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[0]_{3,1})\\(1[3]_{4,3})\\(1[1]_{4,3,1})\end{matrix}$$

Interpretative action

$$(0[1]_{1,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(1[1]_{1,3,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(1[0]_{3,1})\\(1[2]_{4,1})\end{matrix}$$

$$(0[1]_{1,3}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(1[0]_{3,1})\\(1[1]_{4,3,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(0[1]_{1,3})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(1[0]_{3,1})\\(1[1]_{4,3,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(0[1]_{1,3})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[0]_{3,1})\\(1[1]_{4,3,1})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[1]_{1,3})\\(3[1]_{3,4})\\(1[1]_{1,3,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \quad \Upsilon \quad \succ \begin{matrix}(1[1]_{4,3,1})\\(1[0]_{3,1})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(3[1]_{3,4})\\(0[1]_{1,3})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[0]_{3,1})\\(1[1]_{4,3,1})\\(1[2]_{4,1})\end{matrix}$$

2. Pre-semiotic dual system
$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[1]_{1,3,4}\ 0[2]_{1,2}) \times (2[0]_{2,1}\ 1[1]_{4,3,1}\ 1[2]_{1,4}\ 1[3]_{4,3})$

Qualitative action

$$\begin{matrix}(3[1]_{3,4}) \\ (1[1]_{1,3,4}) \gg \curlyvee \succ (0[2]_{1,2}) \\ (2[1]_{1,4})\end{matrix} \times \begin{matrix}(1[2]_{4,1}) \\ (2[0]_{2,1}) \gg \curlyvee \succ (1[1]_{4,3,1}) \\ (1[3]_{4,3})\end{matrix}$$

$$\begin{matrix}(2[1]_{1,4}) \\ (1[1]_{1,3,4}) \gg \curlyvee \succ (0[2]_{1,2}) \\ (3[1]_{3,4})\end{matrix} \times \begin{matrix}(1[3]_{4,3}) \\ (2[0]_{2,1}) \gg \curlyvee \succ (1[1]_{4,3,1}) \\ (1[2]_{4,1})\end{matrix}$$

$$\begin{matrix}(3[1]_{3,4}) \\ (2[1]_{1,4}) \gg \curlyvee \succ (0[2]_{1,2}) \\ (1[1]_{1,3,4})\end{matrix} \times \begin{matrix}(1[1]_{4,3,1}) \\ (2[0]_{2,1}) \gg \curlyvee \succ (1[2]_{4,1}) \\ (1[3]_{4,3})\end{matrix}$$

$$\begin{matrix}(1[1]_{1,3,4}) \\ (2[1]_{1,4}) \gg \curlyvee \succ (0[2]_{1,2}) \\ (3[1]_{3,4})\end{matrix} \times \begin{matrix}(1[3]_{4,3}) \\ (2[0]_{2,1}) \gg \curlyvee \succ (1[2]_{4,1}) \\ (1[1]_{4,3,1})\end{matrix}$$

$$\begin{matrix}(1[1]_{1,3,4}) \\ (3[1]_{3,4}) \gg \curlyvee \succ (0[2]_{1,2}) \\ (2[1]_{1,4})\end{matrix} \times \begin{matrix}(1[2]_{4,1}) \\ (2[0]_{2,1}) \gg \curlyvee \succ (1[3]_{4,3}) \\ (1[1]_{4,3,1})\end{matrix}$$

$$\begin{matrix}(2[1]_{1,4}) \\ (3[1]_{3,4}) \gg \curlyvee \succ (0[2]_{1,2}) \\ (1[1]_{1,3,4})\end{matrix} \times \begin{matrix}(1[1]_{4,3,1}) \\ (2[0]_{2,1}) \gg \curlyvee \succ (1[3]_{4,3}) \\ (1[2]_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}(3[1]_{3,4}) \\ (0[2]_{1,2}) \gg \curlyvee \succ (1[1]_{1,3,4}) \\ (2[1]_{1,4})\end{matrix} \times \begin{matrix}(1[2]_{4,1}) \\ (1[1]_{4,3,1}) \gg \curlyvee \succ (2[0]_{2,1}) \\ (1[3]_{4,3})\end{matrix}$$

$$\begin{matrix}(2[1]_{1,4}) \\ (0[2]_{1,2}) \gg \curlyvee \succ (1[1]_{1,3,4}) \\ (3[1]_{3,4})\end{matrix} \times \begin{matrix}(1[3]_{4,3}) \\ (1[1]_{4,3,1}) \gg \curlyvee \succ (2[0]_{2,1}) \\ (1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(1[1]_{1,3,4})\\(3[1]_{3,4})\end{matrix} \quad \times \quad (1[1]_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(1[2]_{4,1})\\(2[0]_{2,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(1[1]_{1,3,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (1[1]_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[2]_{1,4})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(1[1]_{1,3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[1]_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\\(2[0]_{2,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(1[1]_{1,3,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (1[1]_{4,3,1}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[3]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

Objectal action

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(1[1]_{1,3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(1[3]_{4,3})\\(2[0]_{2,1})\end{matrix}$$

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(1[1]_{4,3,1})\\(2[0]_{2,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(2[0]_{2,1})\\(1[1]_{4,3,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(0[2]_{1,2})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[3]_{4,3})\\(1[1]_{4,3,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(2[1]_{1,4})\\(1[1]_{1,3,4})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(1[3]_{4,3})\\(2[0]_{2,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(0[2]_{1,2})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[3]_{4,3})\\(1[1]_{4,3,1})\end{matrix}$$

Interpretative action

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(1[1]_{1,3,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(2[0]_{2,1})\\(1[2]_{4,1})\end{matrix}$$

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(2[0]_{2,1})\\(1[1]_{4,3,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(1[1]_{4,3,1})\\(2[0]_{2,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[1]_{4,3,1})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(3[1]_{3,4})\\(1[1]_{1,3,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(1[2]_{4,1})\\(2[0]_{2,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(3[1]_{3,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[2]_{4,1})\\(1[1]_{4,3,1})\end{matrix}$$

3. Pre-semiotic dual system

$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[1]_{1,3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 1[1]_{4,3,1}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualitative action

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \quad \times \quad (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix} (1[1]_{4,3,1})$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \quad \times \quad \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(1[2]_{4,1})\end{matrix} \Upsilon \succ (1[1]_{4,3,1})$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(1[1]_{1,3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[1]_{4,3,1})\\(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(1[1]_{1,3,4})\\(0[3]_{2,3})\\(3[1]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(1[2]_{4,1})\\(1[1]_{4,3,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(1[1]_{1,3,4})\\(0[3]_{2,3})\\(2[1]_{1,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\\(1[1]_{4,3,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(0[3]_{2,3})\\(1[1]_{1,3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[1]_{4,3,1})\\(1[3]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

Medial action

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(1[1]_{1,3,4})\\(2[1]_{1,4})\end{matrix} \times (1[1]_{4,3,1}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(1[1]_{1,3,4})\\(3[1]_{3,4})\end{matrix} \times (1[1]_{4,3,1}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(1[1]_{1,3,4})\\(3[1]_{3,4})\end{matrix} \times (1[1]_{4,3,1}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(1[2]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(1[1]_{1,3,4})\\(0[3]_{2,3})\end{matrix} \times (1[1]_{4,3,1}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(1[1]_{1,3,4})\\(2[1]_{1,4})\end{matrix} \times (1[1]_{4,3,1}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(1[1]_{1,3,4})\\(0[3]_{2,3})\end{matrix} \times (1[1]_{4,3,1}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(1[3]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

Objectal action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[1]_{1,4})\\(1[1]_{1,3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(1[1]_{4,3,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(1[1]_{4,3,1})\\(3[0]_{3,2})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[1]_{1,4})\\(0[3]_{2,3})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[1]_{4,3,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[1]_{1,4})\\(1[1]_{1,3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(2[1]_{1,4})\\(0[3]_{2,3})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[3]_{4,3})\\(1[1]_{4,3,1})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(1[1]_{1,3,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(3[0]_{3,2})\\(1[2]_{4,1})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(3[0]_{3,2})\\(1[1]_{4,3,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(3[0]_{3,2})\\(1[1]_{4,3,1})\end{matrix}$$

$$(1[1]_{1,3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[1]_{4,3,1})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(1[1]_{1,3,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[1]_{4,3,1})\\(1[2]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(1[1]_{1,3,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[2]_{4,1})\\(1[1]_{4,3,1})\end{matrix}$$

4. Pre-semiotic system

$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[2]_{1,4}\ 0[2]_{1,2}) \times (2[0]_{2,1}\ 2[1]_{4,1}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualitative action

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(1[2]_{1,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[1]_{4,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(2[1]_{1,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(2[1]_{4,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(1[2]_{1,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(1[2]_{4,1})\end{matrix}$$

Medial action

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(1[2]_{1,4})\\(2[1]_{1,4})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(2[0]_{2,1})\\(1[3]_{4,3})\end{matrix}$$

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(1[2]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(2[0]_{2,1})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(1[2]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(1[2]_{4,1})\\(2[0]_{2,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(1[2]_{1,4})\\(0[2]_{1,2})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(1[2]_{1,4})\\(2[1]_{1,4})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\\(2[0]_{2,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(1[2]_{1,4})\\(0[2]_{1,2})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[3]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

Objectal action

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(1[2]_{1,4})\\(2[1]_{1,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(2[0]_{2,1})\\(1[3]_{4,3})\end{matrix}$$

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(2[0]_{2,1})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(2[0]_{2,1})\\(1[2]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \begin{matrix}(3[1]_{3,4})\\ \gg \curlyvee \succ\\ (0[2]_{1,2})\end{matrix} (2[1]_{1,4}) \quad \times \quad (1[2]_{4,1}) \begin{matrix}(2[0]_{2,1})\\ \gg \curlyvee \succ\\ (1[3]_{4,3})\end{matrix} (2[1]_{4,1})$$

$$(3[1]_{3,4}) \begin{matrix}(0[2]_{1,2})\\ \gg \curlyvee \succ\\ (1[2]_{1,4})\end{matrix} (2[1]_{1,4}) \quad \times \quad (1[2]_{4,1}) \begin{matrix}(2[1]_{4,1})\\ \gg \curlyvee \succ\\ (2[0]_{2,1})\end{matrix} (1[3]_{4,3})$$

$$(3[1]_{3,4}) \begin{matrix}(1[2]_{1,4})\\ \gg \curlyvee \succ\\ (0[2]_{1,2})\end{matrix} (2[1]_{1,4}) \quad \times \quad (1[2]_{4,1}) \begin{matrix}(2[0]_{2,1})\\ \gg \curlyvee \succ\\ (2[1]_{4,1})\end{matrix} (1[3]_{4,3})$$

Interpretative action

$$(0[2]_{1,2}) \begin{matrix}(2[1]_{1,4})\\ \gg \curlyvee \succ\\ (1[2]_{1,4})\end{matrix} (3[1]_{3,4}) \quad \times \quad (1[3]_{4,3}) \begin{matrix}(2[1]_{4,1})\\ \gg \curlyvee \succ\\ (1[2]_{4,1})\end{matrix} (2[0]_{2,1})$$

$$(0[2]_{1,2}) \begin{matrix}(1[2]_{1,4})\\ \gg \curlyvee \succ\\ (2[1]_{1,4})\end{matrix} (3[1]_{3,4}) \quad \times \quad (1[3]_{4,3}) \begin{matrix}(1[2]_{4,1})\\ \gg \curlyvee \succ\\ (2[1]_{4,1})\end{matrix} (2[0]_{2,1})$$

$$(1[2]_{1,4}) \begin{matrix}(0[2]_{1,2})\\ \gg \curlyvee \succ\\ (2[1]_{1,4})\end{matrix} (3[1]_{3,4}) \quad \times \quad (1[3]_{4,3}) \begin{matrix}(1[2]_{4,1})\\ \gg \curlyvee \succ\\ (2[0]_{2,1})\end{matrix} (2[1]_{4,1})$$

$$(1[2]_{1,4}) \begin{matrix}(2[1]_{1,4})\\ \gg \curlyvee \succ\\ (0[2]_{1,2})\end{matrix} (3[1]_{3,4}) \quad \times \quad (1[3]_{4,3}) \begin{matrix}(2[0]_{2,1})\\ \gg \curlyvee \succ\\ (1[2]_{4,1})\end{matrix} (2[1]_{4,1})$$

$$(2[1]_{1,4}) \begin{matrix}(0[2]_{1,2})\\ \gg \curlyvee \succ\\ (1[2]_{1,4})\end{matrix} (3[1]_{3,4}) \quad \times \quad (1[3]_{4,3}) \begin{matrix}(2[1]_{4,1})\\ \gg \curlyvee \succ\\ (2[0]_{2,1})\end{matrix} (1[2]_{4,1})$$

$$(2[1]_{1,4}) \begin{matrix}(1[2]_{1,4})\\ \gg \curlyvee \succ\\ (0[2]_{1,2})\end{matrix} (3[1]_{3,4}) \quad \times \quad (1[3]_{4,3}) \begin{matrix}(2[0]_{2,1})\\ \gg \curlyvee \succ\\ (2[1]_{4,1})\end{matrix} (1[2]_{4,1})$$

5. Pre-semiotic dual system

$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[2]_{1,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 2[1]_{4,1}\ 1[2]_{4,1}\ 1[3]_{3,4})$

Qualitative action

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(2[1]_{1,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(2[1]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(0[3]_{2,3})\\(3[1]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(2[1]_{4,1})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(1[2]_{1,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(1[2]_{4,1})\\(1[3]_{3,4})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(0[3]_{2,3})\\(3[1]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(2[1]_{4,1})\\(1[2]_{4,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(0[3]_{2,3})\\(2[1]_{1,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\\(2[1]_{4,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(0[3]_{2,3})\\(1[2]_{1,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(1[3]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

Medial action

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(1[2]_{1,4})\\(2[1]_{1,4})\end{matrix} \times (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(1[2]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(1[2]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(1[2]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(1[2]_{1,4})\\(0[3]_{2,3})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[2]_{4,1})\\(1[3]_{4})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(1[2]_{1,4})\\(2[1]_{1,4})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(1[2]_{1,4})\\(0[3]_{2,3})\end{matrix} \times (2[1]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

Objectal action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(1[2]_{1,4})\\(2[1]_{1,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(2[1]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(2[1]_{1,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[3]_{4,3})\\(2[1]_{4,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(1[2]_{1,4})\\(2[1]_{1,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(1[2]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(0[3]_{2,3})\\(2[1]_{1,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(1[2]_{1,4})\end{matrix} \times (1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(3[0]_{3,2})\\(1[2]_{4,1})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(3[0]_{3,2})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(2[1]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[1]_{4,1})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(1[2]_{1,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(1[2]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[1]_{4,1})\\(1[2]_{4,1})\end{matrix}$$

6. Pre-semiotic dual system

$(3[1]_{3,4}\ 2[1]_{1,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 1[2]_{4,1}\ 1[3]_{4,3})$

Qualitative action

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(2[1]_{1,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(3[1]_{4,3})\\(1[3]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(0[3]_{2,3})\\(3[1]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[1]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(1[3]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(3[1]_{4,3})\\(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(1[3]_{3,4})\\(0[3]_{2,3})\\(3[1]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(1[2]_{4,1})\\(3[1]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(1[3]_{3,4})\\(0[3]_{2,3})\\(2[1]_{1,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\\(3[1]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(0[3]_{2,3})\\(1[3]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(3[1]_{4,3})\\(1[3]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

Medial action

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(1[3]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (3[1]_{4,3}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(1[3]_{3,4})\\(3[1]_{3,4})\end{matrix} \times (3[1]_{4,3}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(1[3]_{3,4})\\(3[1]_{3,4})\end{matrix} \times (3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(1[2]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[1]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(1[3]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (3[1]_{4,3}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(1[3]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (3[1]_{4,3}) \gg \curlyvee \succ \begin{matrix}(1[2]_{4,1})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(2[1]_{1,4})\\(1[3]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (3[1]_{4,3}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(1[2]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

Objectal action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[1]_{1,4})\\(1[3]_{3,4})\end{matrix} \times (1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[1]_{1,4})\\(3[1]_{3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[1]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[1]_{1,4})\\(0[3]_{2,3})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[1]_{1,4})\\(1[3]_{3,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[1]_{1,4})\\(0[3]_{2,3})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(1[3]_{4,3})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(1[3]_{3,4})\end{matrix} \times (1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(3[0]_{3,2})\\(1[2]_{4,1})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(3[0]_{3,2})\\(3[1]_{3,4})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(2[1]_{1,4})\end{matrix} \times (1[2]_{4,1}) \gg \Upsilon \succ \begin{matrix}(1[2]_{4,1})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[1]_{1,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(1[3]_{3,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(1[2]_{4,1})\end{matrix}$$

$$(2[1]_{1,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(1[2]_{4,1})\end{matrix}$$

7. Pre-semiotic dual system

$(3[1]_{3,4}\ 2[2]_{1,2,4}\ 1[2]_{1,4}\ 0[2]_{1,2}) \times (2[0]_{2,1}\ 2[1]_{4,1}\ 2[2]_{4,2,1}\ 1[3]_{4,3})$

Qualitative action

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(0[2]_{1,2})\\(2[2]_{1,2,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(2[1]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(0[2]_{1,2})\\(3[1]_{3,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(0[2]_{1,2})\\(1[2]_{1,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(2[2]_{4,2,1})\\(1[3]_{4,3})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(0[2]_{1,2})\\(3[1]_{3,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(2[2]_{4,2,1})\\(2[1]_{4,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(0[2]_{1,2})\\(2[2]_{1,2,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(1[3]_{4,3})\\(2[1]_{4,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(0[2]_{1,2})\\(1[2]_{1,4})\end{matrix} \times (2[0]_{2,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(1[3]_{4,3})\\(2[2]_{4,2,1})\end{matrix}$$

Medial action

$$(0[2]_{1,2}) \gg_{\Upsilon} \begin{matrix}(3[1]_{3,4})\\ \succ (1[2]_{1,4})\\ (2[2]_{1,2,4})\end{matrix} \times (2[1]_{4,1}) \gg_{\Upsilon} \begin{matrix}(2[2]_{4,2,1})\\ \succ (2[0]_{2,1})\\ (1[3]_{4,3})\end{matrix}$$

$$(0[2]_{1,2}) \gg_{\Upsilon} \begin{matrix}(2[2]_{1,2,4})\\ \succ (1[2]_{1,4})\\ (3[1]_{3,4})\end{matrix} \times (2[1]_{4,1}) \gg_{\Upsilon} \begin{matrix}(1[3]_{4,3})\\ \succ (2[0]_{2,1})\\ (2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg_{\Upsilon} \begin{matrix}(0[2]_{1,2})\\ \succ (1[2]_{1,4})\\ (3[1]_{3,4})\end{matrix} \times (2[1]_{4,1}) \gg_{\Upsilon} \begin{matrix}(1[3]_{4,3})\\ \succ (2[2]_{4,2,1})\\ (2[0]_{2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg_{\Upsilon} \begin{matrix}(3[1]_{3,4})\\ \succ (1[2]_{1,4})\\ (0[2]_{1,2})\end{matrix} \times (2[1]_{4,1}) \gg_{\Upsilon} \begin{matrix}(2[0]_{2,1})\\ \succ (2[2]_{4,2,1})\\ (1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg_{\Upsilon} \begin{matrix}(0[2]_{1,2})\\ \succ (1[2]_{1,4})\\ (2[2]_{1,2,4})\end{matrix} \times (2[1]_{4,1}) \gg_{\Upsilon} \begin{matrix}(2[2]_{4,2,1})\\ \succ (1[3]_{4,3})\\ (2[0]_{2,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg_{\Upsilon} \begin{matrix}(2[2]_{1,2,4})\\ \succ (1[2]_{1,4})\\ (0[2]_{1,2})\end{matrix} \times (2[1]_{4,1}) \gg_{\Upsilon} \begin{matrix}(2[0]_{2,1})\\ \succ (1[3]_{4,3})\\ (2[2]_{4,2,1})\end{matrix}$$

Objectal action

$$(0[2]_{1,2}) \gg_{\Upsilon} \begin{matrix}(3[1]_{3,4})\\ \succ (2[2]_{1,2,4})\\ (1[2]_{1,4})\end{matrix} \times (2[2]_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(2[1]_{4,1})\\ \succ (2[0]_{2,1})\\ (1[3]_{4,3})\end{matrix}$$

$$(0[2]_{1,2}) \gg_{\Upsilon} \begin{matrix}(1[2]_{1,4})\\ \succ (2[2]_{1,2,4})\\ (3[1]_{3,4})\end{matrix} \times (2[2]_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(1[3]_{4,3})\\ \succ (2[0]_{2,1})\\ (2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg_{\Upsilon} \begin{matrix}(0[2]_{1,2})\\ \succ (2[2]_{1,2,4})\\ (3[1]_{3,4})\end{matrix} \times (2[2]_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(1[3]_{4,3})\\ \succ (2[1]_{4,1})\\ (2[0]_{2,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[2]_{1,2,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(2[1]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(2[2]_{1,2,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(1[3]_{4,3})\\(2[0]_{2,1})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(2[2]_{1,2,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(1[3]_{4,3})\\(2[1]_{4,1})\end{matrix}$$

Interpretative action

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[1]_{3,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(2[0]_{2,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[1]_{3,4})\\(2[2]_{1,2,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(2[0]_{2,1})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(3[1]_{3,4})\\(2[2]_{1,2,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(2[1]_{4,1})\\(2[0]_{2,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[1]_{3,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(3[1]_{3,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(1[3]_{4,3})\\(2[0]_{2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[1]_{3,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(2[0]_{2,1})\\(2[2]_{4,2,1})\end{matrix}$$

8. Pre-semiotic dual system

$(3[1]_{3,4}\ 2[2]_{1,2,4}\ 1[2]_{1,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 2[1]_{4,1}\ 2[2]_{4,2,1}\ 1[3]_{4,3})$

Qualitative action

$$\begin{matrix}(3[1]_{3,4}) \\ (1[2]_{1,4}) \gg \curlyvee \succ (0[3]_{2,3}) \\ (2[2]_{1,2,4})\end{matrix} \times \begin{matrix}(2[2]_{4,2,1}) \\ (3[0]_{3,2}) \gg \curlyvee \succ (2[1]_{4,1}) \\ (1[3]_{4,3})\end{matrix}$$

$$\begin{matrix}(2[2]_{1,2,4}) \\ (1[2]_{1,4}) \gg \curlyvee \succ (0[3]_{2,3}) \\ (3[1]_{3,4})\end{matrix} \times \begin{matrix}(1[3]_{4,3}) \\ (3[0]_{3,2}) \gg \curlyvee \succ (2[1]_{4,1}) \\ (2[2]_{4,2,1})\end{matrix}$$

$$\begin{matrix}(3[1]_{3,4}) \\ (2[2]_{1,2,4}) \gg \curlyvee \succ (0[3]_{2,3}) \\ (1[2]_{1,4})\end{matrix} \times \begin{matrix}(2[1]_{4,1}) \\ (3[0]_{3,2}) \gg \curlyvee \succ (2[2]_{4,2,1}) \\ (1[3]_{4,3})\end{matrix}$$

$$\begin{matrix}(1[2]_{1,4}) \\ (2[2]_{1,2,4}) \gg \curlyvee \succ (0[3]_{2,3}) \\ (3[1]_{3,4})\end{matrix} \times \begin{matrix}(1[3]_{4,3}) \\ (3[0]_{3,2}) \gg \curlyvee \succ (2[2]_{4,2,1}) \\ (2[1]_{4,1})\end{matrix}$$

$$\begin{matrix}(1[2]_{1,4}) \\ (3[1]_{3,4}) \gg \curlyvee \succ (0[3]_{2,3}) \\ (2[2]_{1,2,4})\end{matrix} \times \begin{matrix}(2[2]_{4,2,1}) \\ (3[0]_{3,2}) \gg \curlyvee \succ (1[3]_{4,3}) \\ (2[1]_{4,1})\end{matrix}$$

$$\begin{matrix}(2[2]_{1,2,4}) \\ (3[1]_{3,4}) \gg \curlyvee \succ (0[3]_{2,3}) \\ (1[2]_{1,4})\end{matrix} \times \begin{matrix}(2[1]_{4,1}) \\ (3[0]_{3,2}) \gg \curlyvee \succ (1[3]_{4,3}) \\ (2[2]_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}(3[1]_{3,4}) \\ (0[3]_{2,3}) \gg \curlyvee \succ (1[2]_{1,4}) \\ (2[2]_{1,2,4})\end{matrix} \times \begin{matrix}(2[2]_{4,2,1}) \\ (2[1]_{4,1}) \gg \curlyvee \succ (3[0]_{3,2}) \\ (1[3]_{4,3})\end{matrix}$$

$$\begin{matrix}(2[2]_{1,2,4}) \\ (0[3]_{2,3}) \gg \curlyvee \succ (1[2]_{1,4}) \\ (3[1]_{3,4})\end{matrix} \times \begin{matrix}(1[3]_{4,3}) \\ (2[1]_{4,1}) \gg \curlyvee \succ (3[0]_{3,2}) \\ (2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(1[2]_{1,4})\\(3[1]_{3,4})\end{matrix} \quad \times \quad (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(2[2]_{4,2,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(1[2]_{1,4})\\(0[3]_{2,3})\end{matrix} \quad \times \quad (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(2[2]_{4,2,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(1[2]_{1,4})\\(2[2]_{1,2,4})\end{matrix} \quad \times \quad (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(2[2]_{4,2,1})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(2[2]_{1,2,4})\\(1[2]_{1,4})\\(0[3]_{2,3})\end{matrix} \quad \times \quad (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(2[2]_{4,2,1})\\(1[3]_{4,3})\end{matrix}$$

Objectal action

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(2[2]_{1,2,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(2[2]_{1,2,4})\\(3[1]_{3,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(2[2]_{1,2,4})\\(3[1]_{3,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(1[3]_{4,3})\\(2[1]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[1]_{3,4})\\(2[2]_{1,2,4})\\(0[3]_{2,3})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(2[1]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(2[2]_{1,2,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(2[2]_{1,2,4})\\(0[3]_{2,3})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(2[1]_{4,1})\\(1[3]_{4,3})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[1]_{3,4})\\(1[2]_{1,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(3[0]_{3,2})\\(2[2]_{4,2,1})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[1]_{3,4})\\(2[2]_{1,2,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(3[0]_{3,2})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(2[2]_{1,2,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(2[1]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(1[2]_{1,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(2[2]_{4,2,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

9. Pre-semiotic dual system

$$(3[1]_{3,4}\ 2[2]_{1,2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 2[2]_{4,2,1}\ 1[3]_{4,3})$$

Qualitative action

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(2[2]_{1,2,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(3[1]_{4,3})\\(1[3]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(0[3]_{2,3})\\(3[1]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[1]_{4,3})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg^{(3[1]_{3,4})}_{(1[3]_{3,4})} \curlyvee \succ (0[3]_{2,3}) \times (3[0]_{3,2}) \gg^{(3[1]_{3,4})}_{(1[3]_{4,3})} \curlyvee \succ (2[2]_{4,2,1})$$

$$(2[2]_{1,2,4}) \gg^{(1[3]_{3,4})}_{(3[1]_{3,4})} \curlyvee \succ (0[3]_{2,3}) \times (3[0]_{3,2}) \gg^{(1[3]_{4,3})}_{(3[1]_{4,3})} \curlyvee \succ (2[2]_{4,2,1})$$

$$(3[1]_{3,4}) \gg^{(1[3]_{3,4})}_{(2[2]_{1,2,4})} \curlyvee \succ (0[3]_{2,3}) \times (3[0]_{3,2}) \gg^{(2[2]_{4,2,1})}_{(3[1]_{4,3})} \curlyvee \succ (1[3]_{4,3})$$

$$(3[1]_{3,4}) \gg^{(2[2]_{1,2,4})}_{(1[3]_{3,4})} \curlyvee \succ (0[3]_{2,3}) \times (3[0]_{3,2}) \gg^{(3[1]_{4,3})}_{(2[2]_{4,2,1})} \curlyvee \succ (1[3]_{4,3})$$

Medial action

$$(0[3]_{2,3}) \gg^{(3[1]_{3,4})}_{(2[2]_{1,2,4})} \curlyvee \succ (1[3]_{3,4}) \times (3[1]_{4,3}) \gg^{(2[2]_{4,2,1})}_{(1[3]_{4,3})} \curlyvee \succ (3[0]_{3,2})$$

$$(0[3]_{2,3}) \gg^{(2[2]_{1,2,4})}_{(3[1]_{3,4})} \curlyvee \succ (1[3]_{3,4}) \times (3[1]_{4,3}) \gg^{(1[3]_{4,3})}_{(2[2]_{4,2,1})} \curlyvee \succ (3[0]_{3,2})$$

$$(2[2]_{1,2,4}) \gg^{(0[3]_{2,3})}_{(3[1]_{3,4})} \curlyvee \succ (1[3]_{3,4}) \times (3[1]_{4,3}) \gg^{(1[3]_{4,3})}_{(3[0]_{3,2})} \curlyvee \succ (2[2]_{4,2,1})$$

$$(2[2]_{1,2,4}) \gg^{(3[1]_{3,4})}_{(0[3]_{2,3})} \curlyvee \succ (1[3]_{3,4}) \times (3[0]_{3,2}) \gg^{(1[3]_{4,3})}_{(2[2]_{4,2,1})} \curlyvee \succ (3[1]_{4,3})$$

$$(3[1]_{3,4}) \gg^{(0[3]_{2,3})}_{(2[2]_{1,2,4})} \curlyvee \succ (1[3]_{3,4}) \times (3[1]_{4,3}) \gg^{(2[2]_{4,2,1})}_{(3[0]_{3,2})} \curlyvee \succ (1[3]_{4,3})$$

$$(3[1]_{3,4}) \gg^{(2[2]_{1,2,4})}_{(0[3]_{2,3})} \curlyvee \succ (1[3]_{3,4}) \times (3[1]_{4,3}) \gg^{(3[0]_{3,2})}_{(2[2]_{4,2,1})} \curlyvee \succ (1[3]_{4,3})$$

Objective action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[2]_{1,2,4})\\(1[3]_{3,4})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[2]_{1,2,4})\\(3[1]_{3,4})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[2]_{1,2,4})\\(3[1]_{3,4})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[1]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[2]_{1,2,4})\\(0[3]_{2,3})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[2]_{4,2,1})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[2]_{1,2,4})\\(1[3]_{3,4})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[2]_{1,2,4})\\(0[3]_{2,3})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[2]_{4,2,1})\\(1[3]_{4,3})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[1]_{3,4})\\(1[3]_{3,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(2[2]_{4,2,1})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[1]_{3,4})\\(2[2]_{1,2,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(2[2]_{1,2,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(1[3]_{3,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(2[2]_{4,2,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[2]_{4,2,1})\\(3[1]_{4,3})\end{matrix}$$

10. Pre-semiotic dual system

$(3[1]_{3,4}\ 2[3]_{2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 3[2]_{4,2}\ 1[3]_{4,3})$

Qualitative action

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(2[3]_{2,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[1]_{4,3})\\(1[3]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(0[3]_{2,3})\\(3[1]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[1]_{4,3})\\(3[2]_{4,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(0[3]_{2,3})\\(1[3]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[2]_{4,2})\\(1[3]_{4,3})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(0[3]_{2,3})\\(3[1]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(1[3]_{4,3})\\(3[2]_{4,2})\\(3[1]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(0[3]_{2,3})\\(2[3]_{2,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(1[3]_{4,3})\\(3[1]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(0[3]_{2,3})\\(1[3]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(1[3]_{4,3})\\(2[2]_{4,2,1})\end{matrix}$$

Medial action

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(3[1]_{3,4})\\ \succ\\ (2[3]_{2,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[2]_{4,2})\\ \succ\\ (1[3]_{4,3})\end{matrix} (3[0]_{3,2})$$

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(2[3]_{2,4})\\ \succ\\ (3[1]_{3,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(1[3]_{4,3})\\ \succ\\ (3[2]_{4,2})\end{matrix} (3[0]_{3,2})$$

$$(2[3]_{2,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ\\ (3[1]_{3,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(1[3]_{4,3})\\ \succ\\ (3[0]_{3,2})\end{matrix} (3[2]_{4,2})$$

$$(2[3]_{2,4}) \gg_{\Upsilon} \begin{matrix}(3[1]_{3,4})\\ \succ\\ (0[3]_{2,3})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[0]_{3,2})\\ \succ\\ (1[3]_{4,3})\end{matrix} (3[2]_{4,2})$$

$$(3[1]_{3,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ\\ (2[3]_{2,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[2]_{4,2})\\ \succ\\ (3[0]_{3,2})\end{matrix} (1[3]_{4,3})$$

:

$$(3[1]_{3,4}) \gg_{\Upsilon} \begin{matrix}(2[3]_{2,4})\\ \succ\\ (0[3]_{2,3})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[0]_{3,2})\\ \succ\\ (3[2]_{4,2})\end{matrix} (1[3]_{4,3})$$

Objectal action

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(3[1]_{3,4})\\ \succ\\ (1[3]_{3,4})\end{matrix} (2[3]_{2,4}) \quad \times \quad (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(3[1]_{4,3})\\ \succ\\ (1[3]_{4,3})\end{matrix} (3[0]_{3,2})$$

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(1[3]_{3,4})\\ \succ\\ (3[1]_{3,4})\end{matrix} (2[3]_{2,4}) \quad \times \quad (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(1[3]_{4,3})\\ \succ\\ (3[1]_{4,3})\end{matrix} (3[0]_{3,2})$$

$$(1[3]_{3,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ\\ (3[1]_{3,4})\end{matrix} (2[3]_{2,4}) \quad \times \quad (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(1[3]_{4,3})\\ \succ\\ (3[0]_{3,2})\end{matrix} (3[1]_{4,3})$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[1]_{3,4})\\(2[3]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(1[3]_{4,3})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[3]_{2,4})\\(1[3]_{3,4})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(3[1]_{3,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[3]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(1[3]_{3,4})\\(3[1]_{4,3})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(3[1]_{3,4})\\(1[3]_{3,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(3[2]_{4,2})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[1]_{3,4})\\(2[3]_{2,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(2[3]_{2,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[1]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(3[2]_{4,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[1]_{3,4})\\(1[3]_{3,4})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(1[3]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[1]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (1[3]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(3[2]_{4,2})\end{matrix}$$

11. Pre-semiotic dual system

$(3[2]_{2,4}\ 2[2]_{1,2,4}\ 1[2]_{1,4}\ 0[2]_{1,2}) \times (2[0]_{2,1}\ 2[1]_{4,1}\ 2[2]_{4,2,1}\ 2[3]_{4,2})$

Qualitative action

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(0[2]_{1,2})\\(2[2]_{1,2,4})\end{matrix} \times (2[0]_{2,1}) \gg \curlyvee \succ \begin{matrix}(2[2]_{4,2,1})\\(2[1]_{4,1})\\(2[3]_{4,2})\end{matrix}$$

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(2[2]_{1,2,4})\\(0[2]_{1,2})\\(3[2]_{2,4})\end{matrix} \times (2[0]_{2,1}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(0[2]_{1,2})\\(1[2]_{1,4})\end{matrix} \times (2[0]_{2,1}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(2[2]_{4,2,1})\\(2[3]_{4,2})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(0[2]_{1,2})\\(3[2]_{2,4})\end{matrix} \times (2[0]_{2,1}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(2[2]_{4,2,1})\\(2[1]_{4,1})\end{matrix}$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(0[2]_{1,2})\\(2[2]_{1,2,4})\end{matrix} \times (2[0]_{2,1}) \gg \curlyvee \succ \begin{matrix}(2[2]_{4,2,1})\\(2[3]_{4,2})\\(2[1]_{4,1})\end{matrix}$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(2[2]_{1,2,4})\\(0[2]_{1,2})\\(1[2]_{1,4})\end{matrix} \times (2[0]_{2,1}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(2[3]_{4,2})\\(2[2]_{4,2,1})\end{matrix}$$

Medial action

$$(0[2]_{1,2}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(1[2]_{1,4})\\(2[2]_{1,2,4})\end{matrix} \times (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(2[2]_{4,2,1})\\(2[0]_{2,1})\\(2[3]_{4,2})\end{matrix}$$

$$(0[2]_{1,2}) \gg \curlyvee \succ \begin{matrix}(2[2]_{1,2,4})\\(1[2]_{1,4})\\(3[2]_{2,4})\end{matrix} \times (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(2[0]_{2,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(0[2]_{1,2})\\(1[2]_{1,4})\\(3[2]_{2,4})\end{matrix} \quad \times \quad (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(2[2]_{4,2,1})\\(2[0]_{2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(1[2]_{1,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(2[0]_{2,1})\\(2[2]_{4,2,1})\\(2[3]_{4,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(0[2]_{1,2})\\(1[2]_{1,4})\\(2[2]_{1,2,4})\end{matrix} \quad \times \quad (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(2[2]_{4,2,1})\\(2[3]_{4,2})\\(2[0]_{2,1})\end{matrix}$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(2[2]_{1,2,4})\\(1[2]_{1,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (2[1]_{4,1}) \gg \curlyvee \succ \begin{matrix}(2[0]_{2,1})\\(2[3]_{4,2})\\(2[2]_{4,2,1})\end{matrix}$$

Objectal action

$$(0[2]_{1,2}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(2[2]_{1,2,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(2[0]_{2,1})\\(2[3]_{4,2})\end{matrix}$$

$$(0[2]_{1,2}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(2[2]_{1,2,4})\\(3[2]_{2,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(2[0]_{2,1})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(0[2]_{1,2})\\(2[2]_{1,2,4})\\(3[2]_{2,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(2[1]_{4,1})\\(2[0]_{2,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(2[2]_{1,2,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2[0]_{2,1})\\(2[1]_{4,1})\\(2[3]_{4,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(0[2]_{1,2})\\(2[2]_{1,2,4})\\(1[2]_{1,2,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(2[3]_{4,2})\\(2[0]_{2,1})\end{matrix}$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(2[2]_{1,2,4})\\(0[2]_{1,2})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \curlyvee \succ \begin{matrix}(2[0]_{2,1})\\(2[3]_{4,2})\\(2[1]_{4,1})\end{matrix}$$

Interpretative action

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[2]_{2,4})\\(1[2]_{1,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(2[0]_{2,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(0[2]_{1,2}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[2]_{2,4})\\(2[2]_{1,2,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(2[0]_{2,1})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(3[2]_{2,4})\\(2[2]_{1,2,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(2[1]_{4,1})\\(2[0]_{2,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[2]_{2,4})\\(0[2]_{1,2})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(0[2]_{1,2})\\(3[2]_{2,4})\\(1[2]_{1,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(2[2]_{4,2,1})\\(2[0]_{2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[2]_{2,4})\\(0[2]_{1,2})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[0]_{2,1})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

12. Pre-semiotic dual system

$$(3[2]_{2,4}\ 2[2]_{1,2,4}\ 1[2]_{1,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 2[1]_{4,1}\ 2[2]_{4,2,1}\ 2[3]_{4,2})$$

Qualitative action

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[2]_{2,4})\\(0[3]_{2,3})\\(2[2]_{1,2,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(2[1]_{4,1})\\(2[3]_{4,2})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(0[3]_{2,3})\\(3[2]_{2,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(2[3]_{4,2})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg^{(3[2]_{2,4})}_{(1[2]_{1,4})} \Upsilon \succ (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg^{(2[1]_{4,1})}_{(2[3]_{4,2})} \Upsilon \succ (2[2]_{4,2,1})$$

$$(2[2]_{1,2,4}) \gg^{(1[2]_{1,4})}_{(3[2]_{2,4})} \Upsilon \succ (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg^{(2[3]_{4,2})}_{(2[1]_{4,1})} \Upsilon \succ (2[2]_{4,2,1})$$

$$(3[2]_{2,4}) \gg^{(1[2]_{1,4})}_{(2[2]_{1,2,4})} \Upsilon \succ (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg^{(2[2]_{4,2,1})}_{(2[1]_{4,1})} \Upsilon \succ (2[3]_{4,2})$$

$$(3[2]_{2,4}) \gg^{(2[2]_{1,2,4})}_{(1[2]_{1,4})} \Upsilon \succ (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg^{(2[1]_{4,1})}_{(2[2]_{4,2,1})} \Upsilon \succ (2[3]_{4,2})$$

Medial action

$$(0[3]_{2,3}) \gg^{(3[2]_{2,4})}_{(2[2]_{1,2,4})} \Upsilon \succ (1[2]_{1,4}) \quad \times \quad (2[1]_{4,1}) \gg^{(2[2]_{4,2,1})}_{(2[3]_{4,2})} \Upsilon \succ (3[0]_{3,2})$$

$$(0[3]_{2,3}) \gg^{(2[2]_{1,2,4})}_{(3[2]_{2,4})} \Upsilon \succ (1[2]_{1,4}) \quad \times \quad (2[1]_{4,1}) \gg^{(2[3]_{4,2})}_{(2[2]_{4,2,1})} \Upsilon \succ (3[0]_{3,2})$$

$$(2[2]_{1,2,4}) \gg^{(0[3]_{2,3})}_{(3[2]_{2,4})} \Upsilon \succ (1[2]_{1,4}) \quad \times \quad (2[1]_{4,1}) \gg^{(2[3]_{4,2})}_{(3[0]_{3,2})} \Upsilon \succ (2[2]_{4,2,1})$$

$$(2[2]_{1,2,4}) \gg^{(3[2]_{2,4})}_{(0[3]_{2,3})} \Upsilon \succ (1[2]_{1,4}) \quad \times \quad (2[1]_{4,1}) \gg^{(2[2]_{4,2,1})}_{(2[3]_{4,2})} \Upsilon \succ (3[0]_{3,2})$$

$$(3[2]_{2,4}) \gg^{(0[3]_{2,3})}_{(2[2]_{1,2,4})} \Upsilon \succ (1[2]_{1,4}) \quad \times \quad (2[1]_{4,1}) \gg^{(2[2]_{4,2,1})}_{(2[3]_{4,2})} \Upsilon \succ (3[0]_{3,2})$$

$$(3[2]_{2,4}) \gg^{(2[2]_{1,2,4})}_{(0[3]_{2,3})} \Upsilon \succ (1[2]_{1,4}) \quad \times \quad (2[1]_{4,1}) \gg^{(3[0]_{3,2})}_{(2[2]_{4,2,1})} \Upsilon \succ (2[3]_{4,2})$$

Objectal action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(3[2]_{2,4})\\(2[2]_{1,2,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(3[0]_{3,2})\\(2[3]_{4,2})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(2[2]_{1,2,4})\\(3[2]_{2,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2[3]_{4,2})\\(3[0]_{3,2})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[2]_{1,2,4})\\(3[2]_{2,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2[3]_{4,2})\\(2[1]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(3[2]_{2,4})\\(2[2]_{1,2,4})\\(0[3]_{2,3})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[1]_{4,1})\\(2[3]_{4,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[2]_{1,2,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(2[3]_{4,2})\\(3[0]_{3,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(2[2]_{1,2,4})\\(0[3]_{2,3})\end{matrix} \quad \times \quad (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[3]_{4,2})\\(2[1]_{4,1})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[2]_{2,4})\\(1[2]_{1,4})\end{matrix} \quad \times \quad (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[1]_{4,1})\\(3[0]_{3,2})\\(2[2]_{4,2,1})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[2]_{1,4})\\(3[2]_{2,4})\\(2[2]_{1,2,4})\end{matrix} \quad \times \quad (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(3[0]_{3,2})\\(2[1]_{4,1})\end{matrix}$$

$$(1[2]_{1,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[2]_{2,4})\\(2[2]_{1,2,4})\end{matrix} \quad \times \quad (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(2[1]_{4,1})\\(3[0]_{3,2})\end{matrix}$$

$$(1[2]_{1,4}) \gg \curlyvee \succ \begin{matrix}(2[2]_{1,2,4})\\(3[2]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (2[3]_{4,2}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(2[1]_{4,1})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(0[3]_{2,3})\\(3[2]_{2,4})\\(1[2]_{1,4})\end{matrix} \times (2[3]_{4,2}) \gg \curlyvee \succ \begin{matrix}(2[1]_{4,1})\\(2[2]_{4,2,1})\\(3[0]_{3,2})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(1[2]_{1,4})\\(3[2]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (2[3]_{4,2}) \gg \curlyvee \succ \begin{matrix}(3[0]_{3,2})\\(2[2]_{4,2,1})\\(2[1]_{4,1})\end{matrix}$$

13. Pre-semiotic system

$(3[2]_{2,4}\ 2[2]_{1,2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 2[2]_{4,2,1}\ 2[3]_{4,2})$

Qualitative action

$$(1[3]_{3,4}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(0[3]_{2,3})\\(2[2]_{1,2,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(2[2]_{4,2,1})\\(3[1]_{4,3})\\(2[3]_{4,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg \curlyvee \succ \begin{matrix}(2[2]_{1,2,4})\\(0[3]_{2,3})\\(3[2]_{2,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(3[1]_{4,3})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(0[3]_{2,3})\\(1[3]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(3[1]_{4,3})\\(2[2]_{4,2,1})\\(3[2]_{4,2})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \curlyvee \succ \begin{matrix}(1[3]_{3,4})\\(0[3]_{2,3})\\(3[2]_{2,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(2[2]_{4,2,1})\\(3[1]_{4,3})\end{matrix}$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(1[3]_{3,4})\\(0[3]_{2,3})\\(2[2]_{1,2,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(2[2]_{4,2,1})\\(2[3]_{4,2})\\(3[1]_{4,3})\end{matrix}$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(2[2]_{1,2,4})\\(0[3]_{2,3})\\(1[3]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(3[1]_{4,3})\\(2[3]_{4,2})\\(2[2]_{4,2,1})\end{matrix}$$

Medial action

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(3[2]_{2,4})\\ \succ\\ (2[2]_{1,2,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(2[2]_{4,2,1})\\ \succ\\ (2[3]_{4,2})\end{matrix} (3[0]_{3,2})$$

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(2[2]_{1,2,4})\\ \succ\\ (3[2]_{2,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(2[3]_{4,2})\\ \succ\\ (2[2]_{4,2,1})\end{matrix} (3[0]_{3,2})$$

$$(2[2]_{1,2,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ\\ (3[2]_{2,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(2[3]_{4,2})\\ \succ\\ (3[0]_{3,2})\end{matrix} (2[2]_{4,2,1})$$

$$(2[2]_{1,2,4}) \gg_{\Upsilon} \begin{matrix}(3[2]_{2,4})\\ \succ\\ (0[3]_{2,3})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[0]_{3,2})\\ \succ\\ (2[3]_{4,2})\end{matrix} (2[2]_{4,2,1})$$

$$(3[2]_{2,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ\\ (2[2]_{1,2,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(2[2]_{4,2,1})\\ \succ\\ (3[0]_{3,2})\end{matrix} (2[3]_{4,2})$$

$$(3[2]_{2,4}) \gg_{\Upsilon} \begin{matrix}(2[2]_{1,2,4})\\ \succ\\ (0[3]_{2,3})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[0]_{3,2})\\ \succ\\ (2[3]_{4,2})\end{matrix} (2[2]_{4,2,1})$$

Objectal action

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(3[2]_{2,4})\\ \succ\\ (1[3]_{3,4})\end{matrix} (2[2]_{1,2,4}) \quad \times \quad (2[2]_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(3[1]_{4,3})\\ \succ\\ (2[3]_{4,2})\end{matrix} (3[0]_{3,2})$$

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(1[3]_{3,4})\\ \succ\\ (3[2]_{2,4})\end{matrix} (2[2]_{1,2,4}) \quad \times \quad (2[2]_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(2[3]_{4,2})\\ \succ\\ (3[1]_{4,3})\end{matrix} (3[0]_{3,2})$$

$$(1[3]_{3,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ\\ (3[2]_{2,4})\end{matrix} (2[2]_{1,2,4}) \quad \times \quad (2[2]_{4,2,1}) \gg_{\Upsilon} \begin{matrix}(2[3]_{4,2})\\ \succ\\ (3[0]_{3,2})\end{matrix} (3[1]_{4,3})$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[2]_{2,4})\\(2[2]_{1,2,4})\\(0[3]_{2,3})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(2[3]_{4,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[2]_{1,2,4})\\(1[3]_{3,4})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(2[3]_{4,2})\\(3[0]_{3,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[2]_{1,2,4})\\(0[3]_{2,3})\end{matrix} \times (2[2]_{4,2,1}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(2[3]_{4,2})\\(3[1]_{4,3})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[2]_{2,4})\\(1[3]_{3,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(2[2]_{4,2,1})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[2]_{2,4})\\(2[2]_{1,2,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[2]_{2,4})\\(2[2]_{1,2,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(2[2]_{4,2,1})\\(3[1]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[2]_{1,2,4})\\(3[2]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(2[2]_{4,2,1})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[2]_{2,4})\\(1[3]_{3,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(2[3]_{4,2})\\(3[0]_{3,2})\end{matrix}$$

$$(2[2]_{1,2,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[2]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(2[2]_{4,2,1})\end{matrix}$$

14. Pre-semiotic dual system

$(3[2]_{2,4}\ 2[3]_{2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 3[2]_{4,2}\ 2[3]_{4,2})$

Qualitative action

$$(1[3]_{3,4}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(2[3]_{2,4})\end{matrix} (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(3[2]_{4,2})\\(2[3]_{4,2})\end{matrix} (3[1]_{4,3})$$

$$(1[3]_{3,4}) \gg \curlyvee \succ \begin{matrix}(2[3]_{2,4})\\(3[2]_{2,4})\end{matrix} (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(3[2]_{4,2})\end{matrix} (3[1]_{4,3})$$

$$(2[3]_{2,4}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(1[3]_{3,4})\end{matrix} (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(3[1]_{4,3})\\(2[3]_{4,2})\end{matrix} (3[2]_{4,2})$$

$$(2[3]_{2,4}) \gg \curlyvee \succ \begin{matrix}(1[3]_{3,4})\\(3[2]_{2,4})\end{matrix} (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(3[1]_{4,3})\end{matrix} (3[2]_{4,2})$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(1[3]_{3,4})\\(2[3]_{2,4})\end{matrix} (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(3[2]_{4,2})\\(3[1]_{4,3})\end{matrix} (2[3]_{4,2})$$

$$(3[2]_{2,4}) \gg \curlyvee \succ \begin{matrix}(2[3]_{2,4})\\(1[3]_{3,4})\end{matrix} (0[3]_{2,3}) \quad \times \quad (3[0]_{3,2}) \gg \curlyvee \succ \begin{matrix}(3[1]_{4,3})\\(3[2]_{4,2})\end{matrix} (2[3]_{4,2})$$

Medial action

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(3[2]_{2,4})\\(2[3]_{2,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg \curlyvee \succ \begin{matrix}(3[2]_{4,2})\\(2[3]_{4,2})\end{matrix} (3[0]_{3,2})$$

$$(0[3]_{2,3}) \gg \curlyvee \succ \begin{matrix}(2[3]_{2,4})\\(3[2]_{2,4})\end{matrix} (1[3]_{3,4}) \quad \times \quad (3[1]_{4,3}) \gg \curlyvee \succ \begin{matrix}(2[3]_{4,2})\\(3[2]_{4,2})\end{matrix} (3[0]_{3,2})$$

$$(2[3]_{2,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ 1[3]_{3,4})\\ (3[2]_{2,4})\end{matrix} \times (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(2[3]_{4,2})\\ \succ (3[2]_{4,2})\\ (3[0]_{3,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg_{\Upsilon} \begin{matrix}(3[2]_{2,4})\\ \succ (1[3]_{3,4})\\ (0[3]_{2,3})\end{matrix} \times (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[0]_{3,2})\\ \succ (3[2]_{4,2})\\ (2[3]_{4,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg \begin{matrix}(0[3]_{2,3})\\ \succ (1[3]_{3,4})\\ (2[3]_{2,4})\end{matrix} \times (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[2]_{4,2})\\ \succ (2[3]_{4,2})\\ (3[0]_{3,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg_{\Upsilon} \begin{matrix}(2[3]_{2,4})\\ \succ (1[3]_{3,4})\\ (0[3]_{2,3})\end{matrix} \times (3[1]_{4,3}) \gg_{\Upsilon} \begin{matrix}(3[0]_{3,2})\\ \succ (2[3]_{4,2})\\ (3[2]_{4,2})\end{matrix}$$

Objectal action

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(3[2]_{2,4})\\ \succ (2[3]_{2,4})\\ (1[3]_{3,4})\end{matrix} \times (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(3[1]_{4,3})\\ \succ (3[0]_{3,2})\\ (2[3]_{4,2})\end{matrix}$$

$$(0[3]_{2,3}) \gg_{\Upsilon} \begin{matrix}(1[3]_{3,4})\\ \succ (2[3]_{2,4})\\ (3[2]_{2,4})\end{matrix} \times (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(2[3]_{4,2})\\ \succ (3[0]_{3,2})\\ (3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ (2[3]_{2,4})\\ (3[2]_{2,4})\end{matrix} \times (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(2[3]_{4,2})\\ \succ (3[1]_{4,3})\\ (3[0]_{3,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg_{\Upsilon} \begin{matrix}(3[2]_{2,4})\\ \succ (2[3]_{2,4})\\ (0[3]_{2,3})\end{matrix} \times (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(3[0]_{3,2})\\ \succ (3[1]_{4,3})\\ (2[3]_{4,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg_{\Upsilon} \begin{matrix}(0[3]_{2,3})\\ \succ (2[3]_{2,4})\\ (1[3]_{3,4})\end{matrix} \times (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(3[1]_{4,3})\\ \succ (2[3]_{4,2})\\ (3[0]_{3,2})\end{matrix}$$

$$(3[2]_{2,4}) \gg_{\Upsilon} \begin{matrix}(1[3]_{3,4})\\ \succ (2[3]_{2,4})\\ (0[3]_{2,3})\end{matrix} \times (3[2]_{4,2}) \gg_{\Upsilon} \begin{matrix}(3[0]_{3,2})\\ \succ (2[3]_{4,2})\\ (3[1]_{4,3})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(3[2]_{2,4})\\(1[3]_{3,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(3[2]_{4,2})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[2]_{2,4})\\(2[3]_{2,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[2]_{2,4})\\(2[3]_{2,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[1]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(3[2]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(3[2]_{4,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[2]_{2,4})\\(1[3]_{3,4})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[2]_{4,2})\\(3[0]_{3,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[2]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (2[3]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[2]_{4,2})\\(3[1]_{4,3})\end{matrix}$$

15. Pre-semiotic dual system

$(3[3]_{2,3,4}\ 2[3]_{2,4}\ 1[3]_{3,4}\ 0[3]_{2,3}) \times (3[0]_{3,2}\ 3[1]_{4,3}\ 3[2]_{4,2}\ 3[3]_{4,3,2})$

Qualitative action

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[3]_{2,3,4})\\(2[3]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[3]_{4,3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(3[3]_{2,3,4})\\(0[3]_{2,3})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[3]_{4,3,2})\\(3[2]_{4,2})\\(3[1]_{4,3})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(3[3]_{2,3,4})\\(0[3]_{2,3})\\(1[3]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[2]_{4,2})\\(3[3]_{4,3,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(0[3]_{2,3})\\(3[3]_{2,3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[3]_{4,3,2})\\(3[2]_{4,2})\\(3[1]_{4,3})\end{matrix}$$

$$(3[3]_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(0[3]_{2,3})\\(2[3]_{2,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[3]_{4,3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(3[3]_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(0[3]_{2,3})\\(1[3]_{3,4})\end{matrix} \times (3[0]_{3,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[3]_{4,3,2})\\(3[2]_{4,2})\end{matrix}$$

Medial action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(3[3]_{2,3,4})\\(1[3]_{3,4})\\(2[3]_{2,4})\end{matrix} \times (3[1]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[0]_{3,2})\\(3[3]_{4,3,2})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(1[3]_{3,4})\\(3[2]_{2,4})\end{matrix} \times (3[1]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[3]_{4,2})\\(3[0]_{3,2})\\(3[2]_{4,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(1[3]_{3,4})\\(3[2]_{2,4})\end{matrix} \times (3[1]_{4,3}) \gg \Upsilon \succ \begin{matrix}(2[3]_{4,2})\\(3[2]_{4,2})\\(3[0]_{3,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(3[3]_{2,3,4})\\(1[3]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (3[1]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[2]_{4,2})\\(3[3]_{4,3,2})\end{matrix}$$

$$(3[3]_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(1[3]_{3,4})\\(2[3]_{2,4})\end{matrix} \times (3[1]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[3]_{4,3,2})\\(3[0]_{3,2})\end{matrix}$$

$$(3[3]_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(1[3]_{3,4})\\(0[3]_{2,3})\end{matrix} \times (3[1]_{4,3}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[3]_{4,3,2})\\(3[2]_{4,2})\end{matrix}$$

Objectal action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(3[3]_{2,3,4})\\(2[3]_{2,4})\\(1[3]_{3,4})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(3[3]_{4,3,2})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[3]_{2,4})\\(3[3]_{2,3,4})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[3]_{4,3,2})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[3]_{2,4})\\(3[3]_{2,3,4})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[3]_{4,3,2})\\(3[1]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(3[3]_{2,3,4})\\(2[3]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{3,4})\\(3[3]_{4,3,2})\end{matrix}$$

$$(3[3]_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(2[3]_{2,4})\\(1[3]_{3,4})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[3]_{2,3,4})\\(3[0]_{3,2})\end{matrix}$$

$$(3[3]_{2,3,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(2[3]_{2,4})\\(0[3]_{2,3})\end{matrix} \times (3[2]_{4,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[3]_{4,3,2})\\(3[1]_{4,3})\end{matrix}$$

Interpretative action

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(3[3]_{2,3,4})\\(1[3]_{3,4})\end{matrix} \times (3[3]_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[0]_{3,2})\\(3[2]_{4,2})\end{matrix}$$

$$(0[3]_{2,3}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[3]_{2,3,4})\\(2[3]_{2,4})\end{matrix} \times (3[3]_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[0]_{3,2})\\(3[1]_{4,3})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[3]_{2,3,4})\\(2[3]_{2,4})\end{matrix} \times (3[3]_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(3[2]_{4,2})\\(3[1]_{4,3})\\(3[0]_{3,2})\end{matrix}$$

$$(1[3]_{3,4}) \gg \Upsilon \succ \begin{matrix}(2[3]_{2,4})\\(3[3]_{2,3,4})\\(0[3]_{2,3})\end{matrix} \quad \times \quad (3[3]_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[1]_{4,3})\\(3[2]_{4,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(0[3]_{2,3})\\(3[3]_{2,3,4})\\(1[3]_{3,4})\end{matrix} \quad \times \quad (3[3]_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(3[1]_{4,3})\\(3[2]_{4,2})\\(3[0]_{3,2})\end{matrix}$$

$$(2[3]_{2,4}) \gg \Upsilon \succ \begin{matrix}(1[3]_{3,4})\\(3[3]_{2,3,4})\\(0[3]_{2,3})\end{matrix} \quad \times \quad (3[3]_{4,3,2}) \gg \Upsilon \succ \begin{matrix}(3[0]_{3,2})\\(3[2]_{4,2})\\(3[1]_{4,3})\end{matrix}$$

Chapter Eight: The Qualitative Night

I. Action schemata of the 2 · 24 triadic semiotic partial relations

1. Pre-semiotic dual system
$([110001]_{3,4}\ [110010]_{1,4}\ [110110]_{1,3,4}\ [101110]_{1,3}) \times$
$([101110]_{3,1}\ [110110]_{4,3,1}\ [110010]_{4,1}\ [110001]_{4,3})$

Qualitative action

$([110010]_{1,4})$ $([110110]_{4,3,1})$
$\quad \curlywedge \gg ([101110]_{1,3}) \quad \times \quad \curlywedge \gg ([101110]_{3,1})$
$([110110]_{1,3,4})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([110110]_{4,3,1})$
$\quad \curlywedge \gg ([101110]_{1,3}) \quad \times \quad \curlywedge \gg ([101110]_{3,1})$
$([110110]_{1,3,4})$ $([110001]_{4,3})$

$([110110]_{1,3,4})$ $([110010]_{4,1})$
$\quad \curlywedge \gg ([101110]_{1,3}) \quad \times \quad \curlywedge \gg ([101110]_{3,1})$
$([110010]_{1,4})$ $([110110]_{4,3,1})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\quad \curlywedge \gg ([101110]_{1,3}) \quad \times \quad \curlywedge \gg ([101110]_{3,1})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([110110]_{1,3,4})$ $([110001]_{4,3})$
$\quad \curlywedge \gg ([101110]_{1,3}) \quad \times \quad \curlywedge \gg ([101110]_{3,1})$
$([110001]_{3,4})$ $([110110]_{4,3,1})$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\quad \curlywedge \gg ([101110]_{1,3}) \quad \times \quad \curlywedge \gg ([101110]_{3,1})$
$([110001]_{3,4})$ $([110010]_{4,1})$

Medial action

$$([110010]_{1,4}) \curlywedge\gg ([110110]_{1,3,4}) ([101110]_{1,3}) \times ([101110]_{3,1}) \curlywedge\gg ([110110]_{4,3,1}) ([110010]_{4,1})$$

$$([110001]_{3,4}) \curlywedge\gg ([110110]_{1,3,4}) ([101110]_{1,3}) \times ([101110]_{3,1}) \curlywedge\gg ([110110]_{4,3,1}) ([110001]_{4,3})$$

$$([101110]_{1,3}) \curlywedge\gg ([110110]_{1,3,4}) ([110010]_{1,4}) \times ([110010]_{4,1}) \curlywedge\gg ([110110]_{4,3,1}) ([101110]_{3,1})$$

$$([110001]_{3,4}) \curlywedge\gg ([110110]_{1,3,4}) ([110010]_{1,4}) \times ([110010]_{4,1}) \curlywedge\gg ([110110]_{4,3,1}) ([110001]_{4,3})$$

$$([101110]_{1,3}) \curlywedge\gg ([110110]_{1,3,4}) ([110001]_{3,4}) \times ([110001]_{4,3}) \curlywedge\gg ([110110]_{4,3,1}) ([101110]_{3,1})$$

$$([110010]_{1,4}) \curlywedge\gg ([110110]_{1,3,4}) ([110001]_{3,4}) \times ([110001]_{4,3}) \curlywedge\gg ([110110]_{4,3,1}) ([110010]_{4,1})$$

Objectal action

$$([110110]_{1,3,4}) \curlywedge\gg ([110010]_{1,4}) ([101110]_{1,3}) \times ([101110]_{3,1}) \curlywedge\gg ([110010]_{4,1}) ([110110]_{4,3,1})$$

$$([110001]_{3,4}) \curlywedge\gg ([110010]_{1,4}) ([101110]_{1,3}) \times ([101110]_{3,1}) \curlywedge\gg ([110010]_{4,1}) ([110001]_{4,3})$$

$([101110]_{1,3})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110110]_{1,3,4})$ $([101110]_{3,1})$

$([110001]_{3,4})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110110]_{1,3,4})$ $([110001]_{4,3})$

$([110110]_{1,3,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([110110]_{4,3,1})$

$([101110]_{1,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([101110]_{3,1})$

Interpretative action

$([110010]_{1,4})$ $([101110]_{3,1})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([101110]_{1,3})$ $([110010]_{4,1})$

$([110110]_{1,3,4})$ $([101110]_{3,1})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([101110]_{1,3})$ $([110110]_{4,3,1})$

$([110010]_{1,4})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([110110]_{1,3,4})$ $([110010]_{4,1})$

$([101110]_{1,3})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([110110]_{1,3,4})$ $([101110]_{3,1})$

$([110110]_{1,3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([110110]_{4,3,1})$

$([101110]_{1,3})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([101110]_{3,1})$

2. Pre-semiotic dual system
$([110001]_{3,4}\ [110010]_{1,4}\ [110110]_{1,3,4}\ [101010]_{1,2}) \times$
$([101010]_{2,1}\ [110110]_{4,3,1}\ [110010]_{4,1}\ [110001]_{4,3})$

Qualitative action

$([110010]_{1,4})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([110110]_{1,3,4})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([110110]_{1,3,4})$ $([110001]_{4,3})$

$([110110]_{1,3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([110010]_{1,4})$ $([110110]_{4,3,1})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([110110]_{1,3,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([110001]_{3,4})$ $([110110]_{4,3,1})$

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101010]_{1,2}) \times \curlywedge \gg ([101010]_{2,1})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

Medial action

$$([110010]_{1,4}) \quad ([101010]_{2,1})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([101010]_{1,2}) \quad ([110010]_{4,1})$$

$$([110001]_{3,4}) \quad ([101010]_{2,1})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([101010]_{1,2}) \quad ([110001]_{4,3})$$

$$([101010]_{1,2}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([110010]_{1,4}) \quad ([101010]_{2,1})$$

$$([110001]_{3,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([110010]_{1,4}) \quad ([110001]_{4,3})$$

$$([101010]_{1,2}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([110001]_{3,4}) \quad ([101010]_{2,1})$$

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

Objectal action

$$([110110]_{1,3,4}) \quad ([101010]_{2,1})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([101010]_{1,2}) \quad ([110110]_{4,3,1})$$

$$([110001]_{3,4}) \curlywedge\gg ([110010]_{1,4}) ([101010]_{1,2}) \times ([101010]_{2,1}) \curlywedge\gg ([110010]_{4,1}) ([110001]_{4,3})$$

$$([101010]_{1,2}) \curlywedge\gg ([110010]_{1,4}) ([110110]_{1,3,4}) \times ([110110]_{4,3,1}) \curlywedge\gg ([110010]_{4,1}) ([101010]_{2,1})$$

$$([110001]_{3,4}) \curlywedge\gg ([110010]_{1,4}) ([110110]_{1,3,4}) \times ([110110]_{4,3,1}) \curlywedge\gg ([110010]_{4,1}) ([110001]_{4,3})$$

$$([110110]_{1,3,4}) \curlywedge\gg ([110010]_{1,4}) ([110001]_{3,4}) \times ([110001]_{4,3}) \curlywedge\gg ([110010]_{4,1}) ([110110]_{4,3,1})$$

$$([101010]_{1,2}) \curlywedge\gg ([110010]_{1,4}) ([110001]_{3,4}) \times ([110001]_{4,3}) \curlywedge\gg ([110010]_{4,1}) ([101010]_{2,1})$$

Interpretative action

$$([110010]_{1,4}) \curlywedge\gg ([110001]_{3,4}) ([101010]_{1,2}) \times ([101010]_{2,1}) \curlywedge\gg ([110001]_{4,3}) ([110010]_{4,1})$$

$$([110110]_{1,3,4}) \curlywedge\gg ([110001]_{3,4}) ([101010]_{1,2}) \times ([110110]_{4,3,1}) \curlywedge\gg ([110001]_{4,3}) ([101010]_{1,2})$$

$$([110010]_{1,4}) \curlywedge\gg ([110001]_{3,4}) ([110110]_{1,3,4}) \times ([110110]_{4,3,1}) \curlywedge\gg ([110001]_{4,3}) ([110010]_{4,1})$$

$([101010]_{1,2})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$
$([110110]_{1,3,4})$ $([101010]_{2,1})$

$([110110]_{1,3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([110110]_{4,3,1})$

$([101010]_{1,2})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([101010]_{2,1})$

3. Pre-semiotic dual system

$([110001]_{3,4}\ [110010]_{1,4}\ [110110]_{1,3,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110110]_{4,3,1}\ [110010]_{4,1}\ [110001]_{4,3})$

Qualitative action

$([110010]_{1,4})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$
$([110110]_{1,3,4})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$
$([110110]_{1,3,4})$ $([110001]_{4,3})$

$([110110]_{1,3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$
$([110010]_{1,4})$ $([110110]_{4,3,1})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$$([110110]_{1,3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110110]_{4,3,1})$$

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

Medial action

$$([110010]_{1,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([101001]_{2,3}) \quad ([110010]_{4,1})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([110010]_{1,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([110010]_{1,4}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110110]_{1,3,4}) \times \curlywedge \gg ([110110]_{4,3,1})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

Objectal action

$$([110110]_{1,3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([101001]_{2,3}) \quad ([110110]_{4,3,1})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110110]_{4,3,1})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110110]_{1,3,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([110110]_{4,3,1})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110110]_{1,3,4}) \quad ([110001]_{4,3})$$

$$([110110]_{1,3,4}) \quad ([110001]_{3,4})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110001]_{3,4}) \quad ([110110]_{4,3,1})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

Interpretative action

$$([110010]_{1,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([110010]_{4,1})$$

$$([110110]_{1,3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([110110]_{4,3,1})$$

$([110010]_{1,4})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([110110]_{1,3,4})$ $([110010]_{4,1})$

$([101001]_{2,3})$ $([110110]_{4,3,1})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([110110]_{1,3,4})$ $([101001]_{3,2})$

$([110110]_{1,3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([110110]_{4,3,1})$

$([101001]_{2,3})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([101001]_{3,2})$

4. Pre-semiotic dual system
$([110001]_{3,4}\ [110010]_{1,4}\ [110010]_{1,4}\ [101010]_{1,2}) \times$
$([101010]_{2,1}\ [110010]_{4,1}\ [110010]_{4,1}\ [110001]_{4,3})$

Qualitative action

$([110010]_{1,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101010]_{1,2})$ $\times$ $\curlywedge \gg ([101010]_{2,1})$
$([110010]_{1,4})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101010]_{1,2})$ $\times$ $\curlywedge \gg ([101010]_{2,1})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([110010]_{1,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101010]_{1,2})$ $\times$ $\curlywedge \gg ([101010]_{2,1})$
$([110010]_{1,4})$ $([110010]_{4,1})$

$$([110001]_{3,4})\ \curlywedge\gg ([101010]_{1,2})\ ([110010]_{1,4}) \times ([110010]_{4,1})\ \curlywedge\gg ([101010]_{2,1})\ ([110001]_{4,3})$$

$$([110010]_{1,4})\ \curlywedge\gg ([101010]_{1,2})\ ([110001]_{3,4}) \times ([110001]_{4,3})\ \curlywedge\gg ([101010]_{2,1})\ ([110010]_{4,1})$$

$$([110010]_{1,4})\ \curlywedge\gg ([101010]_{1,2})\ ([110001]_{3,4}) \times ([110001]_{4,3})\ \curlywedge\gg ([101010]_{2,1})\ ([110010]_{4,1})$$

Medial action

$$([110010]_{1,4})\ \curlywedge\gg ([110010]_{1,4})\ ([101010]_{1,2}) \times ([101010]_{2,1})\ \curlywedge\gg ([110010]_{4,1})\ ([110010]_{4,1})$$

$$([110001]_{3,4})\ \curlywedge\gg ([110010]_{1,4})\ ([101010]_{1,2}) \times ([101010]_{2,1})\ \curlywedge\gg ([110010]_{4,1})\ ([110001]_{4,3})$$

$$([101010]_{1,2})\ \curlywedge\gg ([110010]_{1,4})\ ([110010]_{1,4}) \times ([110010]_{4,1})\ \curlywedge\gg ([110010]_{4,1})\ ([101010]_{2,1})$$

$$([110001]_{3,4})\ \curlywedge\gg ([110010]_{1,4})\ ([110010]_{1,4}) \times ([110010]_{4,1})\ \curlywedge\gg ([110010]_{4,1})\ ([110001]_{4,3})$$

$$([101010]_{1,2})\ \curlywedge\gg ([110010]_{1,4})\ ([110001]_{3,4}) \times ([110001]_{4,3})\ \curlywedge\gg ([110010]_{4,1})\ ([101010]_{2,1})$$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([110010]_{4,1})$

Objectal action

$([110010]_{1,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([101010]_{1,2})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([101010]_{1,2})$ $([110001]_{4,3})$

$([101010]_{1,2})$ $([110010]_{4,1})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([110010]_{1,4})$ $([101010]_{2,1})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([110010]_{4,1})$

$([101010]_{1,2})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([101010]_{2,1})$

Interpretative action

$([110010]_{1,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101010]_{1,2})$ $([110010]_{4,1})$

$$([110010]_{1,4}) \quad ([101010]_{2,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101010]_{1,2}) \quad ([110010]_{4,1})$$

$$([110010]_{1,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([110010]_{4,1})$$

$$([101010]_{1,2}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([101010]_{2,1})$$

$$([110010]_{1,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([110010]_{4,1})$$

$$([101010]_{1,2}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([101010]_{2,1})$$

5. Pre-semiotic dual system

$$([110001]_{3,4}\,[110010]_{1,4}\,[110010]_{1,4}\,[101001]_{2,3}) \times$$
$$([101001]_{3,2}\,[110010]_{4,1}\,[110010]_{4,1}\,[110001]_{4,3})$$

Qualitative action

$$([110010]_{1,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110010]_{1,4}) \quad ([110010]_{4,1})$$

$$([110001]_{3,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110010]_{1,4}) \quad ([110001]_{4,3})$$

$$([110010]_{1,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110010]_{1,4}) \quad ([110010]_{4,1})$$

$$([110001]_{3,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110010]_{1,4}) \quad ([110001]_{4,3})$$

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

Medial action

$$([110010]_{1,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([101001]_{2,3}) \quad ([110010]_{4,1})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110010]_{1,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110010]_{1,4}) \quad ([110001]_{4,3})$$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge [110010]_{4,1})$
$([110001]_{3,4})$ $([110010]_{4,1})$

Objectal action

$([110010]_{1,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([101001]_{2,3})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([101001]_{2,3})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([110010]_{4,1})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110010]_{1,4})$ $([101001]_{3,2})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([110010]_{4,1})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([101001]_{3,2})$

Interpretative action

$$([110010]_{1,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([110010]_{4,1})$$

$$([110010]_{1,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([110010]_{4,1})$$

$$([110010]_{1,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([110010]_{4,1})$$

$$([101001]_{2,3}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([101001]_{3,2})$$

$$([110010]_{1,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([110010]_{4,1})$$

$$([101001]_{2,3}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([101001]_{3,2})$$

6. Pre-semiotic dual system

$$([110001]_{3,4}\ [110010]_{1,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$$
$$([101001]_{3,2}\ [110001]_{4,3}\ [110010]_{4,1}\ [110001]_{4,3})$$

Qualitative action

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

$$([110001]_{3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110010]_{1,4}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110010]_{1,4}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110001]_{4,3})$$

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

Medial action

$$([110010]_{1,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([110010]_{4,1})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110010]_{1,4}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([110010]_{1,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110001]_{3,4}) \quad ([110010]_{4,1})$$

Objectal action

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110001]_{3,4}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110001]_{3,4}) \quad ([110001]_{4,3})$$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([101001]_{3,2})$

Interpretative action

$([110010]_{1,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101001]_{2,3})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101001]_{2,3})$ $([110001]_{4,3})$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110001]_{3,4})$ $([110010]_{4,1})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([101001]_{3,2})$

7. Pre-semiotic dual system
$([110001]_{3,4}\ [010010]_{1,2,4}\ [110010]_{1,4}\ [101010]_{1,2}) \times$
$([101010]_{2,1}\ [110010]_{4,1}\ [010010]_{4,2,1}\ [110001]_{4,3})$

Qualitative action

$$([010010]_{1,2,4}) \curlywedge \gg ([101010]_{1,2}) ([110010]_{1,4}) \times ([110010]_{4,1}) \curlywedge \gg ([101010]_{2,1}) ([010010]_{4,2,1})$$

$$([110001]_{3,4}) \curlywedge \gg ([101010]_{1,2}) ([110010]_{1,4}) \times ([110010]_{4,1}) \curlywedge \gg ([101010]_{2,1}) ([110001]_{4,3})$$

$$([110010]_{1,4}) \curlywedge \gg ([101010]_{1,2}) ([010010]_{1,2,4}) \times ([010010]_{4,2,1}) \curlywedge \gg ([101010]_{2,1}) ([110010]_{4,1})$$

$$([110001]_{3,4}) \curlywedge \gg ([101010]_{1,2}) ([010010]_{1,2,4}) \times ([010010]_{4,2,1}) \curlywedge \gg ([101010]_{2,1}) ([110001]_{4,3})$$

$$([110010]_{1,4}) \curlywedge \gg ([101010]_{1,2}) ([110001]_{3,4}) \times ([110001]_{4,3}) \curlywedge \gg ([101010]_{2,1}) ([110010]_{4,1})$$

$$([010010]_{1,2,4}) \curlywedge \gg ([101010]_{1,2}) ([110001]_{3,4}) \times ([110001]_{4,3}) \curlywedge \gg ([101010]_{2,1}) ([010010]_{4,2,1})$$

Medial action

$$([010010]_{1,2,4}) \curlywedge \gg ([110010]_{1,4}) ([101010]_{1,2}) \times ([101010]_{2,1}) \curlywedge \gg ([110010]_{4,1}) ([010010]_{4,2,1})$$

$$([110001]_{3,4}) \curlywedge \gg ([110010]_{1,4}) ([101010]_{1,2}) \times ([101010]_{2,1}) \curlywedge \gg ([110010]_{4,1}) ([110001]_{4,3})$$

$([101010]_{1,2})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([010010]_{1,2,4})$ $([101010]_{2,1})$

$([110001]_{3,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([010010]_{1,2,4})$ $([110001]_{4,3})$

$([101010]_{1,2})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([101010]_{2,1})$

$([010010]_{1,2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([110001]_{3,4})$ $([010010]_{4,2,1})$

Objectal action

$([110010]_{1,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([010010]_{1,2,4})$ $\times$ $\curlywedge \gg ([010010]_{4,2,1})$
$([101010]_{1,2})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([010010]_{1,2,4})$ $\times$ $\curlywedge \gg ([010010]_{4,2,1})$
$([101010]_{1,2})$ $([110001]_{4,3})$

$([101010]_{1,2})$ $([110010]_{4,1})$
$\curlywedge \gg ([010010]_{1,2,4})$ $\times$ $\curlywedge \gg ([010010]_{4,2,1})$
$([110010]_{1,4})$ $([101010]_{2,1})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([010010]_{1,2,4})$ $\times$ $\curlywedge \gg ([010010]_{4,2,1})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110001]_{3,4})$ $([110010]_{4,1})$

$([101010]_{1,2})$ $([110001]_{4,3})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110001]_{3,4})$ $([101010]_{2,1})$

Interpretative action

$([010010]_{1,2,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101010]_{1,2})$ $([010010]_{4,2,1})$

$([110010]_{1,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101010]_{1,2})$ $([110010]_{4,1})$

$([010010]_{1,2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([010010]_{4,2,1})$

$([101010]_{1,2})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([101010]_{2,1})$

$([110010]_{1,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([010010]_{1,2,4})$ $([110010]_{4,1})$

$([101010]_{1,2})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([010010]_{1,2,4})$ $([101010]_{2,1})$

8. Pre-semiotic dual system

$([110001]_{3,4}\ [010010]_{1,2,4}\ [110010]_{1,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110010]_{4,1}\ [010010]_{4,2,1}\ [110001]_{4,3})$

Qualitative action

$([010010]_{1,2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101001]_{2,3})$ $\times$ $\curlywedge \gg ([101001]_{3,2})$
$([110010]_{1,4})$ $([010010]_{4,2,1})$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101001]_{2,3})$ $\times$ $\curlywedge \gg ([101001]_{3,2})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([110010]_{1,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([101001]_{2,3})$ $\times$ $\curlywedge \gg ([101001]_{3,2})$
$([010010]_{1,2,4})$ $([110010]_{4,1})$

$([110001]_{3,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([101001]_{2,3})$ $\times$ $\curlywedge \gg ([101001]_{3,2})$
$([010010]_{1,2,4})$ $([110001]_{4,3})$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([101001]_{2,3})$ $\times$ $\curlywedge \gg ([101001]_{3,2})$
$([110001]_{3,4})$ $([110010]_{4,1})$

$([010010]_{1,2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([101001]_{2,3})$ $\times$ $\curlywedge \gg ([101001]_{3,2})$
$([110001]_{3,4})$ $([010010]_{4,2,1})$

Medial action

$([010010]_{1,2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110010]_{1,4})$ $\times$ $\curlywedge \gg ([110010]_{4,1})$
$([101001]_{2,3})$ $([010010]_{4,2,1})$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$$
$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$

Objectal action

$$([110010]_{1,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([101001]_{2,3}) \quad ([110010]_{4,1})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110010]_{4,1})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([110010]_{1,4}) \quad ([101001]_{3,2})$$

$([110001]_{3,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110010]_{1,4})$ $([110001]_{4,3})$

$([110010]_{1,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110001]_{3,4})$ $([110010]_{4,1})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110001]_{3,4})$ $([101001]_{3,2})$

Interpretative action

$([010010]_{1,2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101001]_{2,3})$ $([010010]_{4,2,1})$

$([110010]_{1,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101001]_{2,3})$ $([110010]_{4,1})$

$([010010]_{1,2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([010010]_{4,2,1})$

$([101001]_{2,3})$ $([110010]_{4,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110010]_{1,4})$ $([101001]_{3,2})$

$([110010]_{1,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([010010]_{1,2,4})$ $([110010]_{4,1})$

$$
\begin{array}{lcl}
([101001]_{2,3}) & & ([010010]_{4,2,1}) \\
\quad \curlywedge \gg ([110001]_{3,4}) & \times & \quad \curlywedge \gg ([110001]_{4,3}) \\
([010010]_{1,2,4}) & & ([101001]_{3,2})
\end{array}
$$

9. Pre-semiotic dual system

$$([110001]_{3,4}\,[010010]_{1,2,4}\,[110001]_{4,3}\,[101001]_{2,3}) \times ([101001]_{3,2}\,[110001]_{4,3}\,[010010]_{4,2,1}\,[110001]_{4,3})$$

Qualitative action

$$
\begin{array}{lcl}
([010010]_{1,2,4}) & & ([110001]_{4,3}) \\
\quad \curlywedge \gg ([101001]_{2,3}) & \times & \quad \curlywedge \gg ([101001]_{3,2}) \\
([110001]_{3,4}) & & ([010010]_{4,2,1})
\end{array}
$$

$$
\begin{array}{lcl}
([110001]_{3,4}) & & ([110001]_{4,3}) \\
\quad \curlywedge \gg ([101001]_{2,3}) & \times & \quad \curlywedge \gg ([101001]_{3,2}) \\
([110001]_{3,4}) & & ([110001]_{4,3})
\end{array}
$$

$$
\begin{array}{lcl}
([110001]_{3,4}) & & ([010010]_{4,2,1}) \\
\quad \curlywedge \gg ([101001]_{2,3}) & \times & \quad \curlywedge \gg ([101001]_{3,2}) \\
([010010]_{1,2,4}) & & ([110001]_{4,3})
\end{array}
$$

$$
\begin{array}{lcl}
([110001]_{3,4}) & & ([010010]_{4,2,1}) \\
\quad \curlywedge \gg ([101001]_{2,3}) & \times & \quad \curlywedge \gg ([101001]_{3,2}) \\
([010010]_{1,2,4}) & & ([110001]_{4,3})
\end{array}
$$

$$
\begin{array}{lcl}
([110001]_{3,4}) & & ([110001]_{4,3}) \\
\quad \curlywedge \gg ([101001]_{2,3}) & \times & \quad \curlywedge \gg ([101001]_{3,2}) \\
([110001]_{3,4}) & & ([110001]_{4,3})
\end{array}
$$

$$
\begin{array}{lcl}
([010010]_{1,2,4}) & & ([110001]_{4,3}) \\
\quad \curlywedge \gg ([101001]_{2,3}) & \times & \quad \curlywedge \gg ([101001]_{3,2}) \\
([110001]_{3,4}) & & ([010010]_{4,2,1})
\end{array}
$$

Medial action

$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$

Objectal action

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$([110001]_{3,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110001]_{3,4})$ $([110001]_{4,3})$

$([110001]_{3,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110001]_{3,4})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110001]_{3,4})$ $([101001]_{3,2})$

Interpretative action

$([010010]_{1,2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101001]_{2,3})$ $([010010]_{4,2,1})$

$([110001]_{3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101001]_{2,3})$ $([110001]_{4,3})$

$([010010]_{1,2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110001]_{3,4})$ $([010010]_{4,2,1})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$$([110001]_{3,4}) \quad ([010010]_{1,2,4})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010010]_{4,2,1}) \quad ([101001]_{2,3})$$

$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$

10. Pre-semiotic dual system

$$([110001]_{3,4}\ [010001]_{2,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$$
$$([101001]_{3,2}\ [110001]_{4,3}\ [010001]_{4,2}\ [110001]_{4,3})$$

Qualitative action

$$([010001]_{2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([010001]_{4,2})$$

$$([110001]_{3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010001]_{2,4}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010001]_{2,4}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([110001]_{4,3})$$

$([010001]_{2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([101001]_{2,3})$ × $\curlywedge \gg ([101001]_{3,2})$
$([110001]_{3,4})$ $([010001]_{4,2})$

Medial action

$([010001]_{2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101001]_{2,3})$ $([010001]_{4,2})$

$([110001]_{3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([101001]_{2,3})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([010001]_{4,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([010001]_{2,4})$ $([101001]_{3,2})$

$([110001]_{3,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([010001]_{2,4})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$([010001]_{2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110001]_{3,4})$ $([010001]_{4,2})$

Objectal action

$([110001]_{3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([101001]_{2,3})$ $([110001]_{4,3})$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([110001]_{3,4}) \quad ([110001]_{4,3})$$

$$([110001]_{3,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([110001]_{3,4}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

Interpretative action

$$([010001]_{2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([010001]_{4,2})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([010001]_{2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([110001]_{3,4}) \quad ([010001]_{4,2})$$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$([110001]_{3,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([010001]_{2,4})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([010001]_{4,2})$
$\curlywedge \gg ([110001]_{3,4})$ × $\curlywedge \gg ([110001]_{4,3})$
$([010001]_{2,4})$ $([101001]_{3,2})$

11. Pre-semiotic dual system

$([010001]_{2,4}\ [010010]_{1,2,4}\ [110010]_{1,4}\ [101010]_{1,2}) \times$
$([101010]_{2,1}\ [110010]_{4,1}\ [010010]_{4,2,1}\ [010001]_{4,2})$

Qualitative action

$([010010]_{1,2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([110010]_{1,4})$ $([010010]_{4,2,1})$

$([010001]_{2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([110010]_{1,4})$ $([010001]_{4,2})$

$([110010]_{1,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([010010]_{1,2,4})$ $([110010]_{4,1})$

$([010001]_{2,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([101010]_{1,2})$ × $\curlywedge \gg ([101010]_{2,1})$
$([010010]_{1,2,4})$ $([010001]_{4,2})$

$([110010]_{1,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([101010]_{1,2}) \times \curlywedge \gg ([101010]_{2,1})$
$([010001]_{2,4})$ $([110010]_{4,1})$

$([010010]_{1,2,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([101010]_{1,2}) \times \curlywedge \gg ([101010]_{2,1})$
$([010001]_{2,4})$ $([010010]_{4,2,1})$

Medial action

$([010001]_{2,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([101010]_{1,2})$ $([010001]_{4,2})$

$([010001]_{2,4})$ $([101010]_{2,1})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([101010]_{1,2})$ $([010001]_{4,2})$

$([101010]_{1,2})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([010010]_{1,2,4})$ $([101010]_{2,1})$

$([010001]_{2,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([010010]_{1,2,4})$ $([010001]_{4,2})$

$([101010]_{1,2})$ $([010001]_{4,2})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([010001]_{2,4})$ $([101010]_{2,1})$

$([010010]_{1,2,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([010001]_{2,4})$ $([010010]_{4,2,1})$

Objectal action

$$([110010]_{1,4}) \curlywedge\!\gg ([010010]_{1,2,4}) ([101010]_{1,2}) \times ([101010]_{2,1}) \curlywedge\!\gg ([010010]_{4,2,1}) ([110010]_{4,1})$$

$$([010001]_{2,4}) \curlywedge\!\gg ([010010]_{1,2,4}) ([101010]_{1,2}) \times ([101010]_{2,1}) \curlywedge\!\gg ([010010]_{4,2,1}) ([010001]_{4,2})$$

$$([101010]_{1,2}) \curlywedge\!\gg ([010010]_{1,2,4}) ([110010]_{1,4}) \times ([110010]_{1,4}) \curlywedge\!\gg ([010010]_{4,2,1}) ([101010]_{2,1})$$

$$([010001]_{2,4}) \curlywedge\!\gg ([010010]_{1,2,4}) ([110010]_{1,4}) \times ([110010]_{4,1}) \curlywedge\!\gg ([010010]_{4,2,1}) ([010001]_{4,2})$$

$$([110010]_{1,4}) \curlywedge\!\gg ([010010]_{1,2,4}) ([010001]_{2,4}) \times ([010001]_{4,2}) \curlywedge\!\gg ([010010]_{4,2,1}) ([110010]_{4,1})$$

$$([101010]_{1,2}) \curlywedge\!\gg ([010010]_{1,2,4}) ([010001]_{2,4}) \times ([010001]_{4,2}) \curlywedge\!\gg ([010010]_{4,2,1}) ([101010]_{2,1})$$

Interpretative action

$$([010010]_{1,2,4}) \curlywedge\!\gg ([010001]_{2,4}) ([101010]_{1,2}) \times ([101010]_{2,1}) \curlywedge\!\gg ([010001]_{4,2}) ([010010]_{4,2,1})$$

$$([110010]_{1,4}) \curlywedge\!\gg ([010001]_{2,4}) ([101010]_{1,2}) \times ([101010]_{2,1}) \curlywedge\!\gg ([010001]_{4,2}) ([110010]_{4,1})$$

$([010010]_{1,2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([110010]_{1,4})$ $([010010]_{4,2,1})$

$([101010]_{1,2})$ $([110010]_{4,1})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([110010]_{1,4})$ $([101010]_{2,1})$

$([110010]_{1,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([010010]_{1,2,4})$ $([110010]_{4,1})$

$([101010]_{1,2})$ $([010010]_{1,2,4})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([010010]_{1,2,4})$ $([101010]_{2,1})$

12. Pre-semiotic dual system
$([010001]_{2,4}\ [010010]_{1,2,4}\ [110010]_{1,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110010]_{4,1}\ [010010]_{4,2,1}\ [010001]_{4,2})$

Qualitative action

$([010010]_{1,2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101001]_{2,3})$ × $\curlywedge \gg ([101001]_{3,2})$
$([110010]_{1,4})$ $([010010]_{4,2,1})$

$([010001]_{2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([101001]_{2,3})$ × $\curlywedge \gg ([101001]_{3,2})$
$([110010]_{1,4})$ $([010001]_{4,2})$

$([110010]_{1,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([101001]_{2,3})$ × $\curlywedge \gg ([101001]_{3,2})$
$([010010]_{1,2,4})$ $([110010]_{4,1})$

$([010001]_{2,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$
$([010001]_{2,4})$ $([010010]_{1,2,})$

$([110010]_{1,4})$ $([010001]_{4,2}$
$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$
$([010001]_{2,4})$ $([110010]_{4,1})$

$([010010]_{1,2,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$
$([010001]_{2,4})$ $([010010]_{4,2,1})$

Medial action

$([010010]_{1,2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([101001]_{2,3})$ $([010010]_{4,2,1})$

$([010001]_{2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([101001]_{2,3})$ $([010001]_{4,2})$

$([101001]_{2,3})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([010010]_{1,2,4})$ $([101001]_{3,2})$

$([010001]_{2,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([010010]_{1,2,4})$ $([010001]_{4,2})$

$([101001]_{2,3})$ $([010001]_{4,2})$
$\curlywedge \gg ([110010]_{1,4}) \times \curlywedge \gg ([110010]_{4,1})$
$([010001]_{2,4})$ $([101001]_{3,2})$

$([010010]_{1,2,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([110010]_{1,4})$ × $\curlywedge \gg ([110010]_{4,1})$
$([010001]_{2,4})$ $([010010]_{4,2,1})$

Objectal action

$([110010]_{1,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([101001]_{2,3})$ $([110010]_{4,1})$

$([010001]_{2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([101001]_{2,3})$ $([010001]_{4,2})$

$([101001]_{2,3})$ $([110010]_{4,1})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110010]_{1,4})$ $([101001]_{3,2})$

$([010001]_{2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([110010]_{1,4})$ $([010001]_{4,2})$

$([110010]_{1,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([010001]_{2,4})$ $([110010]_{4,1})$

$([101001]_{2,3})$ $([010001]_{4,2})$
$\curlywedge \gg ([010010]_{1,2,4})$ × $\curlywedge \gg ([010010]_{4,2,1})$
$([010001]_{2,4})$ $([101001]_{3,2})$

Interpretative action

$([010010]_{1,2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([101001]_{2,3})$ $([010010]_{4,2,1})$

$([110010]_{1,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([101001]_{2,3})$ $([110010]_{4,1})$

$([010010]_{1,2,4})$ $([110010]_{4,1})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([110010]_{1,4})$ $([010010]_{4,2,1})$

$([101001]_{2,3})$ $([110010]_{4,1})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([110010]_{1,4})$ $([101001]_{3,2})$

$([110010]_{1,4})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([010010]_{1,2,4})$ $([110010]_{4,1})$

$([101001]_{2,3})$ $([010010]_{4,2,1})$
$\curlywedge \gg ([010001]_{2,4})$ × $\curlywedge \gg ([010001]_{4,2})$
$([010010]_{1,2,4})$ $([101001]_{3,2})$

13. Pre-semiotic dual system
$([010001]_{2,4}\ [010010]_{1,2,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110001]_{4,3}\ [010010]_{4,2,1}\ [010001]_{4,2})$

Qualitative action

$([010010]_{1,2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([101001]_{2,3})$ × $\curlywedge \gg ([101001]_{3,2})$
$([110001]_{3,4})$ $([010010]_{4,2,1})$

$([010001]_{2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([101001]_{2,3})$ × $\curlywedge \gg ([101001]_{3,2})$
$([110001]_{3,4})$ $([010001]_{4,2})$

$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$

$$([010001]_{2,4}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010010]_{1,2,4}) \quad ([010001]_{4,2})$$

$$([110001]_{3,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010001]_{2,4}) \quad ([110001]_{4,3})$$

$$([010010]_{1,2,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010001]_{2,4}) \quad ([010010]_{4,2,1})$$

Medial action

$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$

$$([010001]_{2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([010001]_{4,2})$$

$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$

$$([010001]_{2,4}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010010]_{1,2,4}) \quad ([010001]_{4,2})$$

$$([101001]_{2,3}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010001]_{2,4}) \quad ([101001]_{3,2})$$

$$([010010]_{1,2,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010001]_{2,4}) \quad ([010010]_{4,2,1})$$

Objectal action

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([010001]_{2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([101001]_{2,3}) \quad ([010001]_{4,2})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([010001]_{2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([110001]_{3,4}) \quad ([010001]_{4,2})$$

$$([110001]_{3,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([010001]_{2,4}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([010010]_{1,2,4}) \times \curlywedge \gg ([010010]_{4,2,1})$$
$$([010001]_{2,4}) \quad ([101001]_{3,2})$$

Interpretative action

$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$

14. Pre-semiotic dual system

$$([010001]_{2,4}\ [010001]_{2,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$$
$$([101001]_{3,2}\ [110001]_{4,3}\ [010001]_{4,2}\ [010001]_{4,2})$$

Qualitative action

$$([010001]_{2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([010001]_{4,2})$$

$$([010001]_{2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([010001]_{4,2})$$

$$([110001]_{3,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010001]_{2,4}) \quad ([110001]_{4,3})$$

$$([010001]_{2,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010001]_{2,4}) \quad ([010001]_{4,2})$$

$$([110001]_{3,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010001]_{2,4}) \quad ([110001]_{4,3})$$

$$([010001]_{2,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([101001]_{2,3}) \times \curlywedge \gg ([101001]_{3,2})$$
$$([010001]_{2,4}) \quad ([010001]_{4,2})$$

Medial action

$$([010001]_{2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([010001]_{4,2})$$

$$([010001]_{2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([010001]_{4,2})$$

$$([101001]_{2,3}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010001]_{2,4}) \quad ([101001]_{3,2})$$

$$([010001]_{2,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010001]_{2,4}) \quad ([010001]_{4,2})$$

$$([101001]_{2,3}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010001]_{2,4}) \quad ([101001]_{3,2})$$

$$([010001]_{2,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([110001]_{3,4}) \times \curlywedge \gg ([110001]_{4,3})$$
$$([010001]_{2,4}) \quad ([010001]_{4,2})$$

Objectal action

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

$$([010001]_{2,4}) \quad ([101001]_{3,2})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([101001]_{2,3}) \quad ([010001]_{4,2})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([010001]_{2,4}) \quad ([110001]_{4,3})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([110001]_{3,4}) \quad ([010001]_{4,2})$$

$$([110001]_{3,4}) \quad ([010001]_{4,2})$$
$$\curlywedge \gg ([010001]_{2,4}) \times \curlywedge \gg ([010001]_{4,2})$$
$$([010001]_{2,4}) \quad ([110001]_{4,3})$$

$([101001]_{2,3})$ $([010001]_{4,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([010001]_{2,4})$ $([101001]_{3,2})$

Interpretative action

$([010001]_{2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([101001]_{2,3})$ $([010001]_{4,2})$

$([110001]_{3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([101001]_{2,3})$ $([110001]_{4,3})$

$([010001]_{2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([110001]_{3,4})$ $([010001]_{4,2})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$([110001]_{3,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([010001]_{2,4})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([010001]_{4,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([010001]_{2,4})$ $([101001]_{3,2})$

15. Pre-semiotic dual system
$([001001]_{2,3,4}\ [010001]_{2,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110001]_{4,3}\ [010001]_{4,2}\ [001001]_{4,3,2})$

Qualitative action

$$([010001]_{2,4}) \curlywedge \gg ([101001]_{2,3}) ([110001]_{3,4}) \times ([110001]_{4,3}) \curlywedge \gg ([101001]_{3,2}) ([010001]_{4,2})$$

$$([001001]_{2,3,4}) \curlywedge \gg ([101001]_{2,3}) ([110001]_{3,4}) \times ([110001]_{4,3}) \curlywedge \gg ([101001]_{3,2}) ([001001]_{4,3,2})$$

$$([110001]_{3,4}) \curlywedge \gg ([101001]_{2,3}) ([010001]_{2,4}) \times ([010001]_{4,2}) \curlywedge \gg ([101001]_{3,2}) ([110001]_{4,3})$$

$$([010001]_{2,4}) \curlywedge \gg ([101001]_{2,3}) ([010001]_{2,4}) \times ([010001]_{4,2}) \curlywedge \gg ([101001]_{3,2}) ([010001]_{4,2})$$

$$([110001]_{3,4}) \curlywedge \gg ([101001]_{2,3}) ([010001]_{2,4}) \times ([010001]_{4,2}) \curlywedge \gg ([101001]_{3,2}) ([110001]_{4,3})$$

$$([010001]_{2,4}) \curlywedge \gg ([101001]_{2,3}) ([010001]_{2,4}) \times ([010001]_{4,2}) \curlywedge \gg ([101001]_{3,2}) ([010001]_{4,2})$$

Medial action

$$([010001]_{2,4}) \curlywedge \gg ([110001]_{3,4}) ([101001]_{2,3}) \times ([101001]_{3,2}) \curlywedge \gg ([110001]_{4,3}) ([010001]_{4,2})$$

$$([001001]_{2,3,4}) \curlywedge \gg ([110001]_{3,4}) ([101001]_{2,3}) \times ([101001]_{3,2}) \curlywedge \gg ([110001]_{4,3}) ([001001]_{4,3,2})$$

$([101001]_{2,3})$ $([010001]_{4,2})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([010001]_{2,4})$ $([101001]_{3,2})$

$([001001]_{2,3,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([010001]_{2,4})$ $([001001]_{4,3,2})$

$([101001]_{2,3})$ $([001001]_{4,3,2})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([001001]_{2,3,4})$ $([101001]_{3,2})$

$([010001]_{2,4})$ $([001001]_{4,3,2})$
$\curlywedge \gg ([110001]_{3,4})$ $\times$ $\curlywedge \gg ([110001]_{4,3})$
$([001001]_{2,3,4})$ $([010001]_{4,2})$

Objectal action

$([110001]_{3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([101001]_{2,3})$ $([110001]_{4,3})$

$([001001]_{2,3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([101001]_{2,3})$ $([001001]_{4,3,2})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$([001001]_{2,3,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([110001]_{3,4})$ $([001001]_{4,3,2})$

$([110001]_{3,4})$ $([001001]_{4,3,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([001001]_{2,3,4})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([001001]_{4,3,2})$
$\curlywedge \gg ([010001]_{2,4})$ $\times$ $\curlywedge \gg ([010001]_{4,2})$
$([001001]_{2,3,4})$ $([101001]_{3,2})$

Interpretative action

$([010001]_{2,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([001001]_{2,3,4})$ $\times$ $\curlywedge \gg ([001001]_{4,3,2})$
$([101001]_{2,3})$ $([010001]_{4,2})$

$([110001]_{3,4})$ $([101001]_{3,2})$
$\curlywedge \gg ([001001]_{2,3,4})$ $\times$ $\curlywedge \gg ([001001]_{4,3,2})$
$([101001]_{2,3})$ $([110001]_{4,3})$

$([010001]_{2,4})$ $([110001]_{4,3})$
$\curlywedge \gg ([001001]_{2,3,4})$ $\times$ $\curlywedge \gg ([001001]_{4,3,2})$
$([110001]_{3,4})$ $([010001]_{4,2})$

$([101001]_{2,3})$ $([110001]_{4,3})$
$\curlywedge \gg ([001001]_{2,3,4})$ $\times$ $\curlywedge \gg ([001001]_{4,3,2})$
$([110001]_{3,4})$ $([101001]_{3,2})$

$([110001]_{3,4})$ $([010001]_{4,2})$
$\curlywedge \gg ([001001]_{2,3,4})$ $\times$ $\curlywedge \gg ([001001]_{4,3,2})$
$([010001]_{2,4})$ $([110001]_{4,3})$

$([101001]_{2,3})$ $([010001]_{4,2})$
$\curlywedge \gg ([001001]_{2,3,4})$ $\times$ $\curlywedge \gg ([001001]_{4,3,2})$
$([010001]_{2,4})$ $([101001]_{3,2})$

II. Action schemata of the 2 · 24 tetradic semiotic partial relations

1. Pre-semiotic dual system
([110001] [110010] [110110] [101110]) ×
([101110] [110110] [110010] [110001])

Qualitative action

$$\begin{matrix} ([110001]_{3,4}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([101110]_{1,3}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([101110]_{3,1}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([110010]_{1,4}) \\ ([110110]_{1,4,3}) \gg \curlyvee \succ ([101110]_{1,3}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([101110]_{3,1}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([110010]_{4,1}) \end{matrix}$$

$$\begin{matrix} ([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101110]_{1,3}) \\ ([110110]_{1,3,4}) \end{matrix} \times \begin{matrix} ([110110]_{4,3,1}) \\ ([101110]_{3,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([110110]_{1,3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101110]_{1,3}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([101110]_{3,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110110]_{4,3,1}) \end{matrix}$$

$$\begin{matrix} ([110110]_{1,3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101110]_{1,3}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([101110]_{3,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110110]_{4,3,1}) \end{matrix}$$

$$\begin{matrix} ([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101110]_{1,3}) \\ ([110110]_{1,3,4}) \end{matrix} \times \begin{matrix} ([110110]_{4,3,1}) \\ ([101110]_{3,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1}) \end{matrix}$$

Medial action

$$\begin{matrix}([110001]_{3,4}) \\ ([101110]_{1,3}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([101110]_{3,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101110]_{1,3}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([101110]_{3,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101110]_{1,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101110]_{3,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([101110]_{1,3})\end{matrix} \times \begin{matrix}([101110]_{3,1}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101110]_{1,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101110]_{3,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([101110]_{1,3})\end{matrix} \times \begin{matrix}([101110]_{3,1}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}([110001]_{3,4}) \\ ([101110]_{1,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110110]_{1,3,4})\end{matrix} \times \begin{matrix}([110110]_{4,3,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101110]_{3,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110110]_{1,3,4}) \\ ([101110]_{1,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101110]_{3,1}) \\ ([110110]_{4,3,1})\end{matrix}$$

$$\begin{matrix}([101110]_{1,3}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([101110]_{3,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101110]_{1,3})\end{matrix} \times \begin{matrix}([101110]_{3,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101110]_{1,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110110]_{1,3,4})\end{matrix} \times \begin{matrix}([110110]_{4,3,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101110]_{3,1})\end{matrix}$$

$$\begin{matrix}([110110]_{1,3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101110]_{1,3})\end{matrix} \times \begin{matrix}([101110]_{3,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110110]_{4,3,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}([110010]_{1,4}) \\ ([101110]_{1,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110110]_{1,3,4})\end{matrix} \times \begin{matrix}([110110]_{4,3,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101110]_{3,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110110]_{1,3,4}) \\ ([101110]_{1,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101110]_{3,1}) \\ ([110110]_{4,3,1})\end{matrix}$$

$$\begin{matrix}([101110]_{1,3}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([101110]_{3,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101110]_{1,3})\end{matrix} \times \begin{matrix}([101110]_{3,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix} ([101110]_{1,3}) \\ ([110010]_{1,4}) \gg \succ ([110001]_{3,4}) \\ ([110110]_{1,3,4}) \end{matrix} \times \begin{matrix} ([110110]_{4,3,1}) \\ ([110001]_{4,3}) \gg \succ ([110010]_{4,1}) \\ ([101110]_{3,1}) \end{matrix}$$

$$\begin{matrix} ([110110]_{1,3,4}) \\ ([110010]_{1,4}) \gg \succ ([110001]_{3,4}) \\ ([101110]_{1,3}) \end{matrix} \times \begin{matrix} ([101110]_{3,1}) \\ ([110001]_{4,3}) \gg \succ ([110010]_{4,1}) \\ ([110110]_{4,3,1}) \end{matrix}$$

2. Pre-semiotic dual system

$([110001]_{3,4}\ [110010]_{1,4}\ [110110]_{1,3,4}\ [101010]_{1,2}) \times$
$([101010]_{2,1}\ [110110]_{4,3,1}\ [110010]_{1,4}\ [110001]_{4,3})$

Qualitative action

$$\begin{matrix} ([110001]_{3,4}) \\ ([110110]_{1,3,4}) \gg \succ ([101010]_{1,2}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([101010]_{2,1}) \gg \succ ([110110]_{4,3,1}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([110010]_{1,4}) \\ ([110110]_{1,3,4}) \gg \succ ([101010]_{1,2}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([101010]_{2,1}) \gg \succ ([110110]_{4,3,1}) \\ ([110010]_{4,1}) \end{matrix}$$

$$\begin{matrix} ([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \succ ([101010]_{1,2}) \\ ([110110]_{1,3,4}) \end{matrix} \times \begin{matrix} ([110110]_{4,3,1}) \\ ([101010]_{2,1}) \gg \succ ([110010]_{4,1}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([110110]_{1,3,4}) \\ ([110010]_{1,4}) \gg \succ ([101010]_{1,2}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([101010]_{2,1}) \gg \succ ([110010]_{4,1}) \\ ([110110]_{4,3,1}) \end{matrix}$$

$$\begin{matrix} ([110110]_{1,3,4}) \\ ([110001]_{3,4}) \gg \succ ([101010]_{1,2}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([101010]_{2,1}) \gg \succ ([110001]_{4,3}) \\ ([110110]_{4,3,1}) \end{matrix}$$

$$([110010]_{1,4})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([101010]_{1,2})$$
$$([110110]_{1,3,4})$$

$$\times$$

$$([110110]_{4,3,1})$$
$$([101010]_{2,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([110010]_{4,1})$$

Medial action

$$([110001]_{3,4})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110110]_{1,3,4})$$
$$([110010]_{1,4})$$

$$\times$$

$$([110010]_{4,1})$$
$$([110110]_{4,3,1}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([110001]_{4,3})$$

$$([110010]_{1,4})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110110]_{1,3,4})$$
$$([110001]_{3,4})$$

$$\times$$

$$([110001]_{4,3})$$
$$([110110]_{4,3,1}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([110010]_{4,1})$$

$$([101010]_{1,2})$$
$$([110010]_{1,4}) \gg \curlyvee \succ ([110110]_{1,3,4})$$
$$([110001]_{3,4})$$

$$\times$$

$$([110001]_{4,3})$$
$$([110110]_{4,3,1}) \gg \curlyvee \succ ([110010]_{4,1})$$
$$([101010]_{2,1})$$

$$([110001]_{3,4})$$
$$([110010]_{1,4}) \gg \curlyvee \succ ([110110]_{1,3,4})$$
$$([101010]_{1,2})$$

$$\times$$

$$([101010]_{2,1})$$
$$([110110]_{4,3,1}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([110001]_{4,3})$$

$$([101010]_{1,2})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([110110]_{1,3,4})$$
$$([110010]_{1,4})$$

$$\times$$

$$([110010]_{4,1})$$
$$([110110]_{4,3,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([101010]_{2,1})$$

$$([110010]_{1,4})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([110110]_{1,3,4})$$
$$([101010]_{1,2})$$

$$\times$$

$$([101010]_{2,1})$$
$$([110110]_{4,3,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([110010]_{4,1})$$

Objectal action

$$([110001]_{3,4})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([110110]_{1,3,4})$$

$$\times$$

$$([110110]_{4,3,1})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([110001]_{4,3})$$

$$([110110]_{1,3,4})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4}) \quad \times \quad ([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([110001]_{3,4})$$
$$([110001]_{4,3})$$
$$([110001]_{4,3})$$

$$([101010]_{1,2})$$
$$([110110]_{1,3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \quad \times \quad ([110010]_{4,1}) \gg \curlyvee \succ ([110110]_{4,3,1})$$
$$([110001]_{3,4})$$
$$([101010]_{2,1})$$

$$([110001]_{3,4})$$
$$([110110]_{1,3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \quad \times \quad ([110010]_{4,1}) \gg \curlyvee \succ ([110110]_{4,3,1})$$
$$([101010]_{1,2})$$
$$([101010]_{2,1})$$

$$([101010]_{1,2})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \quad \times \quad ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([110110]_{1,3,4})$$
$$([110110]_{4,3,1})$$
$$([101010]_{2,1})$$

$$([110110]_{1,3,4})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \quad \times \quad ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([101010]_{1,2})$$
$$([110110]_{4,3,1})$$
$$([101010]_{2,1})$$

Interpretative action

$$([110010]_{1,4})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110001]_{3,4}) \quad \times \quad ([110110]_{4,3,1})$$
$$([110110]_{1,3,4})$$
$$([110001]_{4,3}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([110010]_{4,1})$$

$$([110110]_{1,3,4})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110001]_{3,4}) \quad \times \quad ([110010]_{4,1})$$
$$([110010]_{1,4})$$
$$([110001]_{4,3}) \gg \curlyvee \succ ([110110]_{4,3,1})$$
$$([110110]_{4,3,1})$$

$$([101010]_{1,2})$$
$$([110110]_{1,3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \quad \times \quad ([110010]_{4,1})$$
$$([110010]_{1,4})$$
$$([110001]_{4,3}) \gg \curlyvee \succ ([110110]_{4,3,1})$$
$$([101010]_{2,1})$$

$$([110010]_{1,4}) \qquad ([101010]_{2,1})$$
$$([110110]_{1,3,4}) \gg \Upsilon \succ ([110001]_{3,4}) \quad \times \quad ([110001]_{4,3}) \gg \Upsilon \succ ([110110]_{4,3,1})$$
$$([101010]_{1,2}) \qquad ([110010]_{4,1})$$

$$([101010]_{1,2}) \qquad ([110110]_{4,3,1})$$
$$([110010]_{1,4}) \gg \Upsilon \succ ([110001]_{3,4}) \quad \times \quad ([110001]_{4,3}) \gg \Upsilon \succ ([110010]_{4,1})$$
$$([110110]_{1,3,4}) \qquad ([101010]_{2,1})$$

$$([110110]_{1,3,4}) \qquad ([101010]_{2,1})$$
$$([110010]_{1,4}) \gg \Upsilon \succ ([110001]_{3,4}) \quad \times \quad ([110001]_{4,3}) \gg \Upsilon \succ ([110010]_{4,1})$$
$$([101010]_{1,2}) \qquad ([110110]_{4,3,1})$$

3. Pre-semiotic dual system

$([110001]_{3,4}\,[110010]_{1,4}\,[110110]_{1,3,4}\,[101001]_{2,3}) \times$
$([101001]_{3,2}\,[110110]_{4,3,1}\,[110010]_{4,1}\,[110001]_{4,3})$

Qualitative action

$$([110001]_{3,4}) \qquad ([110010]_{4,1})$$
$$([110110]_{1,3,4}) \gg \Upsilon \succ ([101001]_{2,3}) \quad \times \quad ([101001]_{3,2}) \gg \Upsilon \succ ([110110]_{4,3,1})$$
$$([110010]_{1,4}) \qquad ([110001]_{4,3})$$

$$([110010]_{1,4}) \qquad ([110001]_{4,3})$$
$$([110110]_{1,3,4}) \gg \Upsilon \succ ([101001]_{2,3}) \quad \times \quad ([101001]_{3,2}) \gg \Upsilon \succ ([110110]_{4,3,1})$$
$$([110001]_{3,4}) \qquad ([110010]_{4,1})$$

$$([110001]_{3,4}) \qquad ([110110]_{4,3,1})$$
$$([110010]_{1,4}) \gg \Upsilon \succ ([101001]_{2,3}) \quad \times \quad ([101001]_{3,2}) \gg \Upsilon \succ ([110010]_{4,1})$$
$$([110110]_{1,3,4}) \qquad ([110001]_{4,3})$$

$$([110110]_{1,3,4}) \qquad ([110001]_{4,3})$$
$$([110010]_{1,4}) \gg \Upsilon \succ ([101001]_{2,3}) \quad \times \quad ([101001]_{3,2}) \gg \Upsilon \succ ([110010]_{4,1})$$
$$([110001]_{3,4}) \qquad ([110110]_{4,3,1})$$

$$\begin{matrix}([110110]_{1,3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110110]_{4,3,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110110]_{1,3,4})\end{matrix} \times \begin{matrix}([110110]_{4,3,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}' \\ ([101001]_{3,2}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110110]_{1,3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110110]_{4,3,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110110]_{1,3,4})\end{matrix} \times \begin{matrix}([110110]_{4,3,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110110]_{1,3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110110]_{4,3,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110110]_{1,3,4})\end{matrix} \times \begin{matrix}([110110]_{4,3,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110110]_{1,3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110110]_{4,3,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110110]_{1,3,4})\end{matrix} \times \begin{matrix}([110110]_{4,3,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110110]_{1,3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110110]_{4,3,1})\end{matrix}$$

$$\begin{matrix} ([101001]_{2,3}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([101001]_{3,2}) \end{matrix}$$

$$\begin{matrix} ([110010]_{1,4}) \\ ([110110]_{1,3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3}) \end{matrix} \times \begin{matrix} ([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110110]_{4,3,1}) \\ ([110010]_{4,1}) \end{matrix}$$

$$\begin{matrix} ([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110110]_{1,3,4}) \end{matrix} \times \begin{matrix} ([110110]_{4,3,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101001]_{3,2}) \end{matrix}$$

$$\begin{matrix} ([110110]_{1,3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3}) \end{matrix} \times \begin{matrix} ([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110110]_{4,3,1}) \end{matrix}$$

4. Pre-semiotic dual system

$([110001]_{3,4}\ [110010]_{1,4}\ [110010]_{1,4}\ [101010]_{1,2}) \times$
$([101010]_{2,1}\ [110010]_{4,1}\ [110010]_{4,1}\ [110001]_{4,3})$

Qualitative action

$$\begin{matrix} ([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([110010]_{1,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110010]_{4,1}) \end{matrix}$$

$$\begin{matrix} ([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{3,4}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}([110001]_{3,4}) \\ ([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101010]_{1,2}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101010]_{2,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101010]_{1,2})\end{matrix} \times \begin{matrix}([101010]_{2,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101010]_{1,2}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101010]_{2,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101010]_{1,2})\end{matrix} \times \begin{matrix}([101010]_{2,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}([110001]_{3,4}) \\ ([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101010]_{1,2}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101010]_{2,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101010]_{1,2})\end{matrix} \times \begin{matrix}([101010]_{2,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101010]_{1,2}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101010]_{2,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101010]_{1,2})\end{matrix} \times \begin{matrix}([101010]_{2,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}([110010]_{1,4}) \\ ([101010]_{1,2}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101010]_{2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101010]_{1,2}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101010]_{2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101010]_{1,2}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101010]_{2,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101010]_{1,2})\end{matrix} \times \begin{matrix}([101010]_{2,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101010]_{1,2}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101010]_{2,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101010]_{1,2})\end{matrix} \times \begin{matrix}([101010]_{2,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110010]_{4,1})\end{matrix}$$

5. Pre-semiotic dual system

$([110001]_{3,4}\ [110010]_{1,4}\ [110010]_{1,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110010]_{4,1}\ [110010]_{4,1}\ [110001]_{3,4})$

Qualitative action

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{array}{c} ([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4}) \end{array} \times \begin{array}{c} ([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{3,4}) \end{array}$$

$$\begin{array}{c} ([110010]_{1,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4}) \end{array} \times \begin{array}{c} ([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110010]_{4,1}) \end{array}$$

$$\begin{array}{c} ([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4}) \end{array} \times \begin{array}{c} ([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1}) \end{array}$$

$$\begin{array}{c} ([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4}) \end{array} \times \begin{array}{c} ([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1}) \end{array}$$

Medial action

$$\begin{array}{c} ([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110010]_{1,4}) \end{array} \times \begin{array}{c} ([110010]_{4,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3}) \end{array}$$

$$\begin{array}{c} ([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4}) \end{array} \times \begin{array}{c} ([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110010]_{4,1}) \end{array}$$

$$\begin{array}{c} ([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4}) \end{array} \times \begin{array}{c} ([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101001]_{3,2}) \end{array}$$

$$\begin{array}{c} ([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101001]_{2,3}) \end{array} \times \begin{array}{c} ([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4}) \end{array}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \succ ([110010]_{1,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110010]_{4,1}) \gg \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \succ ([110010]_{1,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110010]_{4,1}) \gg \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \succ ([110010]_{1,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110010]_{4,1}) \gg \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110010]_{4,1})\end{matrix}$$

6. Pre-semiotic dual system

$([110001]_{3,4}\ [110010]_{1,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110001]_{4,3}\ [110010]_{4,1}\ [110001]_{4,3})$

Qualitative action

$$\begin{matrix}([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{3,4}) \\ ([101001]_{3,2}) \gg \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \succ ([101001]_{2,3}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \succ ([110001]_{4,3}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Medial action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110001]_{4,3}) \gg \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110001]_{3,4}) \gg \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Objectal action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix}$$

Interpretative action

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{3,4}) \gg \succ ([101001]_{3,2}) \\ ([110001]_{3,4})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{3,4}) \gg \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110001]_{4,3}) \gg \succ ([110010]_{1,4}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

7. Pre-semiotic dual system

$([110001]_{3,4}\,[010010]_{1,2,4}\,[110010]_{1,4}\,[101010]_{1,2}) \times$
$([101010]_{2,1}\,[110010]_{4,1}\,[010010]_{4,2,1}\,[110001]_{4,3})$

Qualitative action

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101010]_{1,2}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101010]_{2,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010010]_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}([110001]_{3,4}) \\ ([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$([101010]_{1,2})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110010]_{1,4}) \times ([110010]_{4,1}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([110001]_{3,4}) \qquad ([101010]_{2,1})$$

$$([110001]_{3,4}) \qquad ([101010]_{2,1})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110010]_{1,4}) \times ([110010]_{4,1}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([101010]_{1,2}) \qquad ([110001]_{4,3})$$

$$([101010]_{1,2}) \qquad ([010010]_{4,2,1})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \times ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([010010]_{1,2,4}) \qquad ([101010]_{2,1})$$

$$([010010]_{1,2,4}) \qquad ([101010]_{2,1})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4}) \times ([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([101010]_{1,2}) \qquad ([010010]_{4,2,1})$$

Objectal action

$$([110001]_{3,4}) \qquad ([110010]_{4,1})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([010010]_{1,2,4}) \times ([010010]_{4,2,1}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([110010]_{1,4}) \qquad ([110001]_{4,3})$$

$$([110010]_{1,4}) \qquad ([110001]_{4,3})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([010010]_{1,2,4}) \times ([010010]_{4,2,1}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([110001]_{3,4}) \qquad ([110010]_{4,1})$$

$$([101010]_{1,2}) \qquad ([110001]_{4,3})$$
$$([110010]_{1,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \times ([010010]_{4,2,1}) \gg \curlyvee \succ ([110010]_{4,1})$$
$$([110001]_{3,4}) \qquad ([101010]_{2,1})$$

$$([110001]_{3,4}) \qquad ([101010]_{2,1})$$
$$([110010]_{1,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \times ([010010]_{4,2,1}) \gg \curlyvee \succ ([110010]_{4,1})$$
$$([101010]_{1,2}) \qquad ([110001]_{4,3})$$

$$([101010]_{1,2})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \times ([110010]_{4,1})[010010]_{4,2,1} \gg \curlyvee \succ ([110001]_{4,3})$$
$$([110010]_{1,4})$$ $$([101010]_{2,1})$$

$$([110010]_{1,4})$$ $$([101010]_{2,1})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \times ([010010]_{4,2,1} \gg \curlyvee \succ ([110001]_{4,3})$$
$$([101010]_{1,2})$$ $$([110010]_{4,1})$$

Interpretative action

$$([010010]_{1,2,4})$$ $$([110010]_{4,1})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110001]_{3,4}) \times ([110001]_{4,3}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([110010]_{1,4})$$ $$([010010]_{4,2,1})$$

$$([110010]_{1,4})$$ $$([010010]_{4,2,1})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110001]_{3,4}) \times ([110001]_{4,3}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([010010]_{1,2,4})$$ $$([110010]_{4,1})$$

$$([101010]_{1,2})$$ $$([010010]_{4,2,1})$$
$$([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \times ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1})$$
$$([010010]_{1,2,4})$$ $$([101010]_{2,1})$$

$$([010010]_{1,2,4})$$ $$([101010]_{2,1})$$
$$([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \times ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1})$$
$$([101010]_{1,2})$$ $$([010010]_{4,2,1})$$

$$([101010]_{1,2})$$ $$([110010]_{4,1})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \times ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([110010]_{1,4})$$ $$([101010]_{2,1})$$

$$([110010]_{1,4})$$ $$([101010]_{2,1})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \times ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([101010]_{1,2})$$ $$([110010]_{4,1})$$

8. Pre-semiotic dual system

$([110001]_{3,4}\ [010010]_{1,2,4}\ [110010]_{1,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110010]_{4,1}\ [010010]_{4,2,1}\ [110001]_{4,3})$

Qualitative action

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010010]_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$([010010]_{1,2,4})$$
$$([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([110001]_{3,4})$$
$$\times$$
$$([110001]_{4,3})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2})$$
$$([010010]_{4,2,1})$$

$$([101001]_{2,3})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([110001]_{3,4})$$
$$\times$$
$$([110001]_{4,3})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([101001]_{3,2})$$

$$([110001]_{3,4})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([101001]_{2,3})$$
$$\times$$
$$([101001]_{3,2})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([110001]_{4,3})$$

$$([101001]_{2,3})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([010010]_{1,2,4})$$
$$\times$$
$$([010010]_{4,2,1})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([101001]_{3,2})$$

$$([010010]_{1,2,4})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([101001]_{2,3})$$
$$\times$$
$$([101001]_{3,2})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([010010]_{4,2,1})$$

Objectal action

$$([110001]_{3,4})$$
$$([101001]_{2,3}) \gg \curlyvee \succ ([010010]_{1,2,4})$$
$$([110010]_{1,4})$$
$$\times$$
$$([110010]_{4,1})$$
$$([010010]_{4,2,1}) \gg \curlyvee \succ ([101001]_{3,2})$$
$$([110001]_{4,3})$$

$$([110010]_{1,4})$$
$$([101001]_{2,3}) \gg \curlyvee \succ ([010010]_{1,2,4})$$
$$([110001]_{3,4})$$
$$\times$$
$$([110001]_{4,3})$$
$$([010010]_{4,2,1}) \gg \curlyvee \succ ([101001]_{3,2})$$
$$([110010]_{4,1})$$

$$([101001]_{2,3})$$
$$([110010]_{1,4}) \gg \curlyvee \succ ([010010]_{1,2,4})$$
$$([110001]_{3,4})$$
$$\times$$
$$([110001]_{4,3})$$
$$([010010]_{4,2,1}) \gg \curlyvee \succ ([110010]_{4,1})$$
$$([101001]_{3,2})$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110010]_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}([010010]_{1,2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix} ([110010]_{1,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3}) \end{matrix} \times \begin{matrix} ([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110010]_{4,1}) \end{matrix}$$

9. Pre-semiotic dual system

$([110001]_{3,4}\,[010010]_{1,2,4}\,[110001]_{3,4}\,[101001]_{2,3}) \times$
$([101001]_{3,2}\,[110001]_{4,3}\,[010010]_{4,2,1}\,[110001]_{4,3})$

Qualitative action

$$\begin{matrix} ([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010010]_{1,2,4}) \end{matrix} \times \begin{matrix} ([010010]_{4,2,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([010010]_{1,2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010010]_{4,2,1}) \end{matrix}$$

$$\begin{matrix} ([110001]_{3,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{3,4}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([110001]_{3,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010010]_{1,2,4}) \end{matrix} \times \begin{matrix} ([010010]_{4,2,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([010010]_{1,2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010010]_{4,2,1}) \end{matrix}$$

Medial action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010010]_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \succ ([010010]_{1,2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010010]_{4,2,1}) \gg \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \succ ([010010]_{1,2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010010]_{4,2,1}) \gg \succ ([110001]_{4,3}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \succ ([010010]_{1,2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010010]_{4,2,1}) \gg \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \succ ([010010]_{1,2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010010]_{4,2,1}) \gg \succ ([110001]_{4,3}) \\ ([110001]_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}([010010]_{1,2,4}) \\ ([101001]_{2,3}) \gg \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110001]_{4,3}) \gg \succ ([101001]_{3,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \succ ([110001]_{3,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110001]_{4,3}) \gg \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \succ ([110001]_{3,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110001]_{4,3}) \gg \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110001]_{3,4}) \gg \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \succ ([110001]_{4,3}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$([101001]_{2,3})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \times ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([110001]_{3,4})$$
$$([110001]_{4,3})$$
$$([101001]_{3,2})$$

$$([110001]_{3,4})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \times ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([101001]_{2,3})$$
$$([101001]_{3,2})$$
$$([110001]_{4,3})$$

10. Pre-semiotic dual system

$([110001]_{3,4}\ [010001]_{2,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110001]_{4,3}\ [010001]_{4,2}\ [110001]_{4,3})$

Qualitative action

$$([110001]_{3,4})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \times ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([010001]_{2,4})$$
$$([010001]_{4,2})$$
$$([110001]_{4,3})$$

$$([010001]_{2,4})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \times ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([110001]_{3,4})$$
$$([110001]_{4,3})$$
$$([010001]_{4,2})$$

$$([110001]_{3,4})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \times ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([110001]_{3,4})$$
$$([110001]_{4,3})$$

$$([110001]_{3,4})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \times ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([110001]_{3,4})$$
$$([110001]_{4,3})$$

$$([110001]_{3,4})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \times ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([010001]_{2,4})$$
$$([010001]_{4,2})$$
$$([110001]_{4,3})$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010010]_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010001]_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{array}{c} ([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \Upsilon \succ ([010001]_{2,4}) \\ ([110001]_{3,4}) \end{array} \times \begin{array}{c} ([110001]_{4,3}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([101001]_{3,2}) \\ ([110001]_{4,3}) \end{array}$$

$$\begin{array}{c} ([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \Upsilon \succ ([010001]_{2,4}) \\ ([110001]_{3,4}) \end{array} \times \begin{array}{c} ([110001]_{4,3}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([110001]_{4,3}) \\ ([101001]_{3,2}) \end{array}$$

$$\begin{array}{c} ([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \Upsilon \succ ([010001]_{2,4}) \\ ([101001]_{2,3}) \end{array} \times \begin{array}{c} ([101001]_{3,2}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([110001]_{4,3}) \\ ([110001]_{4,3}) \end{array}$$

$$\begin{array}{c} ([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \Upsilon \succ ([010001]_{2,4}) \\ ([110001]_{3,4}) \end{array} \times \begin{array}{c} ([110001]_{4,3}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([110001]_{4,3}) \\ ([101001]_{3,2}) \end{array}$$

$$\begin{array}{c} ([110001]_{3,4}) \\ ([110001]_{3,4}) \gg \Upsilon \succ ([010001]_{2,4}) \\ ([101001]_{2,3}) \end{array} \times \begin{array}{c} ([101001]_{3,2}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([110001]_{3,4}) \\ ([110001]_{4,3}) \end{array}$$

Interpretative action

$$\begin{array}{c} ([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \Upsilon \succ ([110001]_{3,4}) \\ ([110001]_{3,4}) \end{array} \times \begin{array}{c} ([110001]_{4,3}) \\ ([110001]_{4,3}) \gg \Upsilon \succ ([101001]_{3,2}) \\ ([010001]_{4,2}) \end{array}$$

$$\begin{array}{c} ([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \Upsilon \succ ([110001]_{3,4}) \\ ([010001]_{2,4}) \end{array} \times \begin{array}{c} ([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \Upsilon \succ ([101001]_{3,2}) \\ ([110001]_{4,3}) \end{array}$$

$$\begin{array}{c} ([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \Upsilon \succ ([110001]_{3,4}) \\ ([010001]_{2,4}) \end{array} \times \begin{array}{c} ([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \Upsilon \succ ([110001]_{4,3}) \\ ([101001]_{3,2}) \end{array}$$

$$([010001]_{2,4})$$
$$([110001]_{3,4}) \gg \succ ([110001]_{3,4}) \quad \times \quad ([110001]_{4,3}) \gg \succ ([110001]_{4,3})$$
$$([101001]_{2,3})$$

$$([101001]_{3,2})$$
$$([101001]_{2,3})$$
$$([010001]_{4,2})$$

$$([101001]_{2,3})$$
$$([010001]_{2,4}) \gg \succ ([110001]_{3,4}) \quad \times \quad ([110001]_{4,3}) \gg \succ ([010001]_{4,2})$$
$$([110001]_{3,4})$$

$$([110001]_{3,4})$$
$$([010001]_{2,4}) \gg \succ ([110001]_{3,4}) \quad \times \quad ([110001]_{4,3}) \gg \succ ([010001]_{4,2})$$
$$([101001]_{2,3})$$

$$([101001]_{3,2})$$
$$([110001]_{4,3})$$

11. Pre-semiotic dual system

$([010001]_{2,4}\ [010010]_{1,2,4}\ [110010]_{1,4}\ [101010]_{1,2}) \times$
$([101010]_{2,1}\ [110010]_{4,1}\ [010010]_{4,2,1}\ [010001]_{4,2})$

Qualitative action

$$([010001]_{2,4})$$
$$([110010]_{1,4}) \gg \succ ([101010]_{1,2}) \quad \times \quad ([010010]_{4,2,1}) \gg \succ ([110010]_{4,1})$$
$$([010010]_{1,2,4})$$

$$([010010]_{1,2,4})$$
$$([110010]_{1,4}) \gg \succ ([101010]_{1,2}) \quad \times \quad ([010001]_{4,2}) \gg \succ ([110010]_{4,1})$$
$$([010001]_{2,4})$$

$$([010001]_{2,4})$$
$$([010010]_{1,2,4}) \gg \succ ([101010]_{1,2}) \quad \times \quad ([110010]_{4,1}) \gg \succ ([010010]_{4,2,1})$$
$$([110010]_{1,4})$$

$$([110010]_{1,4})$$
$$([010010]_{1,2,4}) \gg \succ ([101010]_{1,2}) \quad \times \quad ([010001]_{4,2}) \gg \succ ([010010]_{4,2,1})$$
$$([010001]_{2,4})$$

$$([110010]_{1,4})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([101010]_{1,2})$$
$$([010010]_{1,2,4})$$
$$\times$$
$$([010010]_{4,2,1})$$
$$([101010]_{2,1}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([110010]_{4,1})$$

$$([010010]_{1,2,4})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([101010]_{1,2})$$
$$([110010]_{1,4})$$
$$\times$$
$$([110010]_{4,1})$$
$$([101010]_{2,1}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([010010]_{4,2,1})$$

Medial action

$$([010001]_{2,4})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([010010]_{1,2,4})$$
$$\times$$
$$([010010]_{4,2,1})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([010001]_{4,2})$$

$$([010010]_{1,2,4})$$
$$([101010]_{1,2}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([010001]_{2,4})$$
$$\times$$
$$([010001]_{4,2})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([101010]_{2,1})$$
$$([010010]_{4,2,1})$$

$$([101010]_{1,2})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([010001]_{2,4})$$
$$\times$$
$$([010001]_{4,2})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([101010]_{2,1})$$

$$([010001]_{2,4})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([101010]_{1,2})$$
$$\times$$
$$([101010]_{2,1})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([010001]_{4,2})$$

$$([101010]_{1,2})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([010010]_{1,2,4})$$
$$\times$$
$$([010010]_{4,2,1})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([101010]_{2,1})$$

$$([010010]_{1,2,4})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([110010]_{1,4})$$
$$([101010]_{1,2})$$
$$\times$$
$$([101010]_{2,1})$$
$$([110010]_{4,1}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([010010]_{4,2,1})$$

Objectal action

$$\begin{matrix}([010001]_{2,4}) \\ ([101010]_{1,2}) \gg \Upsilon \succ ([010010]_{1,2,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([010010]_{4,2,1}) \gg \Upsilon \succ ([101010]_{2,1}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101010]_{1,2}) \gg \Upsilon \succ ([010010]_{1,2,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([010010]_{4,2,1}) \gg \Upsilon \succ ([101010]_{2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101010]_{1,2}) \\ ([110010]_{1,4}) \gg \Upsilon \succ ([010010]_{1,2,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([010010]_{4,2,1}) \gg \Upsilon \succ ([110010]_{4,1}) \\ ([101010]_{2,1})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([110010]_{1,4}) \gg \Upsilon \succ ([010010]_{1,2,4}) \\ ([101010]_{1,2})\end{matrix} \times \begin{matrix}([101010]_{2,1}) \\ ([010010]_{4,2,1}) \gg \Upsilon \succ ([110010]_{4,1}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101010]_{1,2}) \\ ([010001]_{2,4}) \gg \Upsilon \succ ([010010]_{1,2,4}) \\ ([110010]_{1,2,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([010010]_{4,2,1}) \gg \Upsilon \succ ([010001]_{4,2}) \\ ([101010]_{2,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([010001]_{2,4}) \gg \Upsilon \succ ([010010]_{1,2,4}) \\ ([101010]_{1,2})\end{matrix} \times \begin{matrix}([101010]_{2,1}) \\ ([010010]_{4,2,1}) \gg \Upsilon \succ ([010001]_{4,2}) \\ ([110010]_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}([010010]_{1,2,4}) \\ ([101010]_{1,2}) \gg \Upsilon \succ ([010001]_{2,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([101010]_{2,1}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101010]_{1,2}) \gg \Upsilon \succ ([010001]_{2,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([101010]_{2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix} ([101010]_{1,2}) \\ ([110010]_{1,4}) \gg \succ ([010001]_{2,4}) \\ ([010010]_{1,2,4}) \end{matrix} \times \begin{matrix} ([010010]_{4,2,1}) \\ ([010001]_{4,2}) \gg \succ ([110010]_{4,1}) \\ ([101010]_{2,1}) \end{matrix}$$

$$\begin{matrix} ([010010]_{1,2,4}) \\ ([110010]_{1,4}) \gg \succ ([010001]_{2,4}) \\ ([101010]_{1,2}) \end{matrix} \times \begin{matrix} ([101010]_{2,1}) \\ ([010001]_{4,2}) \gg \succ ([110010]_{4,1}) \\ ([010010]_{4,2,1}) \end{matrix}$$

$$\begin{matrix} ([101010]_{1,2}) \\ ([010010]_{1,2,4}) \gg \succ ([010001]_{2,4}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([010001]_{4,2}) \gg \succ ([010010]_{4,2,1}) \\ ([101010]_{2,1}) \end{matrix}$$

$$\begin{matrix} ([110010]_{1,4}) \\ ([010010]_{1,2,4}) \gg \succ ([010001]_{2,4}) \\ ([101010]_{1,2}) \end{matrix} \times \begin{matrix} ([101010]_{2,1}) \\ ([010001]_{4,2}) \gg \succ ([010010]_{4,2,1}) \\ ([110010]_{4,1}) \end{matrix}$$

12. Pre-semiotic dual system

$([010001]_{2,4}\ [010010]_{1,2,4}\ [110010]_{1,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110010]_{4,1}\ [010010]_{4,2,1}\ [010001]_{4,2})$

Qualitative action

$$\begin{matrix} ([010001]_{2,4}) \\ ([110010]_{1,4}) \gg \succ ([101001]_{2,3}) \\ ([010010]_{1,2,4}) \end{matrix} \times \begin{matrix} ([010010]_{4,2,1}) \\ ([101001]_{3,2}) \gg \succ ([110010]_{4,1}) \\ ([010001]_{4,2}) \end{matrix}$$

$$\begin{matrix} ([010010]_{1,2,4}) \\ ([110010]_{1,4}) \gg \succ ([101001]_{2,3}) \\ ([010001]_{2,4}) \end{matrix} \times \begin{matrix} ([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \succ ([110010]_{4,1}) \\ ([010010]_{4,2,1}) \end{matrix}$$

$$\begin{matrix} ([010001]_{2,4}) \\ ([010010]_{1,2,4}) \gg \succ ([101001]_{2,3}) \\ ([110010]_{1,4}) \end{matrix} \times \begin{matrix} ([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \succ ([010010]_{4,2,1}) \\ ([010001]_{4,2}) \end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110010]_{1,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110010]_{4,1}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

Objectal action

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([110010]_{4,1})\end{matrix}$$

Interpretative action

$$\begin{matrix}([010010]_{1,2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110010]_{4,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110010]_{1,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([110010]_{4,1}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([110010]_{1,4})\end{matrix} \times \begin{matrix}([110010]_{4,1}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110010]_{1,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110010]_{4,1})\end{matrix}$$

13. Pre-semiotic dual system

$([010001]_{2,4}\ [010010]_{1,2,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110001]_{4,3}\ [010010]_{4,2,1}\ [010001]_{4,2})$

Qualitative action

$$\begin{matrix}([010001]_{2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

Medial action

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010010]_{1,2,4})\end{matrix} \times \begin{matrix}([010010]_{4,2,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([010010]_{1,2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010010]_{4,2,1})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([010010]_{1,2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010010]_{4,2,1}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix} ([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010010]_{1,2,4}) \end{matrix} \times \begin{matrix} ([010010]_{4,2,1}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2}) \end{matrix}$$

$$\begin{matrix} ([010010]_{1,2,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3}) \end{matrix} \times \begin{matrix} ([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([010010]_{4,2,1}) \end{matrix}$$

Objectal action

$$\begin{matrix} ([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2}) \end{matrix}$$

$$\begin{matrix} ([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([010001]_{2,4}) \end{matrix} \times \begin{matrix} ([010001]_{4,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3}) \end{matrix}$$

$$\begin{matrix} ([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([010001]_{2,4}) \end{matrix} \times \begin{matrix} ([010001]_{4,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2}) \end{matrix}$$

$$\begin{matrix} ([010001]_{2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([101001]_{2,3}) \end{matrix} \times \begin{matrix} ([101001]_{3,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010001]_{4,2}) \end{matrix}$$

$$\begin{matrix} ([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([110001]_{3,4}) \end{matrix} \times \begin{matrix} ([110001]_{4,3}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2}) \end{matrix}$$

$$\begin{matrix} ([110001]_{3,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([010010]_{1,2,4}) \\ ([101001]_{2,3}) \end{matrix} \times \begin{matrix} ([101001]_{3,2}) \\ ([010010]_{4,2,1}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([110001]_{4,3}) \end{matrix}$$

Interpretative action

$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$
$$([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \times ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2})$$
$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$

$$([110001]_{3,4}) \quad ([010010]_{4,2,1})$$
$$([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \times ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2})$$
$$([010010]_{1,2,4}) \quad ([110001]_{4,3})$$

$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([010001]_{2,4}) \times ([010001]_{4,2}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$

$$([010010]_{1,2,4}) \quad ([101001]_{3,2})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([010001]_{2,4}) \times ([010001]_{4,2}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([101001]_{2,3}) \quad ([010010]_{4,2,1})$$

$$([101001]_{2,3}) \quad ([110001]_{4,3})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([010001]_{2,4}) \times ([010001]_{4,2}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([110001]_{3,4}) \quad ([101001]_{3,2})$$

$$([110001]_{3,4}) \quad ([101001]_{3,2})$$
$$([010010]_{1,2,4}) \gg \curlyvee \succ ([010001]_{2,4}) \times ([010001]_{4,2}) \gg \curlyvee \succ ([010010]_{4,2,1})$$
$$([101001]_{2,3}) \quad ([110001]_{4,3})$$

14. Pre-semiotic dual system

$([010001]_{2,4}\ [010001]_{2,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110001]_{4,3}\ [010001]_{4,2}\ [010001]_{4,2})$

Qualitative action

$$([010001]_{2,4}) \quad ([010001]_{4,2})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \times ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([010001]_{2,4}) \quad ([010001]_{4,2})$$

$$\begin{matrix}([010001]_{2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([010001]_{4,2})\end{matrix}$$

Medial action

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \curlyvee \succ [110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([010001]_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$([110001]_{3,4})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([010001]_{2,4}) \quad \times \quad ([010001]_{4,2}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([101001]_{2,3})$$
$$([101001]_{3,2})$$

Interpretative action

$$([010001]_{2,4})$$
$$([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \quad \times \quad ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2})$$
$$([110001]_{3,4})$$
$$([110001]_{4,3})$$
$$([010001]_{4,2})$$

$$([110001]_{3,4})$$
$$([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \quad \times \quad ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2})$$
$$([010001]_{2,4})$$
$$([010001]_{4,2})$$
$$([110001]_{4,3})$$

$$([101001]_{2,3})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([010001]_{2,4}) \quad \times \quad ([010001]_{4,2}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([010001]_{2,4})$$
$$([010001]_{4,2})$$
$$([101001]_{3,2})$$

$$([010001]_{2,4})$$
$$([110001]_{3,4}) \gg \curlyvee \succ ([010001]_{2,4}) \quad \times \quad ([010001]_{4,2}) \gg \curlyvee \succ ([110001]_{4,3})$$
$$([101001]_{2,3})$$
$$([101001]_{3,2})$$
$$([010001]_{4,2})$$

$$([101001]_{2,3})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([010001]_{2,4}) \quad \times \quad ([010001]_{4,2}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([110001]_{3,4})$$
$$([110001]_{4,3})$$
$$([101001]_{3,2})$$

$$([110001]_{3,4})$$
$$([010001]_{2,4}) \gg \curlyvee \succ ([010001]_{2,4}) \quad \times \quad ([010001]_{4,2}) \gg \curlyvee \succ ([010001]_{4,2})$$
$$([101001]_{2,3})$$
$$([101001]_{3,2})$$
$$([110001]_{4,3})$$

15. Pre-semiotic dual system

$([001001]_{2,3,4}\ [010001]_{2,4}\ [110001]_{3,4}\ [101001]_{2,3}) \times$
$([101001]_{3,2}\ [110001]_{4,3}\ [010001]_{4,2}\ [001001]_{4,3,2})$

Qualitative action

$$\begin{matrix}([001001]_{2,3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([001001]_{4,3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([001001]_{2,3,4})\end{matrix} \times \begin{matrix}([001001]_{4,3,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([001001]_{2,3,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([001001]_{4,3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([001001]_{2,3,4})\end{matrix} \times \begin{matrix}([001001]_{4,3,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([001001]_{2,3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([001001]_{4,3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([001001]_{2,3,4}) \gg \curlyvee \succ ([101001]_{2,3}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([101001]_{3,2}) \gg \curlyvee \succ ([001001]_{4,3,2}) \\ ([010001]_{4,2})\end{matrix}$$

Medial action

$$\begin{matrix}([001001]_{2,3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([001001]_{4,3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([001001]_{2,3,4}) \\ ([010001]_{2,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([010001]_{4,2}) \\ ([001001]_{4,3,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([001001]_{2,3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([001001]_{4,3,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([001001]_{2,3,4}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([110001]_{4,3}) \gg \curlyvee \succ ([001001]_{4,3,2}) \\ ([010001]_{4,2})\end{matrix}$$

Objectal action

$$\begin{matrix}([001001]_{2,3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([001001]_{4,3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([001001]_{2,3,4})\end{matrix} \times \begin{matrix}([001001]_{4,3,2}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([001001]_{2,3,4})\end{matrix} \times \begin{matrix}([001001]_{4,3,2}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([001001]_{2,3,4}) \\ ([110001]_{3,4}) \gg \curlyvee \succ ([010001]_{2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010001]_{4,2}) \gg \curlyvee \succ ([110001]_{3,4}) \\ ([001001]_{4,3,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([001001]_{2,3,4} \gg \Upsilon \succ ([010001]_{2,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([001001]_{2,3,4}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([001001]_{2,3,4} \gg \Upsilon \succ ([010001]_{2,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([010001]_{4,2}) \gg \Upsilon \succ ([001001]_{4,3,2}) \\ ([110001]_{4,3})\end{matrix}$$

Interpretative action

$$\begin{matrix}([010001]_{2,4}) \\ ([101001]_{2,3} \gg \Upsilon \succ ([001001]_{2,3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([001001]_{4,3,2} \gg \Upsilon \succ ([101001]_{3,2}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([101001]_{2,3} \gg \Upsilon \succ ([001001]_{2,3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([001001]_{4,3,2} \gg \Upsilon \succ ([101001]_{3,2}) \\ ([110001]_{4,3})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([110001]_{3,4} \gg \Upsilon \succ ([001001]_{2,3,4}) \\ ([010001]_{2,4})\end{matrix} \times \begin{matrix}([010001]_{4,2}) \\ ([001001]_{4,3,2} \gg \Upsilon \succ ([110001]_{4,3}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([010001]_{2,4}) \\ ([110001]_{3,4} \gg \Upsilon \succ ([001001]_{2,3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([001001]_{4,3,2} \gg \Upsilon \succ ([110001]_{4,3}) \\ ([010001]_{4,2})\end{matrix}$$

$$\begin{matrix}([101001]_{2,3}) \\ ([010001]_{2,4} \gg \Upsilon \succ ([001001]_{2,3,4}) \\ ([110001]_{3,4})\end{matrix} \times \begin{matrix}([110001]_{4,3}) \\ ([001001]_{4,3,2} \gg \Upsilon \succ ([010001]_{4,2}) \\ ([101001]_{3,2})\end{matrix}$$

$$\begin{matrix}([110001]_{3,4}) \\ ([010001]_{2,4} \gg \Upsilon \succ ([001001]_{2,3,4}) \\ ([101001]_{2,3})\end{matrix} \times \begin{matrix}([101001]_{3,2}) \\ ([001001]_{4,3,2} \gg \Upsilon \succ ([010001]_{4,2}) \\ ([110001]_{4,3})\end{matrix}$$

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