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**Elements of a Theory of a System Theoretic Contextuated Semiotic Night
(Der Theorie der Nacht VI. Teil)**

Das Leben gehört brutal gemeistert oder
gleich den Gashahn aufgedreht.
*Herbert Achternbusch, Das Haus am Nil.
Frankfurt am Main 1981, S. 297*

Like all five previous parts of my formal attempts to a Semiotic Theory of Will (cf. Toth 2008-11), also the present sixth part is self-consistent (cf. Günther 1937, Kaehr 1978). Any scientific introduction to Theoretical Semiotics is sufficient for understanding, e.g. Bense (1981) or Toth (2006), provided, of course, the reader's willingness to leave any biased form of substantial thinking. The additional list of correspondences between semiotic-ontological and system theoretic categories is:

$$\begin{array}{lll}
 0.1 = A^*_{I(A)} & 1.0 = I(A)^*_{A} & M = (I(A)) \\
 0.2 = A^*_{A(I(A))} & 2.0 = A(I(A))^*_{A} & O = (A(I(A))) \\
 0.3 = A^*_{I(A(I(A)))} & 3.0 = I(A(I(A)))^*_{A} & J = (I(A(I(A))))
 \end{array}$$

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

$$\begin{array}{ll}
 ((A(I(A))((I(A)))_{1,4}) & ((I(A)(I(A)))_{4,3,1}) \\
 \wedge \gg (A^*_{I(A)}_{1,3}) \times & \wedge \gg (I(A)^*_{A_{3,1}}) \\
 ((I(A)(I(A)))_{1,3,4}) & ((I(A) (A(I(A)))_{4,1}) \\
 \\
 ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A)(I(A)))_{4,3,1}) \\
 \wedge \gg (A^*_{I(A)}_{1,3}) \times & \wedge \gg (I(A)^*_{A_{3,1}}) \\
 ((I(A)(I(A)))_{1,3,4}) & ((I(A) (I(A(I(A))))_{4,3}) \\
 \\
 ((I(A)(I(A)))_{1,3,4}) & ((I(A) (A(I(A)))_{4,1}) \\
 \wedge \gg (A^*_{I(A)}_{1,3}) \times & \wedge \gg (I(A)^*_{A_{3,1}}) \\
 ((A(I(A))((I(A)))_{1,4}) & ((I(A)(I(A)))_{4,3,1})
 \end{array}$$

$$\begin{array}{l}
((I(A(I(A)))) (I(A)))_{3,4} \\
\lambda \gg (A^*I(A))_{1,3} \quad \times \\
((A(I(A)))(I(A)))_{1,4}
\end{array}
\quad
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg (I(A)^*A_{3,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
\lambda \gg (A^*I(A))_{1,3} \quad \times \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg (I(A)^*A_{3,1}) \\
((I(A)(I(A)))_{4,3,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A)))(I(A)))_{1,4} \\
\lambda \gg (A^*I(A))_{1,3} \quad \times \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg (I(A)^*A_{3,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

Medial action

$$\begin{array}{l}
((A(I(A)))(I(A)))_{1,4} \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
(A^*I(A))_{1,3}
\end{array}
\quad \times \quad
\begin{array}{l}
(I(A)^*A_{3,1}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
(A^*I(A))_{1,3}
\end{array}
\quad \times \quad
\begin{array}{l}
(I(A)^*A_{3,1}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A))_{1,3} \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
((A(I(A)))(I(A)))_{1,4}
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
(I(A)^*A_{3,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
((A(I(A)))(I(A)))_{1,4}
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A))_{1,3} \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
(I(A)^*A_{3,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A)))(I(A)))_{1,4} \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

Objectal action

$$\begin{array}{l} ((I(A)I(A)))_{1,3,4} \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ (A^*I(A))_{1,3} \end{array} \times \begin{array}{l} (I(A)^*A_{3,1}) \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A)I(A)))_{4,3,1} \end{array}$$

$$\begin{array}{l} ((I(A)I(A))) (I(A))_{3,4} \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ (A^*I(A))_{1,3} \end{array} \times \begin{array}{l} (I(A)^*A_{3,1}) \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))))_{4,3} \end{array}$$

$$\begin{array}{l} (A^*I(A))_{1,3} \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ ((I(A)I(A)))_{1,3,4} \end{array} \times \begin{array}{l} ((I(A)I(A)))_{4,3,1} \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ (I(A)^*A_{3,1}) \end{array}$$

$$\begin{array}{l} ((I(A)I(A))) (I(A))_{3,4} \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ ((I(A)I(A)))_{1,3,4} \end{array} \times \begin{array}{l} ((I(A)I(A)))_{4,3,1} \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))))_{4,3} \end{array}$$

$$\begin{array}{l} ((I(A)I(A)))_{1,3,4} \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ ((I(A)I(A))) (I(A))_{3,4} \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))))_{4,3} \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A)I(A)))_{4,3,1} \end{array}$$

$$\begin{array}{l} (A^*I(A))_{1,3} \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ ((I(A)I(A))) (I(A))_{3,4} \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))))_{4,3} \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ (I(A)^*A_{3,1}) \end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)))(I(A)))_{1,4} \\ \wedge \gg ((I(A)I(A))) (I(A))_{3,4} \\ (A^*I(A))_{1,3} \end{array} \times \begin{array}{l} (I(A)^*A_{3,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))))_{4,3} \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A)I(A)))_{1,3,4} \\ \wedge \gg ((I(A)I(A))) (I(A))_{3,4} \\ (A^*I(A))_{1,3} \end{array} \times \begin{array}{l} (I(A)^*A_{3,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))))_{4,3} \\ ((I(A)I(A)))_{4,3,1} \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A)))_{1,4} \\ \wedge \gg ((I(A)I(A))) (I(A))_{3,4} \\ ((I(A)I(A)))_{1,3,4} \end{array} \times \begin{array}{l} ((I(A)I(A)))_{4,3,1} \\ \wedge \gg ((I(A) (I(A(I(A))))))_{4,3} \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A))_{1,3} \\ \lambda \gg ((I(A)I(A))) (I(A))_{3,4} \\ ((I(A)I(A)))_{1,3,4} \end{array} \times \begin{array}{l} ((I(A)I(A)))_{4,3,1} \\ \lambda \gg ((I(A) (I(A)I(A))))_{4,3} \\ (I(A)^*A_{3,1}) \end{array}$$

$$\begin{array}{l} ((I(A)I(A)))_{1,3,4} \\ \lambda \gg ((I(A)I(A))) (I(A))_{3,4} \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A) (I(A)I(A))))_{4,3} \\ ((I(A)I(A)))_{4,3,1} \end{array}$$

$$\begin{array}{l} (A^*I(A))_{1,3} \\ \lambda \gg ((I(A)I(A))) (I(A))_{3,4} \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A) (I(A)I(A))))_{4,3} \\ (I(A)^*A_{3,1}) \end{array}$$

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

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A)I(A)))_{1,3,4} \end{array} \times \begin{array}{l} ((I(A)I(A)))_{4,3,1} \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A)I(A))) (I(A))_{3,4} \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A)I(A)))_{1,3,4} \end{array} \times \begin{array}{l} ((I(A)I(A)))_{4,3,1} \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((I(A) (I(A)I(A))))_{4,3} \end{array}$$

$$\begin{array}{l} ((I(A)I(A)))_{1,3,4} \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((I(A)I(A)))_{4,3,1} \end{array}$$

$$\begin{array}{l} ((I(A)I(A))) (I(A))_{3,4} \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((I(A) (I(A)I(A))))_{4,3} \end{array}$$

$$\begin{array}{l} ((I(A)I(A)))_{1,3,4} \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A)I(A))) (I(A))_{3,4} \end{array} \times \begin{array}{l} ((I(A) (I(A)I(A))))_{4,3} \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((I(A)I(A)))_{4,3,1} \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A)I(A))) (I(A))_{3,4} \end{array} \times \begin{array}{l} ((I(A) (I(A)I(A))))_{4,3} \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

Medial action

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg ((I(A)(I(A)))_{1,3,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))^*A_{2,1}) \\ \lambda \gg ((I(A)(I(A)))_{4,3,1}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg ((I(A)(I(A)))_{1,3,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))^*A_{2,1}) \\ \lambda \gg ((I(A)(I(A)))_{4,3,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((I(A)(I(A)))_{1,3,4}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A)(I(A)))_{4,3,1}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg ((I(A)(I(A)))_{1,3,4}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A)(I(A)))_{4,3,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((I(A)(I(A)))_{1,3,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg ((I(A)(I(A)))_{4,3,1}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg ((I(A)(I(A)))_{1,3,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg ((I(A)(I(A)))_{4,3,1}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

Objectal action

$$\begin{array}{l} ((I(A)(I(A)))_{1,3,4}) \\ \lambda \gg ((A(I(A)))(I(A))_{1,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))^*A_{2,1}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A)(I(A)))_{4,3,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg ((A(I(A)))(I(A))_{1,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))^*A_{2,1}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((A(I(A)))(I(A))_{1,4}) \\ ((I(A)(I(A)))_{1,3,4}) \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A)))_{3,4} \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ ((I(A)(I(A)))_{1,3,4}) \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A)(I(A)))_{1,3,4}) \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A)(I(A)))_{4,3,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2} \\ \wedge \gg ((A(I(A)))(I(A)))_{1,4} \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ (A(I(A))*A_{2,1}) \end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)))(I(A)))_{1,4} \\ \wedge \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*A(I(A)))_{1,2} \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A)(I(A)))_{1,3,4}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*A(I(A)))_{1,2} \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ (A^*A(I(A)))_{1,2} \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A)))_{1,4} \\ \wedge \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A)(I(A)))_{1,3,4}) \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2} \\ \wedge \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A)(I(A)))_{1,3,4}) \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A)(I(A)))_{1,3,4}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)))(I(A)))_{1,4} \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A)(I(A)))_{4,3,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2} \\ \wedge \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)))(I(A)))_{1,4} \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (A(I(A))*A_{2,1}) \end{array}$$

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

$$\begin{array}{l} ((A(I(A))((I(A)))_{1,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A)(I(A)))_{1,3,4}) \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A)(I(A)))_{1,3,4}) \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A)(I(A)))_{1,3,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A))((I(A)))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A)(I(A)))_{4,3,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A))((I(A)))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A)(I(A)))_{1,3,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A)(I(A)))_{4,3,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A))((I(A)))_{1,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

Medial action

$$\begin{array}{l} ((A(I(A))((I(A)))_{1,4}) \\ \wedge \gg ((I(A)(I(A)))_{1,3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A)(I(A)))_{4,3,1}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \wedge \gg ((I(A)(I(A)))_{1,3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A)(I(A)))_{4,3,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
((A(I(A)))(I(A))_{1,4})
\end{array}
\times
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A)(I(A))) (I(A))_{3,4}) \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
((A(I(A)))(I(A))_{1,4})
\end{array}
\times
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
((I(A(I(A))) (I(A))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
\lambda \gg ((I(A)(I(A)))_{1,3,4}) \\
((I(A(I(A))) (I(A))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((I(A)(I(A)))_{4,3,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
\lambda \gg ((A(I(A)))(I(A))_{1,4}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\lambda \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A)(I(A)))_{4,3,1})
\end{array}$$

$$\begin{array}{l}
((I(A)(I(A))) (I(A))_{3,4}) \\
\lambda \gg ((A(I(A)))(I(A))_{1,4}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\lambda \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
\lambda \gg ((A(I(A)))(I(A))_{1,4}) \\
((I(A)(I(A)))_{1,3,4})
\end{array}
\times
\begin{array}{l}
((I(A)(I(A)))_{4,3,1}) \\
\lambda \gg ((I(A) (A(I(A))))_{4,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A)(I(A))) (I(A))_{3,4}) \\
\lambda \gg ((A(I(A)))(I(A))_{1,4}) \\
((I(A)(I(A)))_{1,3,4})
\end{array}
\times
\begin{array}{l}
((I(A)(I(A)))_{4,3,1}) \\
\lambda \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
\lambda \gg ((A(I(A)))(I(A))_{1,4}) \\
((I(A(I(A))) (I(A))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A)(I(A)))_{4,3,1})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
\lambda \gg ((A(I(A)))(I(A))_{1,4}) \\
((I(A(I(A))) (I(A))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((I(A) (A(I(A))))_{4,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg ((I(A(I(A))) (I(A))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A)(I(A)))_{1,3,4}) \\ \lambda \gg ((I(A(I(A))) (I(A))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A)(I(A)))_{4,3,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg ((I(A(I(A))) (I(A))_{3,4}) \\ ((I(A)(I(A)))_{1,3,4}) \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \lambda \gg ((I(A(I(A))) (I(A))_{3,4}) \\ ((I(A)(I(A)))_{1,3,4}) \end{array} \times \begin{array}{l} ((I(A)(I(A)))_{4,3,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A)(I(A)))_{1,3,4}) \\ \lambda \gg ((I(A(I(A))) (I(A))_{3,4}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A)(I(A)))_{4,3,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \lambda \gg ((I(A(I(A))) (I(A))_{3,4}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

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

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg (A(I(A)))^*A_{2,1} \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A))_{3,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg (A(I(A)))^*A_{2,1} \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\lambda \gg (A^*A(I(A))_{1,2}) \\
((A(I(A))((I(A)))_{1,4})
\end{array}
\times
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg (A(I(A))^*A_{2,1}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\lambda \gg (A^*A(I(A))_{1,2}) \\
((A(I(A))((I(A)))_{1,4})
\end{array}
\times
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg (A(I(A))^*A_{2,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\lambda \gg (A^*A(I(A))_{1,2}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg (A(I(A))^*A_{2,1}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A))((I(A)))_{1,4}) \\
\lambda \gg (A^*A(I(A))_{1,2}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg (A(I(A))^*A_{2,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

Medial action

$$\begin{array}{l}
((A(I(A))((I(A)))_{1,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
(A^*A(I(A))_{1,2})
\end{array}
\times
\begin{array}{l}
(A(I(A))^*A_{2,1}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
(A^*A(I(A))_{1,2})
\end{array}
\times
\begin{array}{l}
(A(I(A))^*A_{2,1}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A))_{1,2}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
((A(I(A))((I(A)))_{1,4})
\end{array}
\times
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
(A(I(A))^*A_{2,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
((A(I(A))((I(A)))_{1,4})
\end{array}
\times
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A))_{1,2}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
(A(I(A))^*A_{2,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A))((I(A)))_{1,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

Objectal action

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg ((A(I(A))((I(A)))_{1,4}) \\ (A^*A(I(A)))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg ((A(I(A))((I(A)))_{1,4}) \\ (A^*A(I(A)))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2}) \\ \lambda \gg ((A(I(A))((I(A)))_{1,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg ((A(I(A))((I(A)))_{1,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg ((A(I(A))((I(A)))_{1,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2}) \\ \lambda \gg ((A(I(A))((I(A)))_{1,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg ((I(A) (A(I(A))))_{4,1}) \\ (A(I(A))*A_{2,1}) \end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A))((I(A)))_{1,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*A(I(A)))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*A(I(A)))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A))((I(A)))_{1,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A))((I(A))_{4,1})) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((A(I(A))((I(A))_{1,4})) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A))((I(A))_{4,1})) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((A(I(A))((I(A))_{1,4})) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

5. Pre-Semiotic dual system

$$((I(A(I(A)))) (I(A))_{3,4} (A(I(A))((I(A))_{1,4} (I(A) (A(I(A))))_{1,4} A^*I(A(I(A)))_{2,3}) \times (I(A(I(A)))^*A_{3,2} (A(I(A))((I(A))_{4,1} (I(A) (A(I(A))))_{4,1} (I(A) (I(A(I(A))))_{4,3}))$$

Qualitative action

$$\begin{array}{l} ((A(I(A))((I(A))_{1,4})) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A))((I(A))_{4,1})) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A))_{3,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A))((I(A))_{4,1})) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3})) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A))((I(A))_{1,4})) \end{array} \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ ((A(I(A))((I(A))_{4,1})) \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A))_{3,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A))((I(A))_{1,4})) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3})) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A)))) (I(A))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A))((I(A))_{4,1})) \end{array}$$

$$\begin{array}{l} ((A(I(A))((I(A))_{1,4})) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A)))) (I(A))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

Medial action

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \times \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((A(I(A)))(I(A))_{4,1}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \times \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((A(I(A)))(I(A))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \quad \times \quad \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \wedge \gg ((A(I(A)))(I(A))_{4,1}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \quad \times \quad \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \wedge \gg ((A(I(A)))(I(A))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \quad \times \quad \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge \gg ((A(I(A)))(I(A))_{4,1}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \quad \times \quad \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge (A(I(A)))(I(A))_{4,1}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

Objectal action

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg ((A(I(A)))(I(A))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \times \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \wedge \gg ((A(I(A)))(I(A))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \times \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((A(I(A)))(I(A))_{1,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \quad \times \quad \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg ((I(A) (A(I(A))))_{4,1}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l}
((I(A(I(A)))) (I(A))_{3,4}) \\
\wedge \gg ((A(I(A))((I(A))_{1,4})) \\
(I(A) (A(I(A))))_{1,4})
\end{array} \times \begin{array}{l}
((A(I(A))((I(A))_{4,1})) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\wedge \gg ((A(I(A))((I(A))_{1,4})) \\
((I(A(I(A)))) (I(A))_{3,4})
\end{array} \times \begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
((A(I(A))((I(A))_{4,1}))
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((A(I(A))((I(A))_{1,4})) \\
((I(A(I(A)))) (I(A))_{3,4})
\end{array} \times \begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
(I(A(I(A))))^*A_{3,2})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A))((I(A))_{1,4})) \\
\wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times \begin{array}{l}
(I(A(I(A))))^*A_{3,2}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times \begin{array}{l}
(I(A(I(A))))^*A_{3,2}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A))((I(A))_{4,1}))
\end{array}$$

$$\begin{array}{l}
((A(I(A))((I(A))_{1,4})) \\
\wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\
((I(A) (A(I(A))))_{1,4})
\end{array} \times \begin{array}{l}
((A(I(A))((I(A))_{4,1})) \\
\wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\
((I(A) (A(I(A))))_{1,4})
\end{array} \times \begin{array}{l}
((A(I(A))((I(A))_{4,1})) \\
\wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\
(I(A(I(A))))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\
((A(I(A))((I(A))_{1,4}))
\end{array} \times \begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A))((I(A))_{4,1}))
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\
((A(I(A))((I(A))_{1,4}))
\end{array} \times \begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\
(I(A(I(A))))^*A_{3,2})
\end{array}$$

6. Pre-semiotic dual system

$$\begin{aligned} & ((I(A(I(A))) (I(A)))_{3,4} (A(I(A))((I(A)))_{1,4} (I(A) (I(A(I(A))))_{3,4} A^*I(A(I(A)))_{2,3}) \times (I(A(I(A)))^*A_{3,2} \\ & (I(A(I(A))) (I(A)))_{4,3} (I(A) (A(I(A))))_{4,1} (I(A) (I(A(I(A))))_{4,3}) \end{aligned}$$

Qualitative action

$$\begin{aligned} & ((A(I(A))((I(A)))_{1,4}) \quad ((I(A(I(A))) (I(A)))_{4,3}) \\ & \lambda \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ & ((I(A) (I(A(I(A))))_{3,4}) \quad ((I(A) (A(I(A))))_{4,1}) \\ \\ & ((I(A(I(A))) (I(A)))_{3,4}) \quad ((I(A(I(A))) (I(A)))_{4,3}) \\ & \lambda \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ & ((I(A) (I(A(I(A))))_{3,4}) \quad ((I(A) (I(A(I(A))))_{4,3}) \\ \\ & ((I(A) (I(A(I(A))))_{3,4}) \quad ((I(A) (A(I(A))))_{4,1}) \\ & \lambda \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ & ((A(I(A))((I(A)))_{1,4}) \quad ((I(A(I(A))) (I(A)))_{4,3}) \\ \\ & ((I(A(I(A))) (I(A)))_{3,4}) \quad ((I(A) (A(I(A))))_{4,1}) \\ & \lambda \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ & ((A(I(A))((I(A)))_{1,4}) \quad ((I(A) (I(A(I(A))))_{4,3}) \\ \\ & ((I(A) (I(A(I(A))))_{3,4}) \quad ((I(A) (I(A(I(A))))_{4,3}) \\ & \lambda \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ & ((I(A(I(A))) (I(A)))_{3,4}) \quad ((I(A(I(A))) (I(A)))_{4,3}) \\ \\ & ((A(I(A))((I(A)))_{1,4}) \quad ((I(A) (I(A(I(A))))_{4,3}) \\ & \lambda \gg (A^*I(A(I(A)))_{2,3}) \quad \times \quad \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ & ((I(A(I(A))) (I(A)))_{3,4}) \quad ((I(A) (A(I(A))))_{4,1}) \end{aligned}$$

Medial action

$$\begin{aligned} & ((A(I(A))((I(A)))_{1,4}) \quad (I(A(I(A)))^*A_{3,2}) \\ & \lambda \gg ((I(A) (I(A(I(A))))_{3,4}) \quad \times \quad \lambda \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ & (A^*I(A(I(A)))_{2,3}) \quad ((I(A) (A(I(A))))_{4,1}) \\ \\ & ((I(A(I(A))) (I(A)))_{3,4}) \quad (I(A(I(A)))^*A_{3,2}) \\ & \lambda \gg ((I(A) (I(A(I(A))))_{3,4}) \quad \times \quad \lambda \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ & (A^*I(A(I(A)))_{2,3}) \quad ((I(A) (I(A(I(A))))_{4,3}) \end{aligned}$$

$$\begin{array}{l}
(A * I(A(I(A))))_{2,3} \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((A(I(A)))(I(A)))_{1,4}
\end{array} \times
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A))) * A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((A(I(A)))(I(A)))_{1,4}
\end{array} \times
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A) (I(A(I(A))))))_{4,3}
\end{array}$$

$$\begin{array}{l}
(A * I(A(I(A))))_{2,3} \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array} \times
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A))) * A_{3,2})
\end{array}$$

$$\begin{array}{l}
((A(I(A)))(I(A)))_{1,4} \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array} \times
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
\wedge \gg ((A(I(A)))(I(A)))_{1,4} \\
(A * I(A(I(A))))_{2,3}
\end{array} \times
\begin{array}{l}
(I(A(I(A))) * A_{3,2}) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((A(I(A)))(I(A)))_{1,4} \\
(A * I(A(I(A))))_{2,3}
\end{array} \times
\begin{array}{l}
(I(A(I(A))) * A_{3,2}) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A) (I(A(I(A))))))_{4,3}
\end{array}$$

$$\begin{array}{l}
(A * I(A(I(A))))_{2,3} \\
\wedge \gg ((A(I(A)))(I(A)))_{1,4} \\
((I(A) (I(A(I(A))))))_{3,4}
\end{array} \times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
(I(A(I(A))) * A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((A(I(A)))(I(A)))_{1,4} \\
((I(A) (I(A(I(A))))))_{3,4}
\end{array} \times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A) (I(A(I(A))))))_{4,3}
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
\wedge \gg ((A(I(A)))(I(A)))_{1,4} \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array} \times
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3}) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A * I(A(I(A))))_{2,3} \\
\wedge \gg ((A(I(A)))(I(A)))_{1,4} \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array} \times
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3}) \\
\wedge \gg ((I(A) (A(I(A))))_{4,1}) \\
(I(A(I(A))) * A_{3,2})
\end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

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

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\lambda \gg (A^*A(I(A)))_{1,2} \quad \times \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\quad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\lambda \gg (A(I(A))^*A_{2,1}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\lambda \gg (A^*A(I(A)))_{1,2} \quad \times \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\quad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\lambda \gg (A(I(A))^*A_{2,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\lambda \gg (A^*A(I(A)))_{1,2} \quad \times \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg (A(I(A))^*A_{2,1}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\lambda \gg (A^*A(I(A)))_{1,2} \quad \times \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg (A(I(A))^*A_{2,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Medial action

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
(A^*A(I(A)))_{1,2}
\end{array}
\quad
\begin{array}{l}
(A(I(A))^*A_{2,1}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
(A^*A(I(A)))_{1,2}
\end{array}
\quad
\begin{array}{l}
(A(I(A))^*A_{2,1}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\quad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
(A(I(A))^*A_{2,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\quad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
(A(I(A))^*A_{2,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\lambda \gg ((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\lambda \gg ((A(I(A))((I(A)))_{4,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Objectal action

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (A(I(A))*A_{2,1}) \end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))*A_{2,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

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

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A))_{3,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A))_{3,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A)))) (I(A))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\wedge \gg (A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Medial action

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\wedge \gg ((I(A) (A(I(A))))_{1,4}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A))((I(A)))_{4,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((I(A) (A(I(A))))_{1,4}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A))((I(A)))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
\wedge \gg ((I(A) (A(I(A))))_{1,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\wedge \gg ((A(I(A))((I(A)))_{4,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((I(A) (A(I(A))))_{1,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\wedge \gg ((A(I(A))((I(A)))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
\wedge \gg ((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\wedge \gg ((A(I(A))((I(A)))_{4,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\wedge \gg ((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\wedge \gg ((A(I(A))((I(A)))_{4,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A(I(A))))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A))_{3,4}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A)))) (I(A))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A)))) (I(A))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A(I(A))))^*A_{3,2}) \end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} ((I(A(I(A))))^*A_{3,2}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} ((I(A(I(A))))^*A_{3,2}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A(I(A))))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((I(A(I(A)))) (I(A))_{3,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A(I(A))))^*A_{3,2}) \end{array}$$

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

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \times \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Medial action

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A(I(A))))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A) (I(A(I(A))))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A(I(A))))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
(A^*I(A(I(A))))_{2,3}
\end{array}
\times
\begin{array}{l}
((I(A(I(A))))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
(A^*I(A(I(A))))_{2,3}
\end{array}
\times
\begin{array}{l}
((I(A(I(A))))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A) (I(A(I(A))))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A) (I(A(I(A))))))_{3,4}
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A) (I(A(I(A))))))_{3,4}
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A) (I(A(I(A))))))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))))^*A_{3,2})
\end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*I(A(I(A))))_{2,3} \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*I(A(I(A))))_{2,3} \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ (A^*I(A(I(A))))_{2,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

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

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ \lambda \gg (A^*I(A(I(A))))_{2,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ \lambda \gg (A^*I(A(I(A))))_{2,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
\wedge \gg (A^*I(A(I(A))))_{2,3} \\
((A(I(A)) (I(A(I(A))))_{2,4}
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{4,2} \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{4,3}
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4} \\
\wedge \gg (A^*I(A(I(A))))_{2,3} \\
((A(I(A)) (I(A(I(A))))_{2,4}
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{4,2} \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A) (I(A(I(A))))_{4,3}
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4} \\
\wedge \gg (A^*I(A(I(A))))_{2,3} \\
((I(A(I(A))) (I(A)))_{3,4}
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3} \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{4,3}
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4} \\
\wedge \gg (A^*I(A(I(A))))_{2,3} \\
((I(A(I(A))) (I(A)))_{3,4}
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3} \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (A(I(A))))_{4,2}
\end{array}$$

Medial action

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4} \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4} \\
(A^*I(A(I(A))))_{2,3}
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3} \\
((I(A(I(A))) (A(I(A))))_{4,2}
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4} \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4} \\
(A^*I(A(I(A))))_{2,3}
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3} \\
((I(A) (I(A(I(A))))_{4,3}
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4} \\
((A(I(A)) (I(A(I(A))))_{2,4}
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{4,2} \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3} \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4} \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4} \\
((A(I(A)) (I(A(I(A))))_{2,4}
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{4,2} \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3} \\
((I(A) (I(A(I(A))))_{4,3}
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4} \\
((I(A(I(A))) (I(A)))_{3,4}
\end{array}
\times
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3} \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3} \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \quad \times \\
(I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \quad \times \\
(A^*I(A(I(A))))_{2,3})
\end{array}
\quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \quad \times \\
(A^*I(A(I(A))))_{2,3})
\end{array}
\quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \quad \times \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \quad \times \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \quad \times \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \quad \times \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{3,4}) \quad \times \\
(A^*I(A(I(A))))_{2,3})
\end{array}
\quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{3,4}) \quad \times \\
(A^*I(A(I(A))))_{2,3})
\end{array}
\quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (A(I(A))))_{4,2}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \lambda \gg ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (A(I(A))))_{4,2}) \\ \lambda \gg ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

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

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg (A^*A(I(A))_{1,2}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \lambda \gg (A(I(A))^*A_{2,1}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Medial action

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \lambda \gg ((I(A) (A(I(A))))_{1,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))^*A_{2,1}) \\ \lambda \gg ((A(I(A))((I(A))))_{4,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \lambda \gg ((I(A) (A(I(A))))_{1,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))^*A_{2,1}) \\ \lambda \gg ((A(I(A))((I(A))))_{4,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \lambda \gg ((A(I(A))((I(A))))_{4,1}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \lambda \gg ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \lambda \gg ((A(I(A))((I(A))))_{4,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A))_{1,2}) \\ \lambda \gg ((I(A) (A(I(A))))_{1,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \lambda \gg ((A(I(A))((I(A))))_{4,1}) \\ (A(I(A))^*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \lambda \gg ((I(A) (A(I(A))))_{1,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \lambda \gg ((A(I(A))((I(A))))_{4,1}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Objectal action

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))^*A_{2,1}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A))((I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (A^*A(I(A))_{1,2}) \end{array} \times \begin{array}{l} (A(I(A))^*A_{2,1}) \\ \lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
\lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\times
\begin{array}{l}
((A(I(A))((I(A)))_{1,4}) \\
\lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
(A(I(A))^*A_{2,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\times
\begin{array}{l}
((A(I(A))((I(A)))_{4,1}) \\
\lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
\lambda \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\lambda \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
(A(I(A))^*A_{2,1})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
(A^*A(I(A)))_{1,2}
\end{array}
\times
\begin{array}{l}
(A(I(A))^*A_{2,1}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
(A^*A(I(A)))_{1,2}
\end{array}
\times
\begin{array}{l}
(A(I(A))^*A_{2,1}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\times
\begin{array}{l}
((A(I(A))((I(A)))_{4,1}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\times
\begin{array}{l}
((A(I(A))((I(A)))_{4,1}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(A(I(A))^*A_{2,1})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(A(I(A))^*A_{2,1})
\end{array}$$

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

$$\begin{array}{l} ((A(I(A)) (A(I(A)))_{1,2,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (A(I(A)))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A)))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A)))_{2,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (A(I(A)))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A)))_{1,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (A(I(A)))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A)))_{4,2,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A)))_{2,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A)))_{4,2,1}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A)))_{1,2,}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A)))_{1,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (A(I(A)))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A)))_{1,2,4}) \\ \wedge \gg (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (A(I(A)))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A)))_{4,2,1}) \end{array}$$

Medial action

$$\begin{array}{l} ((A(I(A)) (A(I(A)))_{1,2,4}) \\ \wedge \gg ((I(A) (A(I(A)))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((A(I(A)))(I(A))_{4,1}) \\ ((A(I(A)) (A(I(A)))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A)))_{2,4}) \\ \wedge \gg ((I(A) (A(I(A)))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((A(I(A)))(I(A))_{4,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \wedge \gg ((A(I(A))((I(A)))_{4,1}) \\ (I(A(I(A))))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ \wedge \gg ((A(I(A))((I(A)))_{4,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg ((A(I(A))((I(A)))_{4,1}) \\ (I(A(I(A))))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ \wedge \gg ((I(A) (A(I(A))))_{1,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg ((A(I(A))((I(A)))_{4,1}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Objectal action

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A))))^*A_{3,2} \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \times \begin{array}{l} (I(A(I(A))))^*A_{3,2} \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (I(A(I(A))))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \times \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (I(A(I(A))))^*A_{3,2}) \end{array}$$

Interpretative action

$$\begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 \lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 (A^*I(A(I(A))))_{2,3}
 \end{array}
 \times
 \begin{array}{l}
 (I(A(I(A)))^*A_{3,2}) \\
 \lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}$$

$$\begin{array}{l}
 ((I(A) (A(I(A))))_{1,4}) \\
 \lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 (A^*I(A(I(A))))_{2,3}
 \end{array}
 \times
 \begin{array}{l}
 (I(A(I(A)))^*A_{3,2}) \\
 \lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 ((A(I(A))((I(A))))_{4,1})
 \end{array}$$

$$\begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 \lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 ((I(A) (A(I(A))))_{1,4})
 \end{array}
 \times
 \begin{array}{l}
 ((A(I(A))((I(A))))_{4,1}) \\
 \lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}$$

$$\begin{array}{l}
 (A^*I(A(I(A))))_{2,3}) \\
 \lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 ((I(A) (A(I(A))))_{1,4})
 \end{array}
 \times
 \begin{array}{l}
 ((A(I(A))((I(A))))_{4,1}) \\
 \lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}$$

$$\begin{array}{l}
 ((I(A) (A(I(A))))_{1,4}) \\
 \lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4})
 \end{array}
 \times
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 \lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 ((A(I(A))((I(A))))_{4,1})
 \end{array}$$

$$\begin{array}{l}
 (A^*I(A(I(A))))_{2,3}) \\
 \lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4})
 \end{array}
 \times
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 \lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}$$

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

$$\begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 \lambda \gg (A^*I(A(I(A))))_{2,3}) \\
 ((I(A) (I(A(I(A))))_{3,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A(I(A))) (I(A))))_{4,3}) \\
 \lambda \gg (I(A(I(A)))^*A_{3,2}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}$$

$$\begin{array}{l}
 ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 \lambda \gg (A^*I(A(I(A))))_{2,3}) \\
 ((I(A) (I(A(I(A))))_{3,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A(I(A))) (I(A))))_{4,3}) \\
 \lambda \gg (I(A(I(A)))^*A_{3,2}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2})
 \end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
\wedge \gg (A^*I(A(I(A)))_{2,3}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\wedge \gg (A^*I(A(I(A)))_{2,3}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
\wedge \gg (A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\wedge \gg (A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\wedge \gg (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Medial action

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
\wedge \gg ((I(A) (I(A(I(A))))))_{3,4} \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array} \times \begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times \begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times \begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array} \times \begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array} \times \begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array} \times \begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array} \times \begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\wedge \gg ((A(I(A)) (A(I(A))))_{4,2,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times \begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times \begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\times
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
\lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

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

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4}) \\
\lambda \gg (A^*I(A(I(A))))_{2,3}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\lambda \gg (A^*I(A(I(A))))_{2,3}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\lambda \gg (A^*I(A(I(A))))_{2,3}) \\
((A(I(A)) (I(A(I(A))))_{2,4})
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{4,2}) \\
\lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\lambda \gg (A^*I(A(I(A))))_{2,3}) \\
((A(I(A)) (I(A(I(A))))_{2,4})
\end{array}
\times
\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{4,2}) \\
\lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))))_{3,4} \\ \wedge \gg (A^*I(A(I(A))))_{2,3} \\ ((I(A(I(A))) (A(I(A))))_{2,4} \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ \wedge \gg (A^*I(A(I(A))))_{2,3} \\ ((I(A(I(A))) (A(I(A))))_{2,4} \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

Medial action

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A))))_{2,3} \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A))))_{2,3} \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3} \\ \wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (A(I(A))))_{4,2}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (A(I(A))))_{4,2}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3} \\ \wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ \wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ \wedge \gg ((I(A(I(A))) (I(A)))_{4,3}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

Objectal action

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \\ (A^*I(A(I(A))))_{2,3} \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array} \times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array} \times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array} \times
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array} \times
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3})
\end{array} \times
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array} \times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array} \times
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((I(A(I(A))) (A(I(A))))_{2,4}) \\
((A(I(A)) (I(A(I(A))))_{2,4})
\end{array} \times
\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{4,2}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
(A^*I(A(I(A)))_{2,3}) & & ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\lambda \gg ((I(A(I(A))) (A(I(A))))_{2,4}) & \times & \lambda \gg ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) & & (I(A(I(A)))^*A_{3,2})
\end{array}$$

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

$$\begin{array}{ccc}
((A(I(A)) (I(A(I(A))))_{2,4}) & & ((I(A(I(A))) (I(A)))_{4,3}) \\
\lambda \gg (A^*I(A(I(A)))_{2,3}) & \times & \lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A) (I(A(I(A))))_{3,4}) & & ((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{ccc}
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) & & ((I(A(I(A))) (I(A)))_{4,3}) \\
\lambda \gg (A^*I(A(I(A)))_{2,3}) & \times & \lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A) (I(A(I(A))))_{3,4}) & & ((I(A(I(A))) (I(A(I(A))))_{4,3,2})
\end{array}$$

$$\begin{array}{ccc}
((I(A) (I(A(I(A))))_{3,4}) & & ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\lambda \gg (A^*I(A(I(A)))_{2,3}) & \times & \lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) & & ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
((I(A(I(A))) (A(I(A))))_{2,4}) & & ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\lambda \gg (A^*I(A(I(A)))_{2,3}) & \times & \lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) & & ((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{ccc}
((I(A) (I(A(I(A))))_{3,4}) & & ((A(I(A)) (I(A(I(A))))_{4,2}) \\
\lambda \gg (A^*I(A(I(A)))_{2,3}) & \times & \lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) & & ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
((A(I(A)) (I(A(I(A))))_{2,4}) & & ((A(I(A)) (I(A(I(A))))_{4,2}) \\
\lambda \gg (A^*I(A(I(A)))_{2,3}) & \times & \lambda \gg (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) & & ((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

Medial action

$$\begin{array}{ccc}
((A(I(A)) (I(A(I(A))))_{2,4}) & & (I(A(I(A)))^*A_{3,2}) \\
\lambda \gg ((I(A) (I(A(I(A))))_{3,4}) & \times & \lambda \gg ((I(A(I(A))) (I(A)))_{4,3}) \\
(A^*I(A(I(A)))_{2,3}) & & ((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A)))) (I(A(I(A))))_{2,3,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \times \\
(A^*I(A(I(A))))_{2,3}) \\
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \times \\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \times \\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \times \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
\wedge \gg ((I(A) (I(A(I(A))))_{3,4}) \times \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \times \\
(A^*I(A(I(A))))_{2,3}) \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \times \\
(A^*I(A(I(A))))_{2,3}) \\
(A^*I(A(I(A))))_{2,3}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \times \\
((I(A) (I(A(I(A))))_{3,4}) \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \times \\
((I(A) (I(A(I(A))))_{3,4}) \\
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \times \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
((I(A) (I(A(I(A))))_{3,4}) \\
\wedge \gg ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\wedge \gg ((I(A(I(A))) (I(A))_{4,3}) \\
((I(A(I(A))) (I(A(I(A))))_{4,3,2})
\end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3} \\ \wedge \gg ((A(I(A)) (I(A(I(A))))_{2,4}) \\ ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ \wedge \gg ((I(A(I(A))) (A(I(A))))_{4,2}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\ (A^*I(A(I(A))))_{2,3} \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\ (A^*I(A(I(A))))_{2,3} \end{array} \times \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3} \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (A(I(A))))_{4,2}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3} \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \end{array} \times \begin{array}{l} ((I(A(I(A))) (A(I(A))))_{4,2}) \\ \wedge \gg ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

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

1. Pre-semiotic dual system

$$((I(A(I(A))) (I(A)) (A(I(A)))(I(A)) (I(A)(I(A))) A^*I(A)) \times (I(A)^*A (I(A)(I(A))) (I(A) (A(I(A))) (I(A) (I(A(I(A)))))))$$

Qualitative action

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > (A^*I(A)_{1,3}) \\ ((A(I(A)))(I(A)))_{1,4} \end{array} \times \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ (I(A)^*A_{3,1}) \gg \Upsilon > ((I(A)(I(A)))_{4,3,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\frac{((A(I(A)))(I(A))_{1,4})}{((I(A)(I(A)))_{1,4,3})} \gg \Upsilon > (A^*I(A)_{1,3}) \times \frac{((I(A)(I(A)))_{1,3,4})}{((I(A)(I(A)))_{3,4})} \times (I(A)^*A_{3,1}) \gg \Upsilon > \frac{((I(A) (I(A(I(A))))_{4,3})}{((I(A) (A(I(A))))_{4,1})}$$

$$\frac{((I(A(I(A))) (I(A))_{3,4})}{((A(I(A)))(I(A))_{1,4})} \gg \Upsilon > (A^*I(A)_{1,3}) \times \frac{((I(A)(I(A)))_{1,3,4})}{((I(A)(I(A)))_{1,3,4})} \times (I(A)^*A_{3,1}) \gg \Upsilon > \frac{((I(A)(I(A)))_{4,3,1})}{((I(A) (A(I(A))))_{4,1})}$$

$$\frac{((I(A)(I(A)))_{1,3,4})}{((A(I(A)))(I(A))_{1,4})} \gg \Upsilon > (A^*I(A)_{1,3}) \times \frac{((I(A)(I(A)))_{1,3,4})}{((I(A)(I(A))) (I(A))_{3,4})} \times (I(A)^*A_{3,1}) \gg \Upsilon > \frac{((I(A) (I(A(I(A))))_{4,3})}{((I(A) (A(I(A))))_{4,1})}$$

$$\frac{((I(A)(I(A)))_{1,3,4})}{((I(A(I(A))) (I(A))_{3,4})} \gg \Upsilon > (A^*I(A)_{1,3}) \times \frac{((I(A)(I(A)))_{1,3,4})}{((A(I(A)))(I(A))_{1,4})} \times (I(A)^*A_{3,1}) \gg \Upsilon > \frac{((I(A) (A(I(A))))_{4,1})}{((I(A) (I(A))))_{4,3,1})}$$

$$\frac{((A(I(A)))(I(A))_{1,4})}{((I(A(I(A))) (I(A))_{3,4})} \gg \Upsilon > (A^*I(A)_{1,3}) \times \frac{((I(A)(I(A)))_{1,3,4})}{((I(A)(I(A)))_{1,3,4})} \times (I(A)^*A_{3,1}) \gg \Upsilon > \frac{((I(A)(I(A)))_{4,3,1})}{((I(A) (A(I(A))))_{4,1})} ((I(A) (I(A))))_{4,3}$$

Medial action

$$(A^*I(A)_{1,3}) \gg \Upsilon > \frac{((I(A)(I(A))) (I(A))_{3,4})}{((A(I(A)))(I(A))_{1,4})} \times \frac{((I(A)(I(A)))_{1,3,4})}{((I(A)(I(A)))_{1,3,4})} \times (I(A)^*A_{3,1}) \gg \Upsilon > \frac{((I(A) (A(I(A))))_{4,1})}{((I(A) (I(A(I(A))))_{4,3})}$$

$$(A^*I(A)_{1,3}) \gg \Upsilon > \frac{((A(I(A)))(I(A))_{1,4})}{((I(A)(I(A))) (I(A))_{3,4})} \times \frac{((I(A)(I(A)))_{1,3,4})}{((I(A)(I(A)))_{1,3,4})} \times (I(A)^*A_{3,1}) \gg \Upsilon > \frac{((I(A) (I(A(I(A))))_{4,3})}{((I(A) (A(I(A))))_{4,1})}$$

$$\frac{(A^*I(A)_{1,3})}{((A(I(A)))(I(A))_{1,4})} \gg \Upsilon > \frac{((I(A)(I(A)))_{1,3,4})}{((I(A)(I(A)))_{1,3,4})} \times \frac{((I(A)(I(A)))_{4,3,1})}{((I(A)(I(A)))_{4,3,1})} \gg \Upsilon > \frac{((I(A) (I(A(I(A))))_{4,3})}{((I(A) (A(I(A))))_{4,1})}$$

$$\frac{((I(A(I(A))) (I(A))_{3,4})}{((A(I(A)))(I(A))_{1,4})} \gg \Upsilon > \frac{((I(A)(I(A)))_{1,3,4})}{((I(A)(I(A)))_{1,3,4})} \times \frac{(A^*I(A)_{1,3})}{((I(A) (A(I(A))))_{4,1})} \times \frac{((I(A)(I(A)))_{4,3,1})}{((I(A)(I(A)))_{4,3,1})} \gg \Upsilon > \frac{((I(A)^*A_{3,1})}{((I(A) (I(A(I(A))))_{4,3})}$$

$$\begin{array}{l}
(A^*I(A))_{1,3} \\
((I(A)I(A)))_{3,4} \gg Y > ((I(A)I(A)))_{1,3,4} \times \\
((I(A) (I(A(I(A))))))_{4,3} \\
((A(I(A)))(I(A)))_{1,4}
\end{array}
\qquad
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
((I(A)I(A)))_{4,3,1} \gg Y > \\
(I(A)^*A_{3,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A)))(I(A)))_{1,4} \\
((I(A)I(A)))_{3,4} \gg Y > ((I(A)I(A)))_{1,3,4} \times \\
((I(A) (I(A(I(A))))))_{4,3} \\
(A^*I(A))_{1,3}
\end{array}
\qquad
\begin{array}{l}
(I(A)^*A_{3,1}) \\
((I(A)I(A)))_{4,3,1} \gg Y > \\
((I(A) (A(I(A))))_{4,1})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A)I(A)))_{3,4} \\
(A^*I(A))_{1,3} \gg Y > ((A(I(A)))(I(A)))_{1,4} \times \\
((I(A)I(A)))_{1,3,4}
\end{array}
\qquad
\begin{array}{l}
((I(A)I(A)))_{4,3,1}) \\
((I(A) (A(I(A))))_{4,1}) \gg Y > (I(A)^*A_{3,1}) \\
((I(A) (I(A(I(A))))))_{4,3}
\end{array}$$

$$\begin{array}{l}
((I(A)I(A)))_{1,3,4} \\
(A^*I(A))_{1,3} \gg Y > ((A(I(A)))(I(A)))_{1,4} \times \\
((I(A)I(A)))_{3,4}
\end{array}
\qquad
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3} \\
((I(A) (A(I(A))))_{4,1}) \gg Y > (I(A)^*A_{3,1}) \\
((I(A)I(A)))_{4,3,1}
\end{array}$$

$$\begin{array}{l}
(A^*I(A))_{1,3} \\
((I(A)I(A)))_{1,3,4} \gg Y > ((A(I(A)))(I(A)))_{1,4} \times \\
((I(A)I(A)))_{4,3,1} \\
((I(A)I(A)))_{3,4}
\end{array}
\qquad
\begin{array}{l}
((I(A) (I(A(I(A))))))_{4,3} \\
((I(A) (A(I(A))))_{4,1}) \gg Y > \\
(I(A)^*A_{3,1})
\end{array}$$

$$\begin{array}{l}
((I(A)I(A)))_{3,4} \\
((I(A)I(A)))_{1,3,4} \gg Y > ((A(I(A)))(I(A)))_{1,4} \times \\
((I(A)I(A)))_{4,3,1} \\
(A^*I(A))_{1,3}
\end{array}
\qquad
\begin{array}{l}
(I(A)^*A_{3,1}) \\
((I(A) (A(I(A))))_{4,1}) \gg Y > \\
((I(A) (I(A(I(A))))))_{4,3}
\end{array}$$

$$\begin{array}{l}
(A^*I(A))_{1,3} \\
((I(A)I(A)))_{3,4} \gg Y > ((A(I(A)))(I(A)))_{1,4} \times \\
((I(A) (I(A(I(A))))))_{4,3} \\
((I(A)I(A)))_{1,3,4}
\end{array}
\qquad
\begin{array}{l}
((I(A)I(A)))_{4,3,1}) \\
((I(A) (A(I(A))))_{4,1}) \gg Y > \\
(I(A)^*A_{3,1})
\end{array}$$

$$\begin{array}{l}
((I(A)I(A)))_{1,3,4} \\
((I(A)I(A)))_{3,4} \gg Y > ((A(I(A)))(I(A)))_{1,4} \times \\
> ((I(A) (I(A(I(A))))))_{4,3} \\
(A^*I(A))_{1,3}
\end{array}
\qquad
\begin{array}{l}
(I(A)^*A_{3,1}) \\
((I(A) (A(I(A))))_{4,1}) \gg Y \\
((I(A)I(A)))_{4,3,1}
\end{array}$$

Interpretative action

$$\begin{array}{l}
 \begin{array}{l}
 (A^*I(A))_{1,3} \\
 (I(A)^*A_{3,1})
 \end{array}
 \begin{array}{l}
 ((A(I(A)))(I(A))_{1,4}) \\
 >> \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \\
 >> \Upsilon > ((I(A)(I(A)))_{1,3,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A)(I(A)))_{4,3,1}) \\
 >> \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 >> \Upsilon > ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \\
 \\
 \begin{array}{l}
 (A^*I(A))_{1,3} \\
 (I(A)^*A_{3,1})
 \end{array}
 \begin{array}{l}
 ((I(A)(I(A)))_{1,3,4}) \\
 >> \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \\
 >> \Upsilon > ((A(I(A)))(I(A))_{1,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A) (A(I(A))))_{4,1}) \\
 >> \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 >> \Upsilon > ((I(A)(I(A)))_{4,3,1})
 \end{array}
 \\
 \\
 \begin{array}{l}
 (A^*I(A))_{1,3} \\
 ((I(A)(I(A)))_{1,3,4}) \\
 \Upsilon > ((I(A)(I(A)))_{4,3,1})
 \end{array}
 \begin{array}{l}
 >> \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \\
 >> \Upsilon > ((A(I(A)))(I(A))_{1,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A) (A(I(A))))_{4,1}) \\
 >> \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 >> \Upsilon > ((I(A)^*A_{3,1})
 \end{array}
 \\
 \\
 \begin{array}{l}
 (A^*I(A))_{1,3} \\
 ((I(A)(I(A)))_{1,3,4}) \\
 > ((I(A)(I(A)))_{4,3,1})
 \end{array}
 \begin{array}{l}
 >> \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \\
 >> \Upsilon > ((A(I(A)))(I(A))_{1,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A) (A(I(A))))_{4,1}) \\
 >> \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 >> \Upsilon > ((I(A)^*A_{3,1})
 \end{array}
 \\
 \\
 \begin{array}{l}
 (A^*I(A))_{1,3} \\
 ((A(I(A)))(I(A))_{1,4}) \\
 > ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \begin{array}{l}
 >> \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \\
 >> \Upsilon > ((I(A)(I(A)))_{1,3,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A)(I(A)))_{4,3,1}) \\
 >> \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 >> \Upsilon > ((I(A)^*A_{3,1})
 \end{array}
 \\
 \\
 \begin{array}{l}
 (A^*I(A))_{1,3} \\
 ((A(I(A)))(I(A))_{1,4}) \\
 > ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \begin{array}{l}
 >> \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \\
 >> \Upsilon > ((I(A)(I(A)))_{1,3,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A)(I(A)))_{4,3,1}) \\
 >> \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 >> \Upsilon > ((I(A)^*A_{3,1})
 \end{array}
 \\
 \\
 \begin{array}{l}
 (A^*I(A))_{1,3} \\
 ((A(I(A)))(I(A))_{1,4}) \\
 \Upsilon > ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \begin{array}{l}
 >> \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \\
 >> \Upsilon > ((I(A)(I(A)))_{1,3,4})
 \end{array}
 \times
 \begin{array}{l}
 ((I(A)(I(A)))_{4,3,1}) \\
 >> \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 >> \Upsilon > ((I(A)^*A_{3,1})
 \end{array}
 \end{array}$$

2. Pre-semiotic dual system

$$((I(A(I(A))) (I(A)))_{3,4} (A(I(A)))(I(A))_{1,4} (I(A)(I(A)))_{1,3,4} A^*A(I(A))_{1,2}) \times (A(I(A))^*A_{2,1} (I(A)(I(A)))_{4,3,1} (I(A) (A(I(A))))_{1,4} (I(A) (I(A(I(A))))_{4,3})$$

Qualitative action

$$\begin{array}{l}
 ((I(A)(I(A)))_{1,3,4}) \\
 >> \Upsilon > (A^*A(I(A))_{1,2}) \\
 >> \Upsilon > ((A(I(A)))(I(A))_{1,4})
 \end{array}
 \times
 \begin{array}{l}
 (A(I(A))^*A_{2,1}) \\
 >> \Upsilon > ((I(A)(I(A)))_{4,3,1}) \\
 >> \Upsilon > ((I(A) (I(A(I(A))))_{4,3})
 \end{array}$$

$$\begin{array}{l}
\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times \\
((I(A(I(A))) (I(A))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
(A(I(A))*A_{2,1}) \gg \Upsilon > ((I(A)(I(A)))_{4,3,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array} \\
\\
\begin{array}{l}
((I(A(I(A))) (I(A))_{3,4}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times \\
((I(A)(I(A)))_{1,3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A)(I(A)))_{4,3,1}) \\
(A(I(A))*A_{2,1}) \gg \Upsilon > ((I(A) (A(I(A))))_{4,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array} \\
\\
\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times \\
((I(A(I(A))) (I(A))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
(A(I(A))*A_{2,1}) \gg \Upsilon > ((I(A) (A(I(A))))_{4,1}) \\
((I(A)(I(A)))_{4,3,1})
\end{array} \\
\\
\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times \\
(I(A(I(A))))_{4,3})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
(A(I(A))*A_{2,1}) \gg \Upsilon > ((I(A)
\end{array} \\
\\
\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times \\
(I(A(I(A))))_{4,3})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A)(I(A)))_{4,3,1}) \\
(A(I(A))*A_{2,1}) \gg \Upsilon > ((I(A)
\end{array} \\
\\
\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times \\
((I(A)(I(A)))_{1,3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
(A(I(A))*A_{2,1}) \gg \Upsilon > ((I(A)
\end{array}
\end{array}$$

Medial action

$$\begin{array}{l}
\begin{array}{l}
((I(A(I(A))) (I(A))_{3,4}) \\
(A^*A(I(A))_{1,2}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
((A(I(A)))(I(A))_{1,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > (A(I(A))*A_{2,1}) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array} \\
\\
\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
(A^*A(I(A))_{1,2}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
((I(A(I(A))) (I(A))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > (A(I(A))*A_{2,1}) \\
((I(A) (A(I(A))))_{4,1})
\end{array} \\
\\
\begin{array}{l}
(A^*A(I(A))_{1,2}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
(A(I(A)))_{4,1})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > ((I(A)
\end{array} \\
\\
\begin{array}{l}
((I(A(I(A))) (I(A))_{3,4}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
(A(I(A)))_{1,4})
\end{array}
\quad \times \quad
\begin{array}{l}
(A(I(A))*A_{2,1}) \\
((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > ((I(A)
\end{array} \\
\\
\begin{array}{l}
(A^*A(I(A))_{1,2}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
(A(I(A)))_{1,2})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > ((I(A)
\end{array}
\end{array}$$

$$\begin{array}{ccc}
(A^*A(I(A)))_{1,2} & & ((I(A) (A(I(A))))_{4,1}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times & & ((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > \\
((I(A) (I(A(I(A))))_{4,3}) & & (A(I(A))*A_{2,1}) \\
((A(I(A)))(I(A)))_{1,4} & & \\
\\
((A(I(A)))(I(A)))_{1,4} & & (A(I(A))*A_{2,1}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times & & ((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > \\
((I(A) (I(A(I(A))))_{4,3}) & & \\
(A^*A(I(A)))_{1,2} & & ((I(A) (A(I(A))))_{4,1})
\end{array}$$

Objectal action

$$\begin{array}{ccc}
((I(A(I(A))) (I(A)))_{3,4}) & & ((I(A)(I(A)))_{4,3,1}) \\
(A^*A(I(A)))_{1,2} \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times & & ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
(A(I(A))*A_{2,1}) & & \\
((I(A)(I(A)))_{1,3,4}) & & ((I(A) (I(A(I(A))))_{4,3}) \\
\\
((I(A)(I(A)))_{1,3,4}) & & ((I(A) (I(A(I(A))))_{4,3}) \\
(A^*A(I(A)))_{1,2} \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times & & ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
(A(I(A))*A_{2,1}) & & \\
((I(A(I(A))) (I(A)))_{3,4}) & & ((I(A)(I(A)))_{4,3,1}) \\
\\
(A^*A(I(A)))_{1,2} & & ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times & & ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
((I(A)(I(A)))_{4,3,1}) & & \\
((I(A(I(A))) (I(A)))_{3,4}) & & (A(I(A))*A_{2,1}) \\
\\
((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times & & ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
((I(A)(I(A)))_{4,3,1}) & & \\
(A^*A(I(A)))_{1,2} & & ((I(A) (I(A(I(A))))_{4,3}) \\
\\
(A^*A(I(A)))_{1,2} & & ((I(A)(I(A)))_{4,3,1}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times & & ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
> ((I(A) (I(A(I(A))))_{4,3}) & & ((I(A)(I(A)))_{1,3,4}) \\
(A(I(A))*A_{2,1}) & & \\
\\
((I(A)(I(A)))_{1,3,4}) & & (A(I(A))*A_{2,1}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times & & ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
> ((I(A) (I(A(I(A))))_{4,3}) & & \\
(A^*A(I(A)))_{1,2} & & ((I(A)(I(A)))_{4,3,1})
\end{array}$$

Interpretative action

$$\begin{array}{ccc} & ((A(I(A)))(I(A))_{1,4}) & ((I(A)(I(A)))_{4,3,1}) \\ (A^*A(I(A))_{1,2}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon \\ > (A(I(A))^*A_{2,1}) & & ((I(A) (A(I(A))))_{4,1}) \\ & ((I(A)(I(A)))_{1,3,4}) & \end{array}$$

$$\begin{array}{ccc} & ((I(A)(I(A)))_{1,3,4}) & ((I(A) (A(I(A))))_{4,1}) \\ (A^*A(I(A))_{1,2}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon \\ > (A(I(A))^*A_{2,1}) & & ((I(A)(I(A)))_{4,3,1}) \\ & ((A(I(A)))(I(A))_{1,4}) & \end{array}$$

$$\begin{array}{ccc} (A^*A(I(A))_{1,2}) & & ((I(A) (A(I(A))))_{4,1}) \\ ((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A)(I(A)))_{4,3,1}) & & (A(I(A))^*A_{2,1}) \\ & ((A(I(A)))(I(A))_{1,4}) & \end{array}$$

$$\begin{array}{ccc} & ((A(I(A)))(I(A))_{1,4}) & (A(I(A))^*A_{2,1}) \\ ((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A)(I(A)))_{4,3,1}) & & ((I(A) (A(I(A))))_{4,1}) \\ & (A^*A(I(A))_{1,2}) & \end{array}$$

$$\begin{array}{ccc} (A^*A(I(A))_{1,2}) & & ((I(A)(I(A)))_{4,3,1}) \\ ((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A) (A(I(A))))_{4,1}) & & (A(I(A))^*A_{2,1}) \\ & ((I(A)(I(A)))_{1,3,4}) & \end{array}$$

$$\begin{array}{ccc} & ((I(A)(I(A)))_{1,3,4}) & (A(I(A))^*A_{2,1}) \\ ((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A) (A(I(A))))_{4,1}) & & ((I(A)(I(A)))_{4,3,1}) \\ & (A^*A(I(A))_{1,2}) & \end{array}$$

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

$$\begin{array}{ccc} & ((I(A(I(A))) (I(A))_{3,4}) & ((I(A) (A(I(A))))_{4,1}) \\ ((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\ ((I(A)(I(A)))_{4,3,1}) & & ((I(A) (I(A(I(A))))_{4,3}) \\ & ((A(I(A)))(I(A))_{1,4}) & \end{array}$$

$$\begin{array}{ll}
\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\
((I(A)(I(A)))_{4,3,1}) \\
((I(A)(I(A))) (I(A))_{3,4})
\end{array}
&
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
(I(A(I(A)))^*A_{3,2}) \quad \Upsilon > \\
((I(A) (A(I(A))))_{4,1})
\end{array} \\
\begin{array}{l}
((I(A)(I(A))) (I(A))_{3,4}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\
(A(I(A)))_{4,1} \\
((I(A)(I(A)))_{1,3,4})
\end{array}
&
\begin{array}{l}
((I(A)(I(A)))_{4,3,1}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon > ((I(A) \\
((I(A) (I(A(I(A))))_{4,3})
\end{array} \\
\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\
(A(I(A)))_{4,1} \\
((I(A)(I(A))) (I(A))_{3,4})
\end{array}
&
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon > ((I(A) \\
((I(A)(I(A)))_{4,3,1})
\end{array} \\
\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
((I(A)(I(A))) (I(A))_{3,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\
((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A)))(I(A))_{1,4})
\end{array}
&
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\
((I(A)(I(A)))_{4,3,1})
\end{array} \\
\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
((I(A)(I(A))) (I(A))_{3,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\
((I(A) (I(A(I(A))))_{4,3}) \\
((I(A)(I(A)))_{1,3,4})
\end{array}
&
\begin{array}{l}
((I(A)(I(A)))_{4,3,1}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\
((I(A) (A(I(A))))_{4,1})
\end{array}
\end{array}$$

Medial action

$$\begin{array}{ll}
\begin{array}{l}
((I(A)(I(A))) (I(A))_{3,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)))(I(A))_{1,4})
\end{array}
&
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > \\
((I(A) (I(A(I(A))))_{4,3})
\end{array} \\
\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
(I(A(I(A)))^*A_{3,2}) \\
((I(A)(I(A))) (I(A))_{3,4})
\end{array}
&
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > \\
((I(A) (A(I(A))))_{4,1})
\end{array} \\
\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
(A(I(A)))_{4,1} \\
((I(A)(I(A))) (I(A))_{3,4})
\end{array}
&
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > ((I(A) \\
((I(A)(I(A)))^*A_{3,2})
\end{array}
\end{array}$$

$$\begin{array}{l}
 \begin{array}{l}
 ((I(A(I(A)))) (I(A))_{3,4}) \\
 ((A(I(A))((I(A))_{1,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
 (A(I(A)))_{4,1}) \\
 (A^*I(A(I(A)))_{2,3})
 \end{array}
 \qquad
 \begin{array}{l}
 (I(A(I(A)))^*A_{3,2}) \\
 ((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > \\
 ((I(A) (I(A(I(A))))_{4,3})
 \end{array}
 \\
 \begin{array}{l}
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((A(I(A))((I(A))_{1,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A) (A(I(A))))_{4,1}) \\
 ((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}
 \\
 \begin{array}{l}
 ((A(I(A))((I(A))_{1,4}) \\
 ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > ((I(A)(I(A)))_{1,3,4}) \times \\
 ((I(A) (I(A(I(A))))_{4,3}) \\
 (A^*I(A(I(A)))_{2,3})
 \end{array}
 \qquad
 \begin{array}{l}
 (I(A(I(A)))^*A_{3,2}) \\
 ((I(A)(I(A)))_{4,3,1}) \gg \Upsilon > \\
 ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \end{array}$$

Objectal action

$$\begin{array}{l}
 \begin{array}{l}
 ((I(A(I(A))) (I(A))_{3,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times \\
 (I(A(I(A)))^*A_{3,2}) \\
 ((I(A)(I(A)))_{1,3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A)(I(A)))_{4,3,1}) \\
 ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
 ((I(A) (I(A(I(A))))_{4,3})
 \end{array}
 \\
 \begin{array}{l}
 ((I(A)(I(A)))_{1,3,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times \\
 (I(A(I(A)))^*A_{3,2}) \\
 ((I(A(I(A))) (I(A))_{3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
 ((I(A)(I(A)))_{4,3,1})
 \end{array}
 \\
 \begin{array}{l}
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times \\
 ((I(A)(I(A)))_{4,3,1}) \\
 ((I(A(I(A))) (I(A))_{3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}
 \\
 \begin{array}{l}
 ((I(A(I(A))) (I(A))_{3,4}) \\
 ((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times \\
 ((I(A)(I(A)))_{4,3,1}) \\
 (A^*I(A(I(A)))_{2,3})
 \end{array}
 \qquad
 \begin{array}{l}
 (I(A(I(A)))^*A_{3,2}) \\
 ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
 ((I(A) (I(A(I(A))))_{4,3})
 \end{array}
 \\
 \begin{array}{l}
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times \\
 > ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A)(I(A)))_{1,3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A)(I(A)))_{4,3,1}) \\
 ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}
 \end{array}$$

$$\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
((I(A)(I(A))) (I(A))_{3,4}) \gg \Upsilon > ((A(I(A)))(I(A))_{1,4}) \times ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon \\
> ((I(A) (I(A(I(A))))_{4,3}) \\
(A^*I(A(I(A)))_{2,3}) \qquad \qquad \qquad ((I(A)(I(A)))_{4,3,1})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A)(I(A))) (I(A))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) \\
((I(A)(I(A)))_{1,3,4}) \qquad \qquad \qquad ((I(A) (A(I(A))))_{4,1})
\end{array}$$

$$\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A)(I(A))) (I(A))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)))(I(A))_{1,4}) \qquad \qquad \qquad ((I(A)(I(A)))_{4,3,1})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > ((I(A)(I(A))) (I(A))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((I(A)(I(A)))_{4,3,1}) \\
((A(I(A)))(I(A))_{1,4}) \qquad \qquad \qquad ((I(A)(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
((I(A)(I(A)))_{1,3,4}) \gg \Upsilon > ((I(A)(I(A))) (I(A))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((I(A)(I(A)))_{4,3,1}) \\
(A^*I(A(I(A)))_{2,3}) \qquad \qquad \qquad ((I(A) (A(I(A))))_{4,1})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A)(I(A))) (I(A))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((I(A) (A(I(A))))_{4,1}) \\
((I(A)(I(A)))_{1,3,4}) \qquad \qquad \qquad ((I(A)(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A)(I(A)))_{1,3,4}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A)(I(A))) (I(A))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((I(A) (A(I(A))))_{4,1}) \\
(A^*I(A(I(A)))_{2,3}) \qquad \qquad \qquad ((I(A)(I(A)))_{4,3,1})
\end{array}$$

4. Pre-semiotic system

$$\begin{array}{l}
((I(A)(I(A))) (I(A))_{3,4} (A(I(A)))(I(A))_{1,4} (I(A) (A(I(A))))_{1,4} A^*A(I(A))_{1,2}) \times (A(I(A)))^*A_{2,1} \\
(A(I(A)))(I(A))_{4,1} (I(A) (A(I(A))))_{4,1} (I(A) (I(A(I(A))))_{4,3})
\end{array}$$

Qualitative action

$$\begin{array}{l}
 \begin{array}{l}
 ((I(A(I(A))) (I(A)))_{3,4}) \\
 ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > (A^*A(I(A)))_{1,2} \times \\
 ((A(I(A))((I(A)))_{4,1}) \\
 ((A(I(A))((I(A)))_{1,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((I(A) (A(I(A))))_{4,1}) \\
 (A(I(A))*A_{2,1}) \gg \Upsilon > \\
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A) (I(A(I(A))))_{4,3})
 \end{array}
 \\
 \begin{array}{l}
 ((A(I(A))((I(A)))_{1,4}) \\
 ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > (A^*A(I(A)))_{1,2} \times \\
 ((A(I(A))((I(A)))_{4,1}) \\
 ((I(A(I(A))) (I(A)))_{3,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((I(A) (I(A(I(A))))_{4,3}) \\
 (A(I(A))*A_{2,1}) \gg \Upsilon > \\
 ((I(A) (A(I(A))))_{4,1}) \\
 ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \\
 \begin{array}{l}
 ((I(A(I(A))) (I(A)))_{3,4}) \\
 ((A(I(A))((I(A)))_{1,4}) \gg \Upsilon > (A^*A(I(A)))_{1,2} \times \\
 ((I(A) (A(I(A))))_{1,4}) \\
 ((I(A(I(A))) (I(A)))_{3,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((A(I(A))((I(A)))_{4,1}) \\
 (A(I(A))*A_{2,1}) \gg \Upsilon > ((I(A) (A(I(A))))_{4,1}) \\
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \\
 \begin{array}{l}
 ((I(A) (A(I(A))))_{1,4}) \\
 ((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > (A^*A(I(A)))_{1,2} \times \\
 ((A(I(A))((I(A)))_{4,3}) \\
 ((A(I(A))((I(A)))_{1,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((I(A) (A(I(A))))_{4,1}) \\
 (A(I(A))*A_{2,1}) \gg \Upsilon > \\
 ((I(A) (A(I(A))))_{4,1}) \\
 ((A(I(A))((I(A)))_{4,1})
 \end{array}
 \\
 \begin{array}{l}
 ((A(I(A))((I(A)))_{1,4}) \\
 ((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > (A^*A(I(A)))_{1,2} \times \\
 ((A(I(A))((I(A)))_{4,3}) \\
 ((I(A) (A(I(A))))_{1,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((A(I(A))((I(A)))_{4,1}) \\
 (A(I(A))*A_{2,1}) \gg \Upsilon > \\
 ((I(A) (A(I(A))))_{4,1}) \\
 ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \end{array}$$

Medial action

$$\begin{array}{l}
 \begin{array}{l}
 ((I(A(I(A))) (I(A)))_{3,4}) \\
 (A^*A(I(A)))_{1,2} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\
 (A(I(A))*A_{2,1}) \\
 ((A(I(A))((I(A)))_{1,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((I(A) (A(I(A))))_{4,1}) \\
 ((A(I(A))((I(A)))_{4,1}) \gg \Upsilon > \\
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A) (I(A(I(A))))_{4,3})
 \end{array}
 \\
 \begin{array}{l}
 ((A(I(A))((I(A)))_{1,4}) \\
 (A^*A(I(A)))_{1,2} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\
 (A(I(A))*A_{2,1}) \\
 ((I(A(I(A))) (I(A)))_{3,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((A(I(A))((I(A)))_{4,1}) \gg \Upsilon > \\
 ((I(A) (A(I(A))))_{4,1}) \\
 ((I(A) (A(I(A))))_{4,1})
 \end{array}
 \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2} \\ ((A(I(A)))(I(A)))_{1,4} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\ ((I(A) (A(I(A))))_{4,1}) \\ ((I(A(I(A)))) (I(A)))_{3,4} \end{array} \quad \begin{array}{l} ((I(A) (I(A(I(A))))))_{4,3} \\ ((A(I(A)))(I(A)))_{4,1} \gg \Upsilon > \\ (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A)))_{3,4} \\ ((A(I(A)))(I(A)))_{1,4} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\ ((I(A) (A(I(A))))_{4,1}) \\ (A^*A(I(A)))_{1,2} \end{array} \quad \begin{array}{l} (A(I(A))*A_{2,1}) \\ ((A(I(A)))(I(A)))_{4,1} \gg \Upsilon > \\ ((I(A) (I(A(I(A))))))_{4,3} \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2} \\ ((I(A(I(A)))) (I(A)))_{3,4} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\ > ((I(A) (I(A(I(A))))))_{4,3} \\ ((A(I(A)))(I(A)))_{1,4} \end{array} \quad \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ ((A(I(A)))(I(A)))_{4,1} \gg \Upsilon \\ (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A)))_{1,4} \\ ((I(A(I(A)))) (I(A)))_{3,4} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\ > ((I(A) (I(A(I(A))))))_{4,3} \\ (A^*A(I(A)))_{1,2} \end{array} \quad \begin{array}{l} (A(I(A))*A_{2,1}) \\ ((A(I(A)))(I(A)))_{4,1} \gg \Upsilon \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

Objectal action

$$\begin{array}{l} ((I(A(I(A)))) (I(A)))_{3,4} \\ (A^*A(I(A)))_{1,2} \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times \\ (A(I(A))*A_{2,1}) \\ ((I(A) (A(I(A))))_{1,4} \end{array} \quad \begin{array}{l} ((A(I(A)))(I(A)))_{4,1} \\ ((I(A) (A(I(A))))_{4,1} \gg \Upsilon > \\ ((I(A) (I(A(I(A))))))_{4,3} \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4} \\ (A^*A(I(A)))_{1,2} \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times \\ (A(I(A))*A_{2,1}) \\ ((I(A(I(A)))) (I(A)))_{3,4} \end{array} \quad \begin{array}{l} ((I(A) (I(A(I(A))))))_{4,3} \\ ((I(A) (A(I(A))))_{4,1} \gg \Upsilon > \\ ((A(I(A)))(I(A)))_{4,1} \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2} \\ ((I(A) (A(I(A))))_{1,4} \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times \\ ((A(I(A)))(I(A)))_{4,1} \\ ((I(A(I(A)))) (I(A)))_{3,4} \end{array} \quad \begin{array}{l} ((I(A) (I(A(I(A))))))_{4,3} \\ ((I(A) (A(I(A))))_{4,1} \gg \Upsilon > \\ (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A)))_{3,4} \\ ((I(A) (A(I(A))))_{1,4} \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times \\ ((A(I(A)))(I(A)))_{4,1} \\ (A^*A(I(A)))_{1,2} \end{array} \quad \begin{array}{l} (A(I(A))*A_{2,1}) \\ ((I(A) (A(I(A))))_{4,1} \gg \Upsilon > \\ ((I(A) (I(A(I(A))))))_{4,3} \end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
((I(A(I(A)))) (I(A)))_{3,4} \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times ((I(A) (A(I(A))))_{4,1} \gg \Upsilon \\
> ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (A(I(A))))_{1,4}) \\
(A(I(A))^*A_{2,1}) \\
\\
((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A)))) (I(A)))_{3,4} \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4} \times ((I(A) (A(I(A))))_{4,1} \gg \Upsilon \\
> ((I(A) (I(A(I(A))))_{4,3}) \\
(A^*A(I(A)))_{1,2} \\
((A(I(A)))(I(A)))_{4,1}
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)))(I(A)))_{1,4} \\
(A^*A(I(A)))_{1,2} \gg \Upsilon > ((I(A(I(A)))) (I(A)))_{3,4} \times ((I(A) (I(A(I(A))))_{4,3} \gg \Upsilon \\
> (A(I(A))^*A_{2,1}) \\
((I(A) (A(I(A))))_{1,4}) \\
((A(I(A)))(I(A)))_{4,1} \\
\\
((I(A) (A(I(A))))_{1,4}) \\
(A^*A(I(A)))_{1,2} \gg \Upsilon > ((I(A(I(A)))) (I(A)))_{3,4} \times ((I(A) (I(A(I(A))))_{4,3} \gg \Upsilon \\
> (A(I(A))^*A_{2,1}) \\
((A(I(A)))(I(A)))_{1,4} \\
((A(I(A)))(I(A)))_{4,1} \\
\\
((I(A) (A(I(A))))_{1,4}) \\
((I(A) (A(I(A))))_{1,4} \gg \Upsilon > ((I(A(I(A)))) (I(A)))_{3,4} \times ((I(A) (I(A(I(A))))_{4,3} \gg \Upsilon \\
> ((A(I(A)))(I(A)))_{4,1} \\
(A^*A(I(A)))_{1,2} \\
((I(A) (A(I(A))))_{4,1}) \\
(A(I(A))^*A_{2,1}) \\
\\
((A(I(A)))(I(A)))_{1,4} \\
((A(I(A)))(I(A)))_{1,4} \gg \Upsilon > ((I(A(I(A)))) (I(A)))_{3,4} \times ((I(A) (I(A(I(A))))_{4,3} \gg \Upsilon \\
> ((I(A) (A(I(A))))_{4,1} \\
(A^*A(I(A)))_{1,2} \\
((I(A) (A(I(A))))_{4,1}) \\
(A(I(A))^*A_{2,1}) \\
\\
((I(A) (A(I(A))))_{1,4}) \\
((A(I(A)))(I(A)))_{1,4} \gg \Upsilon > ((I(A(I(A)))) (I(A)))_{3,4} \times ((I(A) (I(A(I(A))))_{4,3} \gg \Upsilon \\
> ((I(A) (A(I(A))))_{4,1} \\
(A^*A(I(A)))_{1,2} \\
((A(I(A)))(I(A)))_{4,1}
\end{array}$$

5. Pre-semiotic dual system

$$\begin{aligned} & ((I(A(I(A)))) (I(A))_{3,4} (A(I(A))((I(A))_{1,4} (I(A) (A(I(A))))_{1,4} A^*I(A(I(A))))_{2,3} \times (I(A(I(A))))^*A_{3,2} \\ & (A(I(A))((I(A))_{4,1} (I(A) (A(I(A))))_{4,1} (I(A) (I(A(I(A))))_{3,4} \end{aligned}$$

Qualitative action

$$\begin{aligned} & \begin{array}{ccc} ((I(A(I(A)))) (I(A))_{3,4}) & & ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A))))^*A_{3,2} & \gg \Upsilon > \\ ((A(I(A))((I(A))_{4,1}) & & \\ ((A(I(A))((I(A))_{1,4}) & & ((I(A) (I(A(I(A))))_{4,3}) \end{array} \\ & \begin{array}{ccc} ((A(I(A))((I(A))_{1,4}) & & ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A))))^*A_{3,2} & \gg \Upsilon > \\ ((A(I(A))((I(A))_{4,1}) & & ((I(A) (A(I(A))))_{4,1}) \\ ((I(A(I(A)))) (I(A))_{3,4}) & & \end{array} \\ & \begin{array}{ccc} ((I(A(I(A)))) (I(A))_{3,4}) & & ((A(I(A))((I(A))_{4,1}) \\ ((A(I(A))((I(A))_{1,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A))))^*A_{3,2} & \gg \Upsilon > ((I(A) \\ (A(I(A))_{4,1}) & & ((I(A) (I(A(I(A))))_{3,4}) \\ ((I(A) (A(I(A))))_{1,4}) & & \end{array} \\ & \begin{array}{ccc} ((I(A) (A(I(A))))_{1,4}) & & ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A))((I(A))_{1,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A))))^*A_{3,2} & \gg \Upsilon > ((I(A) \\ (A(I(A))_{4,1}) & & ((I(A))((I(A))_{4,1}) \\ ((I(A(I(A)))) (I(A))_{3,4}) & & \end{array} \\ & \begin{array}{ccc} ((I(A) (A(I(A))))_{1,4}) & & ((I(A) (A(I(A))))_{4,1}) \\ ((I(A(I(A)))) (I(A))_{3,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A))))^*A_{3,2} & \gg \Upsilon > \\ ((I(A) (I(A(I(A))))_{4,3}) & & ((A(I(A))((I(A))_{4,1}) \\ ((A(I(A))((I(A))_{1,4}) & & \end{array} \\ & \begin{array}{ccc} ((A(I(A))((I(A))_{1,4}) & & ((A(I(A))((I(A))_{4,1}) \\ ((I(A(I(A)))) (I(A))_{3,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A))))^*A_{3,2} & \gg \Upsilon > \\ ((I(A) (I(A(I(A))))_{4,3}) & & ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (A(I(A))))_{1,4}) & & \end{array} \end{aligned}$$

Medial action

$$\begin{aligned} & \begin{array}{ccc} ((I(A(I(A)))) (I(A))_{3,4}) & & ((I(A) (A(I(A))))_{4,1}) \\ (A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A))_{4,1}) \gg \Upsilon > \\ (I(A(I(A))))^*A_{3,2} & & \\ ((A(I(A))((I(A))_{1,4}) & & ((I(A) (I(A(I(A))))_{4,3}) \end{array} \end{aligned}$$

$$\begin{array}{l}
\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A)))(I(A))_{4,1}) \gg \\
((I(A) (A(I(A))))_{4,1})
\end{array} \\
\\
\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\
((I(A) (A(I(A))))_{4,1}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A)))(I(A))_{4,1}) \gg \Upsilon > \\
(I(A(I(A)))^*A_{3,2})
\end{array} \\
\\
\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\
((I(A) (A(I(A))))_{4,1}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\quad \times \quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)))(I(A))_{4,1}) \gg \Upsilon > \\
((I(A) (I(A(I(A))))_{4,1})
\end{array} \\
\\
\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\
> ((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A)))(I(A))_{1,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (A(I(A))))_{4,1}) \\
((A(I(A)))(I(A))_{4,1}) \gg \Upsilon \\
(I(A(I(A)))^*A_{3,2})
\end{array} \\
\\
\begin{array}{l}
((A(I(A)))(I(A))_{1,4}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\
\Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\quad \times \quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)))(I(A))_{4,1}) \gg \\
((I(A) (A(I(A))))_{4,1})
\end{array}
\end{array}$$

Objectal action

$$\begin{array}{l}
\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)))(I(A))_{1,4}) \times \\
(I(A(I(A)))^*A_{3,2}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((A(I(A)))(I(A))_{4,1}) \\
((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
((I(A) (I(A(I(A))))_{4,3})
\end{array} \\
\\
\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)))(I(A))_{1,4}) \times \\
(I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
((A(I(A)))(I(A))_{4,1})
\end{array} \\
\\
\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((A(I(A)))(I(A))_{1,4}) \times \\
((A(I(A)))(I(A))_{4,1}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\quad \times \quad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (A(I(A))))_{4,1}) \gg \Upsilon > \\
(I(A(I(A)))^*A_{3,2})
\end{array}
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))))(I(A))_{3,4}) \\
((I(A)(A(I(A))))_{1,4}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times ((I(A)(A(I(A))))_{4,1}) \gg \Upsilon > \\
((A(I(A))((I(A))_{4,1}) \\
(A^*I(A(I(A))))_{2,3}) \\
((I(A)(A(I(A))))_{4,3}) \\
(A^*I(A(I(A))))_{2,3}) \\
((I(A(I(A))))(I(A))_{3,4}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times ((I(A)(A(I(A))))_{4,1}) \gg \Upsilon \\
> ((I(A)(A(I(A))))_{4,1}) \\
((I(A)(A(I(A))))_{1,4}) \\
((I(A)(A(I(A))))_{1,4}) \\
((I(A(I(A))))(I(A))_{3,4}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times ((I(A)(A(I(A))))_{4,1}) \gg \Upsilon \\
> ((I(A)(A(I(A))))_{4,3}) \\
(A^*I(A(I(A))))_{2,3}) \\
((I(A(I(A))))_{4,1}) \\
((I(A)(A(I(A))))_{1,4}) \\
((I(A(I(A))))(I(A))_{3,4}) \gg \Upsilon > ((A(I(A))((I(A))_{1,4}) \times ((I(A)(A(I(A))))_{4,1}) \gg \Upsilon \\
> ((I(A)(A(I(A))))_{4,3}) \\
(A^*I(A(I(A))))_{2,3}) \\
((I(A(I(A))))_{4,1})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A))((I(A))_{1,4}) \\
(A^*I(A(I(A))))_{2,3}) \gg \Upsilon > ((I(A(I(A)))(I(A))_{3,4}) \times ((I(A)(A(I(A))))_{3,4}) \gg \\
\Upsilon > (I(A(I(A))))_{3,2}) \\
((I(A)(A(I(A))))_{1,4}) \\
((I(A)(A(I(A))))_{1,4}) \\
(A^*I(A(I(A))))_{2,3}) \gg \Upsilon > ((I(A(I(A)))(I(A))_{3,4}) \times ((I(A)(A(I(A))))_{4,3}) \gg \\
\Upsilon > (I(A(I(A))))_{3,2}) \\
((A(I(A))((I(A))_{1,4}) \\
((I(A)(A(I(A))))_{1,4}) \\
(A^*I(A(I(A))))_{2,3}) \\
((I(A)(A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A)))(I(A))_{3,4}) \times ((I(A)(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((A(I(A))((I(A))_{4,1}) \\
((A(I(A))((I(A))_{1,4}) \\
((I(A)(A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A)))(I(A))_{3,4}) \times ((I(A)(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((A(I(A))((I(A))_{4,1}) \\
(A^*I(A(I(A))))_{2,3}) \\
((I(A)(A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A)))(I(A))_{3,4}) \times ((I(A)(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((I(A)(A(I(A))))_{4,1}) \\
(A^*I(A(I(A))))_{2,3}) \\
((A(I(A))((I(A))_{1,4}) \gg \Upsilon > ((I(A(I(A)))(I(A))_{3,4}) \times ((I(A)(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((I(A)(A(I(A))))_{4,1}) \\
((I(A)(A(I(A))))_{1,4}) \\
(A^*I(A(I(A))))_{2,3}) \\
((A(I(A))((I(A))_{1,4}) \gg \Upsilon > ((I(A(I(A)))(I(A))_{3,4}) \times ((I(A)(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((I(A)(A(I(A))))_{4,1}) \\
((I(A)(A(I(A))))_{1,4})
\end{array}$$

$$\begin{array}{ccc}
& ((I(A) (A(I(A))))_{1,4}) & (I(A(I(A)))^*A_{3,2}) \\
((A(I(A))((I(A)))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times & ((I(A) (I(A(I(A))))_{4,3}) & \gg \\
\Upsilon > ((I(A) (A(I(A))))_{4,1}) & & \\
& (A^*I(A(I(A)))_{2,3}) & ((A(I(A))((I(A)))_{4,1})
\end{array}$$

6. Pre-semiotic dual system

$$\begin{array}{ccc}
((I(A(I(A))) (I(A)))_{3,4} (A(I(A))((I(A)))_{1,4} (I(A) (I(A(I(A))))_{3,4} A^*I(A(I(A)))_{2,3}) \times (I(A(I(A)))^*A_{3,2} \\
(I(A(I(A))) (I(A)))_{4,3} (I(A) (A(I(A))))_{4,1} (I(A) (I(A(I(A))))_{4,3})
\end{array}$$

Qualitative action

$$\begin{array}{ccc}
& ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A) (A(I(A))))_{4,1}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) & \gg \Upsilon > \\
((I(A(I(A))) (I(A)))_{4,3}) & & \\
& ((A(I(A))((I(A)))_{1,4}) & ((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
& ((A(I(A))((I(A)))_{1,4}) & ((I(A) (I(A(I(A))))_{3,4}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) & \gg \Upsilon > \\
((I(A(I(A))) (I(A)))_{4,3}) & & \\
& ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A) (A(I(A))))_{4,1})
\end{array}$$

$$\begin{array}{ccc}
& ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A))((I(A)))_{1,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) & \gg \Upsilon > ((I(A) \\
(A(I(A)))_{4,1}) & & \\
& ((I(A) (I(A(I(A))))_{3,4}) & ((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
& ((I(A) (I(A(I(A))))_{3,4}) & ((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A))((I(A)))_{1,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) & \gg \Upsilon > ((I(A) \\
(A(I(A)))_{4,1}) & & \\
& ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
& ((I(A) (I(A(I(A))))_{3,4}) & ((I(A) (A(I(A))))_{4,1}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) & \gg \Upsilon > \\
((I(A) (I(A(I(A))))_{4,3}) & & \\
& ((A(I(A))((I(A)))_{1,4}) & ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
& ((A(I(A))((I(A)))_{1,4}) & ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) & \gg \Upsilon > \\
((I(A) (I(A(I(A))))_{4,3}) & & \\
& ((I(A) (I(A(I(A))))_{3,4}) & ((I(A) (A(I(A))))_{4,1})
\end{array}$$

Medial action

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A) (A(I(A))))_{4,1}) \\ > (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)))(I(A)))_{1,4}) \end{array} \gg \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon$$

$$\begin{array}{l} ((A(I(A)))(I(A)))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \\ > (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \gg \Upsilon > ((I(A) (A(I(A))))_{4,1}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)))(I(A)))_{1,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \\ > ((I(A) (A(I(A))))_{4,1}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \gg \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)))(I(A)))_{1,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \\ > ((I(A) (A(I(A))))_{4,1}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \gg \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A) (A(I(A))))_{4,1}) \\ > ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)))(I(A)))_{1,4}) \end{array} \gg \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon$$

$$\begin{array}{l} ((A(I(A)))(I(A)))_{1,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \\ > ((I(A) (I(A(I(A))))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \gg \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \times ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon$$

Objectal action

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4}) \times ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > \\ (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \gg \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)))(I(A)))_{1,4}) \times ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon \\ > (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \end{array} \gg \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((A(I(A)))(I(A))_{1,4}) \times \\ > ((I(A(I(A))) (I(A))_{4,3}) \\ ((I(A(I(A))) (I(A))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((A(I(A)))(I(A))_{1,4}) \times \\ > ((I(A(I(A))) (I(A))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > ((A(I(A)))(I(A))_{1,4}) \times \\ > ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A))_{4,3}) \\ ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > ((A(I(A)))(I(A))_{1,4}) \times \\ > ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (A(I(A))))_{4,1}) \gg \Upsilon \\ ((I(A(I(A))) (I(A))_{3,4}) \end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times \\ \Upsilon > (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times \\ \Upsilon > (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \quad \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \\ ((I(A(I(A))) (I(A))_{3,4}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times \\ \Upsilon > ((I(A(I(A))) (I(A))_{4,3}) \\ ((A(I(A)))(I(A))_{1,4}) \end{array} \quad \begin{array}{l} ((I(A) (A(I(A))))_{4,1}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((A(I(A)))(I(A))_{1,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times \\ \Upsilon > ((I(A(I(A))) (I(A))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((I(A) (A(I(A))))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A) (A(I(A)))_{1,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A))_{4,3}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ ((A(I(A)))(I(A))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A) (A(I(A)))_{4,1}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((I(A(I(A))) (I(A))_{4,3}) \end{array}$$

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

$$\begin{array}{l} ((I(A(I(A))) (I(A))_{3,4}) \\ ((I(A) (A(I(A)))_{1,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ ((A(I(A)))(I(A))_{4,1}) \\ ((A(I(A)) (A(I(A)))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A)))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A)))_{1,2,4}) \\ (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A)))_{1,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ ((A(I(A)))(I(A))_{4,1}) \\ ((I(A(I(A))) (I(A))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A) \\ ((A(I(A)) (A(I(A)))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A))_{3,4}) \\ ((A(I(A)) (A(I(A)))_{1,2,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ ((A(I(A)) (A(I(A)))_{4,2,1}) \\ ((I(A) (A(I(A)))_{1,4}) \end{array} \quad \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A)))_{1,4}) \\ ((A(I(A)) (A(I(A)))_{1,2,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ ((A(I(A)) (A(I(A)))_{4,2,1}) \\ ((I(A(I(A))) (I(A))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A)))_{1,4}) \\ ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A)))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A)))_{4,2,1}) \\ ((I(A) \end{array}$$

$$\begin{array}{ccc} ((A(I(A)) (A(I(A))))_{1,2,4}) & & ((A(I(A))((I(A)))_{4,1}) \\ ((I(A(I(A)))) (I(A)))_{3,4} \gg \Upsilon > (A^*A(I(A)))_{1,2} \times & (A(I(A))*A_{2,1}) \gg \Upsilon > & ((I(A) \\ (I(A(I(A))))_{4,3}) & & \\ ((I(A) (A(I(A))))_{1,4}) & & ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Medial action

$$\begin{array}{ccc} ((I(A(I(A)))) (I(A)))_{3,4}) & & ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (A^*A(I(A)))_{1,2} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) \gg \Upsilon > & \\ (A(I(A))*A_{2,1}) & & \\ ((A(I(A)) (A(I(A))))_{1,2,4}) & & ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{ccc} ((A(I(A)) (A(I(A))))_{1,2,4}) & & ((I(A) \\ (I(A(I(A))))_{4,3}) & & \\ (A^*A(I(A)))_{1,2} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) \gg \Upsilon > & \\ (A(I(A))*A_{2,1}) & & \\ ((I(A(I(A)))) (I(A)))_{3,4}) & & ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{ccc} (A^*A(I(A)))_{1,2}) & & ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) \gg & \\ \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) & & \\ ((I(A(I(A)))) (I(A)))_{3,4}) & & (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{ccc} ((I(A(I(A)))) (I(A)))_{3,4}) & & (A(I(A))*A_{2,1}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) \gg & \\ \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) & & \\ (A^*A(I(A)))_{1,2}) & & ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{ccc} (A^*A(I(A)))_{1,2}) & & ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A(I(A)))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) \gg \Upsilon & \\ > ((I(A) (I(A(I(A))))_{4,3}) & & \\ ((A(I(A)) (A(I(A))))_{1,2,4}) & & (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{ccc} ((A(I(A)) (A(I(A))))_{1,2,4}) & & (A(I(A))*A_{2,1}) \\ ((I(A(I(A)))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) \gg \Upsilon & \\ > ((I(A) (I(A(I(A))))_{4,3}) & & \\ (A^*A(I(A)))_{1,2}) & & ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Objectal action

$$\begin{array}{l}
 ((I(A(I(A)))) (I(A))_{3,4}) \\
 (A^*A(I(A))_{1,2}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
 > (A(I(A))^*A_{2,1}) \\
 ((I(A) (A(I(A))))_{1,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((A(I(A))((I(A)))_{4,1}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \Upsilon \\
 ((I(A) (I(A(I(A))))_{4,3})
 \end{array}$$

$$\begin{array}{l}
 ((I(A) (A(I(A))))_{1,4}) \\
 (A^*A(I(A))_{1,2}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
 > (A(I(A))^*A_{2,1}) \\
 ((I(A(I(A))) (I(A))_{3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \Upsilon \\
 ((A(I(A))((I(A)))_{4,1})
 \end{array}$$

$$\begin{array}{l}
 (A^*A(I(A))_{1,2}) \\
 ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
 \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\
 ((I(A(I(A))) (I(A))_{3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
 (A(I(A))^*A_{2,1})
 \end{array}$$

$$\begin{array}{l}
 ((I(A(I(A))) (I(A))_{3,4}) \\
 ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
 \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\
 (A^*A(I(A))_{1,2})
 \end{array}
 \qquad
 \begin{array}{l}
 (A(I(A))^*A_{2,1}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
 ((I(A) (I(A(I(A))))_{4,3})
 \end{array}$$

$$\begin{array}{l}
 (A^*A(I(A))_{1,2}) \\
 ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
 \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A) (A(I(A))))_{1,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((A(I(A))((I(A)))_{4,1}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
 (A(I(A))^*A_{2,1})
 \end{array}$$

$$\begin{array}{l}
 ((I(A) (A(I(A))))_{1,4}) \\
 ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
 \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
 (A^*A(I(A))_{1,2})
 \end{array}
 \qquad
 \begin{array}{l}
 (A(I(A))^*A_{2,1}) \\
 ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
 ((A(I(A))((I(A)))_{4,1})
 \end{array}$$

Interpretative action

$$\begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 (A^*A(I(A))_{1,2}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times \\
 > (A(I(A))^*A_{2,1}) \\
 ((I(A) (A(I(A))))_{1,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((A(I(A))((I(A)))_{4,1}) \\
 ((I(A) (I(A(I(A))))_{4,3}) \gg \Upsilon \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
(A^*A(I(A)))_{1,2} \gg Y > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))))_{4,3} \gg Y \\
> (A(I(A))^*A_{2,1}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) \qquad \qquad \qquad ((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
((I(A) (A(I(A))))_{1,4}) \gg Y > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))))_{4,3} \gg \\
Y > ((A(I(A))((I(A)))_{4,1}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) \qquad \qquad \qquad (A(I(A))^*A_{2,1})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A) (A(I(A))))_{1,4}) \gg Y > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))))_{4,3} \gg \\
Y > ((A(I(A))((I(A)))_{4,1}) \\
(A^*A(I(A)))_{1,2} \qquad \qquad \qquad ((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
(A^*A(I(A)))_{1,2} \\
((A(I(A)) (A(I(A))))_{1,2,4}) \gg Y > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))))_{4,3} \gg \\
Y > ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A) (A(I(A))))_{1,4}) \qquad \qquad \qquad (A(I(A))^*A_{2,1})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) \gg Y > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))))_{4,3} \gg \\
Y > ((A(I(A)) (A(I(A))))_{4,2,1}) \\
(A^*A(I(A)))_{1,2} \qquad \qquad \qquad ((A(I(A))((I(A)))_{4,1})
\end{array}$$

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

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
((I(A) (A(I(A))))_{1,4}) \gg Y > (A^*I(A(I(A)))_{2,3}) \times (I(A(I(A)))^*A_{3,2}) \gg Y > \\
((A(I(A))((I(A)))_{4,1}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) \qquad \qquad \qquad ((I(A) (A(I(A))))_{4,2,1}) \\
(I(A(I(A))))_{4,3} \qquad \qquad \qquad ((I(A)
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
(I(A(I(A))))_{4,3} \\
((I(A) (A(I(A))))_{1,4}) \gg Y > (A^*I(A(I(A)))_{2,3}) \times (I(A(I(A)))^*A_{3,2}) \gg Y > \\
((A(I(A))((I(A)))_{4,1}) \\
((I(A(I(A))) (I(A)))_{3,4}) \qquad \qquad \qquad ((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A))_{3,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\ > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \quad \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ (I(A(I(A))))^*A_{3,2} \gg \Upsilon \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\ > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A(I(A))) (I(A))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ (I(A(I(A))))^*A_{3,2} \gg \Upsilon \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\ ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (I(A(I(A))))^*A_{3,2} \gg \Upsilon > \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A))) (I(A))_{3,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\ ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \quad \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ (I(A(I(A))))^*A_{3,2} \gg \Upsilon > \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Medial action

$$\begin{array}{l} ((I(A(I(A))) (I(A))_{3,4}) \\ (A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\ (I(A(I(A))))^*A_{3,2} \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (I(A(I(A))))_{4,3} \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A))((I(A)))_{4,1}) \gg \Upsilon > \\ ((I(A)) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A))))_{4,3}) \\ (A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\ (I(A(I(A))))^*A_{3,2} \\ ((I(A(I(A))) (I(A))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A)) \\ ((A(I(A))((I(A)))_{4,1}) \gg \Upsilon > \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3} \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\ \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A(I(A))) (I(A))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A))((I(A)))_{4,1}) \gg \\ (I(A(I(A))))^*A_{3,2} \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A))_{3,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\ \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (A^*I(A(I(A))))_{2,3} \end{array} \quad \begin{array}{l} (I(A(I(A))))^*A_{3,2} \\ ((A(I(A))((I(A)))_{4,1}) \gg \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg Y > ((I(A) (A(I(A))))_{1,4}) \times \\
> ((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A)))(I(A))_{4,1}) \gg Y \\
(I(A(I(A)))^*A_{3,2}) \\
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)))(I(A))_{4,1}) \gg Y \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
Y > (I(A(I(A)))^*A_{3,2}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)))(I(A))_{4,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
Y > (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\qquad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
((A(I(A)))(I(A))_{4,1})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A) (A(I(A))))_{1,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
Y > ((A(I(A)))(I(A))_{4,1}) \\
((I(A(I(A))) (I(A)))_{3,4})
\end{array}
\qquad
\begin{array}{l}
((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
((I(A) (A(I(A))))_{1,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
Y > ((A(I(A)))(I(A))_{4,1}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\qquad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
Y > ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)))(I(A))_{4,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
Y > ((I(A) (I(A(I(A))))_{4,3}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\qquad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
((A(I(A)))(I(A))_{4,1})
\end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \quad \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((A(I(A))((I(A)))_{4,1}) \\ \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \quad \begin{array}{l} ((I(A) (I(A(I(A))))_{4,3}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

9. Pre-semiotic dual system

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4} (A(I(A)) (A(I(A))))_{1,2,4} (I(A) (I(A(I(A))))_{3,4} A^*I(A(I(A)))_{2,3}) \times (I(A(I(A)))^*A_{3,2}) \\ (I(A(I(A))) (I(A)))_{4,3} (A(I(A)) (A(I(A))))_{4,2,1} (I(A) (I(A(I(A))))_{4,3}) \end{array}$$

Qualitative action

$$\begin{array}{l}
 ((I(A(I(A))) (I(A)))_{3,4}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \gg \gamma > (A^*I(A(I(A))))_{2,3}) \times \\
 ((I(A(I(A))) (I(A)))_{4,3}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 (I(A(I(A)))^*A_{3,2}) \gg \gamma > \\
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A)) \\
 (I(A(I(A)))^*A_{3,2}) \gg \gamma > \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}$$

$$\begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 (I(A(I(A))))_{4,3}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \gg \gamma > (A^*I(A(I(A))))_{2,3}) \times \\
 ((I(A(I(A))) (I(A)))_{4,3}) \\
 ((I(A(I(A))) (I(A)))_{3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A)) \\
 (I(A(I(A)))^*A_{3,2}) \gg \gamma > \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}$$

$$\begin{array}{l}
 ((I(A(I(A))) (I(A)))_{3,4}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \gamma > (A^*I(A(I(A))))_{2,3}) \times \\
 \gamma > ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 ((I(A) (I(A(I(A))))_{3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A(I(A))) (I(A)))_{3,4}) \\
 (I(A(I(A)))^*A_{3,2}) \gg \\
 ((I(A) (I(A(I(A))))_{4,3})
 \end{array}$$

$$\begin{array}{l}
 ((I(A) (I(A(I(A))))_{3,4}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \gamma > (A^*I(A(I(A))))_{2,3}) \times \\
 > ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 ((I(A(I(A))) (I(A)))_{3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A) (I(A(I(A))))_{4,3}) \\
 (I(A(I(A)))^*A_{3,2}) \gg \gamma \\
 ((I(A(I(A))) (I(A)))_{4,3})
 \end{array}$$

$$\begin{array}{l}
 ((I(A) (I(A(I(A))))_{3,4}) \\
 ((I(A(I(A))) (I(A)))_{3,4}) \gg \gamma > (A^*I(A(I(A))))_{2,3}) \times \\
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 (I(A(I(A)))^*A_{3,2}) \gg \gamma > \\
 ((I(A(I(A))) (I(A)))_{4,3})
 \end{array}$$

$$\begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 ((I(A(I(A))) (I(A)))_{3,4}) \gg \gamma > (A^*I(A(I(A))))_{2,3}) \times \\
 ((I(A) (I(A(I(A))))_{4,3}) \\
 ((I(A) (I(A(I(A))))_{3,4})
 \end{array}
 \qquad
 \begin{array}{l}
 ((I(A(I(A))) (I(A)))_{4,3}) \\
 (I(A(I(A)))^*A_{3,2}) \gg \gamma > \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}$$

Medial action

$$\begin{array}{l}
 ((I(A(I(A))) (I(A)))_{3,4}) \\
 (A^*I(A(I(A))))_{2,3}) \gg \gamma > ((I(A) (I(A(I(A))))_{3,4}) \times \\
 > (I(A(I(A)))^*A_{3,2}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 (I(A(I(A))))_{4,3})
 \end{array}
 \qquad
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 ((I(A(I(A))) (I(A)))_{4,3}) \gg \gamma \\
 ((I(A))
 \end{array}$$

$$\begin{aligned}
& ((A(I(A)) (A(I(A))))_{1,2,4}) && ((I(A)) \\
(I(A(I(A))))_{4,3}) &&& \\
(A^*I(A(I(A)))_{2,3}) &>> \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) &>> \Upsilon \\
> (I(A(I(A)))^*A_{3,2}) &&& \\
& ((I(A(I(A))) (I(A)))_{3,4}) &&& ((A(I(A)) (A(I(A))))_{4,2,1}) \\
(A^*I(A(I(A)))_{2,3}) &&& ((I(A) (I(A(I(A))))_{4,3}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) &>> \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) &>> \\
\Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) &&& (I(A(I(A)))^*A_{3,2}) \\
& ((I(A(I(A))) (I(A)))_{3,4}) &&& (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) &>> \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) &>> \\
\Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) &&& ((I(A(I(A))) (I(A)))_{4,3}) \\
& (A^*I(A(I(A)))_{2,3}) &&& ((I(A) (I(A(I(A))))_{4,3}) \\
(A^*I(A(I(A)))_{2,3}) &&& ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (I(A)))_{3,4}) &>> \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) &>> \\
\Upsilon > ((I(A) (I(A(I(A))))_{4,3}) &&& \\
& ((A(I(A)) (A(I(A))))_{1,2,4}) &&& (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) &>> \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) &>> \\
\Upsilon > ((I(A) (I(A(I(A))))_{4,3}) &&& (I(A(I(A)))^*A_{3,2}) \\
& (A^*I(A(I(A)))_{2,3}) &&& ((A(I(A)) (A(I(A))))_{4,2,1})
\end{aligned}$$

Objective action

$$\begin{aligned}
& ((I(A(I(A))) (I(A)))_{3,4}) &&& ((I(A(I(A))) (I(A)))_{4,3}) \\
(A^*I(A(I(A)))_{2,3}) &>> \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times ((A(I(A)) (A(I(A))))_{4,2,1}) &>> \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) &&& \\
& ((I(A) (I(A(I(A))))_{3,4}) &&& ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (I(A(I(A))))_{3,4}) &>> \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times ((A(I(A)) (A(I(A))))_{4,2,1}) &>> \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) &&& \\
& ((I(A(I(A))) (I(A)))_{3,4}) &&& ((I(A(I(A))) (I(A)))_{4,3}) \\
(A^*I(A(I(A)))_{2,3}) &&& ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (I(A(I(A))))_{3,4}) &>> \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times ((A(I(A)) (A(I(A))))_{4,2,1}) &>> \\
\Upsilon > ((I(A(I(A))) (I(A)))_{4,3}) &&& (I(A(I(A)))^*A_{3,2}) \\
& ((I(A(I(A))) (I(A)))_{3,4}) &&&
\end{aligned}$$

$$\begin{array}{l} ((I(A(I(A)))) (I(A))_{3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\ Y > ((I(A(I(A))) (I(A))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (I(A))_{3,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\ Y > ((I(A) (I(A(I(A))))_{4,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ ((I(A(I(A))) (I(A))_{3,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\ Y > ((I(A) (I(A(I(A))))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\ ((I(A(I(A))) (I(A))_{4,3}) \end{array}$$

Interpretative action

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg Y > ((I(A(I(A))) (I(A))_{3,4}) \times \\ Y > (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A))_{4,3}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg Y > ((I(A(I(A))) (I(A))_{3,4}) \times \\ Y > (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((I(A(I(A))) (I(A))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((I(A(I(A))) (I(A))_{3,4}) \times \\ Y > ((I(A(I(A))) (I(A))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((I(A(I(A))) (I(A))_{3,4}) \times \\ Y > ((I(A(I(A))) (I(A))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg Y > ((I(A(I(A))) (I(A))_{3,4}) \times \\ Y > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A))_{4,3}) \\ ((I(A) (I(A(I(A))))_{4,3}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{ccc}
& ((I(A) (I(A(I(A))))))_{3,4} & (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) & \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times & ((I(A) (I(A(I(A))))))_{4,3} \gg \\
\Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) & & \\
& (A^*I(A(I(A))))_{2,3} & ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

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

$$\begin{array}{ccc}
& ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((I(A) (I(A(I(A))))))_{3,4}) & \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\
((I(A(I(A))) (I(A)))_{4,3}) & & \\
& ((A(I(A)) (I(A(I(A))))_{2,4}) & ((I(A) (I(A(I(A))))))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
& ((A(I(A)) (I(A(I(A))))_{2,4}) & ((I(A) \\
(I(A(I(A))))_{4,3}) & & \\
((I(A) (I(A(I(A))))))_{3,4}) & \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\
((I(A(I(A))) (I(A)))_{4,3}) & & \\
& ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{ccc}
& ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) & \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\
> ((I(A(I(A))) (A(I(A))))_{4,2}) & & \\
& ((I(A) (I(A(I(A))))))_{3,4}) & ((I(A) (I(A(I(A))))))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
& ((I(A) (I(A(I(A))))))_{3,4}) & ((I(A) (I(A(I(A))))))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) & \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\
> ((I(A(I(A))) (A(I(A))))_{4,2}) & & \\
& ((I(A(I(A))) (I(A)))_{3,4}) & ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
& ((I(A) (I(A(I(A))))))_{3,4}) & ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{3,4}) & \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\
((I(A) (I(A(I(A))))))_{4,3}) & & \\
& ((A(I(A)) (I(A(I(A))))_{2,4}) & ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{ccc}
& ((A(I(A)) (A(I(A))))_{1,2,4}) & ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A(I(A))) (I(A)))_{3,4}) & \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\
((I(A) (I(A(I(A))))))_{4,3}) & & \\
& ((I(A) (I(A(I(A))))))_{3,4}) & ((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Medial action

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \Upsilon \\ > (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \\ (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ (I(A(I(A))))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \Upsilon \\ > (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\ \Upsilon > ((I(A(I(A))) (A(I(A))))_{4,2}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\ \Upsilon > ((I(A(I(A))) (A(I(A))))_{4,2}) \\ (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\ \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} : \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \\ ((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\ \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

Objectal action

$$\begin{array}{l} ((I(A(I(A))) (I(A)))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (A(I(A))))_{4,2}) \gg \\ \Upsilon > (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{3,4}) \\ ((I(A) (I(A(I(A))))_{4,3}) \end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (A(I(A))))_{4,2}) \gg \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (I(A)))_{3,4}) \qquad ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\gg \Upsilon > ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A(I(A))) (I(A)))_{3,4}) \qquad (I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (I(A)))_{3,4}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\gg \Upsilon > ((I(A(I(A))) (I(A)))_{4,3}) \\
(A^*I(A(I(A)))_{2,3}) \qquad ((I(A) (I(A(I(A))))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\gg \Upsilon > ((I(A) (I(A(I(A))))_{4,3}) \\
((I(A) (I(A(I(A))))_{3,4}) \qquad (I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
((I(A(I(A))) (I(A)))_{3,4}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \\
(A^*I(A(I(A)))_{2,3}) \qquad ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) \\
((I(A) (I(A(I(A))))_{3,4}) \qquad ((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) \qquad ((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((I(A(I(A))) (I(A)))_{3,4}) \times ((I(A) (I(A(I(A))))_{4,3}) \gg \\
\Upsilon > ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) \qquad (I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{ccc} ((A(I(A)) (I(A(I(A))))_{2,4}) & & (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & & ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A(I(A))) (I(A))_{4,3}) & & \\ (A^*I(A(I(A)))_{2,3}) & & ((I(A(I(A))) (A(I(A)))_{4,2}) \end{array}$$

$$\begin{array}{ccc} (A^*I(A(I(A)))_{2,3}) & & ((I(A(I(A))) (I(A))_{4,3}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & & ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A(I(A))) (A(I(A)))_{4,2}) & & \\ ((I(A) (I(A(I(A))))_{3,4}) & & (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{ccc} ((I(A) (I(A(I(A))))_{3,4}) & & (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \times & & ((I(A) (I(A(I(A))))_{4,3}) \gg \\ \Upsilon > ((I(A(I(A))) (A(I(A)))_{4,2}) & & \\ (A^*I(A(I(A)))_{2,3}) & & ((I(A(I(A))) (I(A))_{4,3}) \end{array}$$

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

$$\begin{array}{ccc} ((I(A(I(A))) (A(I(A)))_{2,4}) & & ((A(I(A)) (A(I(A)))_{4,2,1}) \\ ((I(A) (A(I(A)))_{1,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times & & (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ ((A(I(A))((I(A))_{4,1}) & & \\ ((A(I(A)) (A(I(A)))_{1,2,4}) & & ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{ccc} ((A(I(A)) (A(I(A)))_{1,2,4}) & & ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((I(A) (A(I(A)))_{1,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times & & (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ ((A(I(A))((I(A))_{4,1}) & & \\ ((I(A(I(A))) (A(I(A)))_{2,4}) & & ((A(I(A)) (A(I(A)))_{4,2,1}) \end{array}$$

$$\begin{array}{ccc} ((I(A(I(A))) (A(I(A)))_{2,4}) & & ((A(I(A))((I(A))_{4,1}) \\ ((A(I(A)) (A(I(A)))_{1,2,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times & & (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ ((A(I(A)) (A(I(A)))_{4,2,1}) & & \\ ((I(A) (A(I(A)))_{1,4}) & & ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{ccc} ((I(A) (A(I(A)))_{1,4}) & & ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((A(I(A)) (A(I(A)))_{1,2,4}) \gg \Upsilon > (A^*A(I(A))_{1,2}) \times & & (A(I(A))^*A_{2,1}) \gg \Upsilon > \\ ((A(I(A)) (A(I(A)))_{4,2,1}) & & \\ ((I(A(I(A))) (A(I(A)))_{2,4}) & & ((A(I(A))((I(A))_{4,1}) \end{array}$$

$$\begin{array}{ccc}
& ((I(A) (A(I(A))))_{1,4}) & ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) >> \Upsilon > (A^*A(I(A)))_{1,2}) \times & (A(I(A))^*A_{2,1}) >> \Upsilon > & \\
((A(I(A)) (I(A(I(A))))_{4,2}) & ((A(I(A)) (A(I(A))))_{1,2,4}) & ((A(I(A))((I(A)))_{4,1}) \\
& ((A(I(A)) (A(I(A))))_{1,2,4}) & ((A(I(A))((I(A)))_{4,1}) \\
& ((A(I(A)) (A(I(A))))_{1,2,4}) & ((A(I(A))((I(A)))_{4,1}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) >> \Upsilon > (A^*A(I(A)))_{1,2}) \times & (A(I(A))^*A_{2,1}) >> \Upsilon > & \\
((A(I(A)) (I(A(I(A))))_{4,2}) & ((I(A) (A(I(A))))_{1,4}) & ((A(I(A))((I(A)))_{4,1}) \\
& ((I(A) (A(I(A))))_{1,4}) & ((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Medial action

$$\begin{array}{ccc}
& ((I(A(I(A))) (A(I(A))))_{2,4}) & ((A(I(A)) (A(I(A))))_{4,2,1}) \\
(A^*A(I(A)))_{1,2}) >> \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) >> \Upsilon > & \\
(A(I(A))^*A_{2,1}) & ((A(I(A)) (A(I(A))))_{1,2,4}) & ((A(I(A)) (I(A(I(A))))_{4,2}) \\
& : & \\
& ((A(I(A)) (A(I(A))))_{1,2,4}) & ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(A^*A(I(A)))_{1,2}) >> \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) >> \Upsilon > & \\
(A(I(A))^*A_{2,1}) & ((I(A(I(A))) (A(I(A))))_{2,4}) & ((A(I(A))) \\
(A(I(A)))_{4,2,1}) & & \\
& (A^*A(I(A)))_{1,2}) & ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) >> \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) >> & \\
\Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) & & (A(I(A))^*A_{2,1}) \\
& ((I(A(I(A))) (A(I(A))))_{2,4}) & (A(I(A))^*A_{2,1}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) >> \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) >> & \\
\Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) & & ((A(I(A)) (I(A(I(A))))_{4,2}) \\
& (A^*A(I(A)))_{1,2}) & \\
& (A^*A(I(A)))_{1,2}) & ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) >> \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) >> & \\
\Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) & & (A(I(A))^*A_{2,1}) \\
& ((A(I(A)) (A(I(A))))_{1,2,4}) & \\
& ((A(I(A)) (A(I(A))))_{1,2,4}) & (A(I(A))^*A_{2,1}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) >> \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times & ((A(I(A))((I(A)))_{4,1}) >> & \\
\Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) & & ((A(I(A)) (A(I(A))))_{4,2,1}) \\
& (A^*A(I(A)))_{1,2}) &
\end{array}$$

Objectal action

$$\begin{array}{l}
 ((I(A(I(A)))) (A(I(A))))_{2,4} \qquad \qquad \qquad ((A(I(A)))(I(A)))_{4,1} \\
 (A^*A(I(A)))_{1,2} \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \quad ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \Upsilon \\
 > (A(I(A))^*A_{2,1}) \\
 ((I(A) (A(I(A))))_{1,4} \qquad \qquad \qquad ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 \\
 ((I(A) (A(I(A))))_{1,4} \qquad \qquad \qquad ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 (A^*A(I(A)))_{1,2} \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \quad ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \Upsilon \\
 > (A(I(A))^*A_{2,1}) \\
 ((I(A(I(A)))) (A(I(A))))_{2,4} \qquad \qquad \qquad ((A(I(A)))(I(A)))_{4,1} \\
 \\
 (A^*A(I(A)))_{1,2} \qquad \qquad \qquad ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \quad ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
 \Upsilon > ((A(I(A)))(I(A)))_{4,1} \\
 ((I(A(I(A)))) (A(I(A))))_{2,4} \qquad \qquad \qquad (A(I(A))^*A_{2,1}) \\
 \\
 ((I(A(I(A)))) (A(I(A))))_{2,4} \qquad \qquad \qquad (A(I(A))^*A_{2,1}) \\
 ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \quad ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
 \Upsilon > ((A(I(A)))(I(A)))_{4,1} \\
 (A^*A(I(A)))_{1,2} \qquad \qquad \qquad ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 \\
 (A^*A(I(A)))_{1,2} \qquad \qquad \qquad ((A(I(A)))(I(A)))_{4,1} \\
 ((I(A(I(A)))) (A(I(A))))_{2,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \quad ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 ((I(A) (A(I(A))))_{1,2,4}) \qquad \qquad \qquad (A(I(A))^*A_{2,1}) \\
 \\
 ((I(A) (A(I(A))))_{1,4} \qquad \qquad \qquad (A(I(A))^*A_{2,1}) \\
 ((I(A(I(A)))) (A(I(A))))_{2,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \quad ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 (A^*A(I(A)))_{1,2} \qquad \qquad \qquad ((A(I(A)))(I(A)))_{4,1}
 \end{array}$$

Interpretative action

$$\begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4} \qquad \qquad \qquad ((A(I(A)))(I(A)))_{4,1} \\
 (A^*A(I(A)))_{1,2} \gg \Upsilon > ((I(A(I(A)))) (A(I(A))))_{2,4} \times \quad ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
 \Upsilon > (A(I(A))^*A_{2,1}) \\
 ((I(A) (A(I(A))))_{1,4} \qquad \qquad \qquad ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 \\
 ((I(A) (A(I(A))))_{1,4} \qquad \qquad \qquad ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 (A^*A(I(A)))_{1,2} \gg \Upsilon > ((I(A(I(A)))) (A(I(A))))_{2,4} \times \quad ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
 \Upsilon > (A(I(A))^*A_{2,1}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4} \qquad \qquad \qquad ((A(I(A)))(I(A)))_{4,1}
 \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2} \\ ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\ \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\ (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\ \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\ (A^*A(I(A)))_{1,2} \end{array} \quad \begin{array}{l} (A(I(A))*A_{2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} (A^*A(I(A)))_{1,2} \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\ \gg \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \quad \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \\ (A(I(A))*A_{2,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\ \gg \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (A^*A(I(A)))_{1,2} \end{array} \quad \begin{array}{l} (A(I(A))*A_{2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((A(I(A))((I(A)))_{4,1}) \end{array}$$

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

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3}) \times \\ ((A(I(A))((I(A)))_{4,1}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \\ (I(A(I(A))))_{4,2}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\ ((A(I(A))) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3}) \times \\ ((A(I(A))((I(A)))_{4,1}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \\ (A(I(A)))_{4,2,1}) \end{array} \quad \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\ ((A(I(A))) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3}) \times \\ > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A) (A(I(A))))_{1,4}) \end{array} \quad \begin{array}{l} ((A(I(A))((I(A)))_{4,1}) \\ (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4} \\ ((A(I(A)) (A(I(A))))_{1,2,4} \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\ > ((A(I(A)) (A(I(A))))_{4,2,1} \\ ((I(A(I(A)))) (A(I(A))))_{2,4} \end{array} \quad \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ (I(A(I(A))))^*A_{3,2} \gg \Upsilon \\ ((I(A(I(A))))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((I(A) (A(I(A))))_{1,4} \\ ((I(A(I(A)))) (A(I(A))))_{2,4} \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\ > ((A(I(A)) (I(A(I(A))))_{4,2} \\ ((A(I(A)) (A(I(A))))_{1,2,4} \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (I(A(I(A))))^*A_{3,2} \gg \Upsilon \\ ((I(A(I(A))))(I(A))_{4,1}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4} \\ ((I(A(I(A)))) (A(I(A))))_{2,4} \gg \Upsilon > (A^*I(A(I(A))))_{2,3} \times \\ > ((A(I(A)) (I(A(I(A))))_{4,2} \\ ((I(A) (A(I(A))))_{1,4} \end{array} \quad \begin{array}{l} ((A(I(A)))(I(A))_{4,1}) \\ (I(A(I(A))))^*A_{3,2} \gg \Upsilon \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Medial action

$$\begin{array}{l} ((I(A(I(A)))) (A(I(A))))_{2,4} \\ (A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4} \times \\ (I(A(I(A))))^*A_{3,2} \\ ((A(I(A)) (A(I(A))))_{1,2,4} \\ (I(A(I(A))))_{4,2} \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)))(I(A))_{4,1}) \gg \Upsilon > \\ ((A(I(A))) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4} \\ (A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4} \times \\ (I(A(I(A))))^*A_{3,2} \\ ((I(A(I(A)))) (A(I(A))))_{2,4} \end{array} \quad \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((A(I(A)))(I(A))_{4,1}) \gg \Upsilon > \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3} \\ ((A(I(A)) (A(I(A))))_{1,2,4} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4} \times \\ \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1} \\ ((I(A(I(A)))) (A(I(A))))_{2,4} \end{array} \quad \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((A(I(A)))(I(A))_{4,1}) \gg \\ (I(A(I(A))))^*A_{3,2} \end{array}$$

$$\begin{array}{l} ((I(A(I(A)))) (A(I(A))))_{2,4} \\ ((A(I(A)) (A(I(A))))_{1,2,4} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4} \times \\ \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1} \\ (A^*I(A(I(A))))_{2,3} \end{array} \quad \begin{array}{l} (I(A(I(A))))^*A_{3,2} \\ ((A(I(A)))(I(A))_{4,1}) \gg \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A))))_{2,3} \\ ((I(A(I(A)))) (A(I(A))))_{2,4} \gg \Upsilon > ((I(A) (A(I(A))))_{1,4} \times \\ \Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2} \\ ((A(I(A)) (A(I(A))))_{1,2,4} \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)))(I(A))_{4,1}) \gg \\ (I(A(I(A))))^*A_{3,2} \end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) \gg \Upsilon > ((I(A) (A(I(A))))_{1,4}) \times \\
\Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(A^*I(A(I(A))))_{2,3}
\end{array}
\quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A))((I(A)))_{4,1}) \gg \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Objectal action

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\quad
\begin{array}{l}
((A(I(A))((I(A)))_{4,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
(A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
\Upsilon > (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\quad
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
\Upsilon > ((A(I(A))((I(A)))_{4,1}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\quad
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
\gg \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\
(A^*I(A(I(A))))_{2,3}
\end{array}
\quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
((I(A(I(A))) (A(I(A))))_{2,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
\gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A) (A(I(A))))_{1,4})
\end{array}
\quad
\begin{array}{l}
((A(I(A))((I(A)))_{4,1}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (A(I(A))))_{1,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) \gg \Upsilon > ((A(I(A)) (A(I(A))))_{1,2,4}) \\
\gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(A^*I(A(I(A))))_{2,3}
\end{array}
\quad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A))((I(A)))_{4,1})
\end{array}$$

Interpretative action

$$\begin{array}{l}
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
 \Upsilon > (I(A(I(A)))^*A_{3,2}) \\
 ((I(A) (A(I(A))))_{1,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((A(I(A))((I(A)))_{4,1}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}
 \\
 \begin{array}{l}
 ((I(A) (A(I(A))))_{1,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
 \Upsilon > (I(A(I(A)))^*A_{3,2}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
 ((A(I(A))((I(A)))_{4,1})
 \end{array}
 \\
 \begin{array}{l}
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
 \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}
 \\
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{1,2,4}) \\
 ((I(A) (A(I(A))))_{1,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
 \Upsilon > ((A(I(A))((I(A)))_{4,1}) \\
 (A^*I(A(I(A)))_{2,3})
 \end{array}
 \quad
 \begin{array}{l}
 (I(A(I(A)))^*A_{3,2}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
 ((A(I(A)) (A(I(A))))_{4,2,1})
 \end{array}
 \\
 \begin{array}{l}
 (A^*I(A(I(A)))_{2,3}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
 \gg \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 ((I(A) (A(I(A))))_{1,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((A(I(A))((I(A)))_{4,1}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}
 \\
 \begin{array}{l}
 ((I(A) (A(I(A))))_{1,4}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
 \gg \Upsilon > ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 (A^*I(A(I(A)))_{2,3})
 \end{array}
 \quad
 \begin{array}{l}
 (I(A(I(A)))^*A_{3,2}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 ((A(I(A))((I(A)))_{4,1})
 \end{array}
 \end{array}$$

13. Pre-semiotic system

$$\begin{array}{l}
 ((I(A(I(A))) (A(I(A))))_{2,4} (A(I(A)) (A(I(A))))_{1,2,4} (I(A) (I(A(I(A))))_{3,4} A^*I(A(I(A)))_{2,3}) \times \\
 (I(A(I(A)))^*A_{3,2} (I(A(I(A))) (I(A)))_{4,3} (A(I(A)) (A(I(A))))_{4,2,1} (A(I(A)) (I(A(I(A))))_{4,2})
 \end{array}$$

Qualitative action

$$\begin{array}{l}
 \begin{array}{l}
 ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times \\
 ((I(A(I(A))) (I(A)))_{4,3}) \\
 ((A(I(A)) (A(I(A))))_{1,2,4})
 \end{array}
 \quad
 \begin{array}{l}
 ((A(I(A)) (A(I(A))))_{4,2,1}) \\
 (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\
 ((A(I(A)) (I(A(I(A))))_{4,2})
 \end{array}
 \end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3}) \times \\
((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\
((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\
((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3}) \times \\
> ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\qquad
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\
((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3}) \times \\
> ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3}) \times \\
> ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) \gg \Upsilon > (A^*I(A(I(A))))_{2,3}) \times \\
> ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\qquad
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

Medial action

$$\begin{array}{l}
((I(A(I(A))) (A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times \\
> (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (I(A)))_{4,3}) \gg \Upsilon \\
((A(I(A)) (I(A(I(A))))_{4,2})
\end{array}$$

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
(A^*I(A(I(A))))_{2,3} \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times \\
> (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (A(I(A))))_{2,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3}) \gg \Upsilon \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times \\ Y > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times \\ Y > ((A(I(A)) (A(I(A))))_{4,2,1}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \gg \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times \\ Y > ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((A(I(A)) (A(I(A))))_{1,2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (A(I(A))))_{1,2,4}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times \\ Y > ((A(I(A)) (I(A(I(A))))_{4,2}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \gg \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \end{array}$$

Objectal action

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\ \gg Y > (I(A(I(A)))^*A_{3,2}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ (A^*I(A(I(A)))_{2,3}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\ Y > (I(A(I(A)))^*A_{3,2}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\ Y > ((I(A(I(A))) (I(A)))_{4,3}) \\ ((I(A(I(A))) (A(I(A))))_{2,4}) \end{array} \quad \begin{array}{l} ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (A(I(A))))_{2,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\ Y > ((I(A(I(A))) (I(A)))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (A(I(A))))_{4,2,1}) \gg \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
\gg Y > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\qquad
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) \gg Y > ((A(I(A)) (A(I(A))))_{1,2,4}) \times \\
\gg Y > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\qquad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)) (A(I(A))))_{1,2,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg Y > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
Y > (I(A(I(A)))^*A_{3,2}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\qquad
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg Y > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
Y > (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
\gg Y > ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (A(I(A))))_{1,2,4})
\end{array}
\qquad
\begin{array}{l}
((A(I(A)) (A(I(A))))_{4,2,1}) \\
((A(I(A)) (I(A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
\gg Y > ((I(A(I(A))) (I(A)))_{4,3}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\qquad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{4,2}) \\
((A(I(A)) (A(I(A))))_{4,2,1})
\end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A)))_{2,3}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) \gg Y > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
\gg Y > ((A(I(A)) (A(I(A))))_{4,2,1}) \\
((I(A) (I(A(I(A))))_{3,4})
\end{array}
\qquad
\begin{array}{l}
((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))_{3,4}) \\
((A(I(A)) (A(I(A))))_{1,2,4}) \gg Y > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\
\gg Y > ((A(I(A)) (A(I(A))))_{4,2,1}) \\
(A^*I(A(I(A)))_{2,3})
\end{array}
\qquad
\begin{array}{l}
(I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

14. Pre-semiotic dual system

$$\begin{aligned} & ((I(A(I(A))) (A(I(A)))_{2,4} (A(I(A)) (I(A(I(A))))_{2,4} (I(A) (I(A(I(A))))_{3,4} A^*I(A(I(A)))_{2,3}) \times \\ & (I(A(I(A)))^*A_{3,2} (I(A(I(A))) (I(A))_{4,3} (I(A(I(A))) (A(I(A)))_{4,2} (A(I(A)) (I(A(I(A))))_{4,2}) \end{aligned}$$

Qualitative action

$$\begin{aligned} & ((I(A(I(A))) (A(I(A)))_{2,4} & ((I(A(I(A))) (A(I(A)))_{4,2}) \\ & ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\ & ((I(A(I(A))) (I(A))_{4,3}) & \\ & ((A(I(A)) (I(A(I(A))))_{2,4}) & ((A(I(A)) (I(A(I(A))))_{4,2}) \end{aligned}$$

$$\begin{aligned} & ((A(I(A)) (I(A(I(A))))_{2,4} & ((A(I(A)) (I(A(I(A))))_{4,2}) \\ & ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\ & ((I(A(I(A))) (I(A))_{4,3}) & \\ & ((I(A(I(A))) (A(I(A)))_{2,4}) & ((I(A(I(A))) (A(I(A)))_{4,2}) \end{aligned}$$

$$\begin{aligned} & ((I(A(I(A))) (A(I(A)))_{2,4} & ((I(A(I(A))) (I(A))_{4,3}) \\ & ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\ & > ((I(A(I(A))) (A(I(A)))_{4,2}) & \\ & ((I(A) (I(A(I(A))))_{3,4}) & ((A(I(A)) (I(A(I(A))))_{4,2}) \end{aligned}$$

$$\begin{aligned} & ((I(A) (I(A(I(A))))_{3,4}) & ((A(I(A)) (I(A(I(A))))_{4,2}) \\ & ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\ & > ((I(A(I(A))) (A(I(A)))_{4,2}) & \\ & ((I(A(I(A))) (A(I(A)))_{2,4}) & ((I(A(I(A))) (I(A))_{4,3}) \end{aligned}$$

$$\begin{aligned} & ((I(A) (I(A(I(A))))_{3,4}) & ((I(A(I(A))) (A(I(A)))_{4,2}) \\ & ((I(A(I(A))) (A(I(A)))_{2,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\ & > ((A(I(A)) (I(A(I(A))))_{4,2}) & \\ & ((A(I(A)) (I(A(I(A))))_{2,4}) & ((I(A(I(A))) (I(A))_{4,3}) \end{aligned}$$

$$\begin{aligned} & ((A(I(A)) (I(A(I(A))))_{2,4} & ((I(A(I(A))) (I(A))_{4,3}) \\ & ((I(A(I(A))) (A(I(A)))_{2,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times & (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\ & > ((A(I(A)) (I(A(I(A))))_{4,2}) & \\ & ((I(A) (I(A(I(A))))_{3,4}) & ((I(A(I(A))) (A(I(A)))_{4,2}) \end{aligned}$$

Medial action

$$\begin{array}{l}
 ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \Upsilon \\
 > (I(A(I(A)))^*A_{3,2}) \\
 ((A(I(A)) (I(A(I(A))))_{2,4}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2})
 \end{array}$$

$$\begin{array}{l}
 ((A(I(A)) (I(A(I(A))))_{2,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \Upsilon \\
 > (I(A(I(A)))^*A_{3,2}) \\
 ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 ((I(A(I(A))) (A(I(A))))_{4,2})
 \end{array}$$

$$\begin{array}{l}
 (A^*I(A(I(A)))_{2,3}) \\
 ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > (I(A) (I(A(I(A))))_{3,4}) \times ((A(I(A)) (I(A)))_{4,3}) \\
 \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{4,2}) \\
 ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}$$

$$\begin{array}{l}
 ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\
 \Upsilon > ((I(A(I(A))) (A(I(A))))_{4,2}) \\
 (A^*I(A(I(A)))_{2,3}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2})
 \end{array}$$

$$\begin{array}{l}
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A(I(A))) (A(I(A))))_{2,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\
 \Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 ((A(I(A)) (I(A(I(A))))_{2,4}) \\
 (I(A(I(A)))^*A_{3,2})
 \end{array}$$

$$\begin{array}{l}
 ((A(I(A)) (I(A(I(A))))_{2,4}) \\
 ((I(A(I(A))) (A(I(A))))_{2,4}) \gg \Upsilon > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\
 \Upsilon > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A(I(A))) (A(I(A))))_{4,2})
 \end{array}$$

Objectal action

$$\begin{array}{l}
 ((I(A(I(A))) (A(I(A))))_{2,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\
 \Upsilon > (I(A(I(A)))^*A_{3,2}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \\
 ((A(I(A)) (I(A(I(A))))_{4,2})
 \end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
(A^*I(A(I(A)))_{2,3}) \gg Y > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
Y > (I(A(I(A)))^*A_{3,2}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) \qquad \qquad \qquad ((I(A(I(A))) (I(A)))_{4,3}) \\
\\
(A^*I(A(I(A)))_{2,3}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((A(I(A)) (I(A(I(A))))_{4,2}) \\
\gg Y > ((I(A(I(A))) (I(A)))_{4,3}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) \qquad \qquad \qquad ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2}) \\
\\
((I(A(I(A))) (A(I(A))))_{2,4}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\gg Y > ((I(A(I(A))) (I(A)))_{4,3}) \\
(A^*I(A(I(A)))_{2,3}) \qquad \qquad \qquad ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(I(A(I(A)) (I(A(I(A))))_{4,2}) \\
\\
(A^*I(A(I(A)))_{2,3}) \\
((I(A(I(A))) (A(I(A)))_{2,4}) \gg Y > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \\
\gg Y > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
((I(A) (I(A(I(A))))_{3,4}) \qquad \qquad \qquad ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2}) \\
\\
((I(A) (I(A(I(A))))_{3,4}) \\
((I(A(I(A))) (A(I(A)))_{2,4}) \gg Y > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\gg Y > ((A(I(A)) (I(A(I(A))))_{4,2}) \\
(A^*I(A(I(A)))_{2,3}) \qquad \qquad \qquad ((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A)) (I(A(I(A))))_{4,3})
\end{array}$$

Interpretative action

$$\begin{array}{l}
((A(I(A)) (I(A(I(A))))_{2,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg Y > ((I(A(I(A))) (A(I(A)))_{2,4}) \times ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
Y > (I(A(I(A)))^*A_{3,2}) \\
((I(A) (I(A(I(A))))_{3,4}) \qquad \qquad \qquad ((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A)) (I(A(I(A))))_{4,2}) \\
\\
((I(A) (I(A(I(A))))_{3,4}) \\
(A^*I(A(I(A)))_{2,3}) \gg Y > ((I(A(I(A))) (A(I(A)))_{2,4}) \times ((A(I(A)) (I(A(I(A))))_{4,2}) \gg \\
Y > (I(A(I(A)))^*A_{3,2}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) \qquad \qquad \qquad ((I(A(I(A))) (I(A)))_{4,3}) \\
(I(A(I(A)) (I(A(I(A))))_{4,2}) \\
\\
(A^*I(A(I(A)))_{2,3}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg Y > ((I(A(I(A))) (A(I(A)))_{2,4}) \times ((A(I(A)) (I(A(I(A))))_{4,2}) \\
\gg Y > ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) \qquad \qquad \qquad ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(I(A(I(A)))^*A_{3,2})
\end{array}$$

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\ \gg \Upsilon > ((I(A(I(A))) (I(A)))_{4,3}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} (A^*I(A(I(A)))_{2,3}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\ \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{4,2}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \\ (I(A(I(A)))^*A_{3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{2,4}) \times \\ \gg \Upsilon > ((I(A(I(A))) (A(I(A))))_{4,2}) \\ (A^*I(A(I(A)))_{2,3}) \end{array} \quad \begin{array}{l} (I(A(I(A)))^*A_{3,2}) \\ ((A(I(A)) (I(A(I(A))))_{4,2}) \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

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

$$\begin{array}{l} ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times \\ ((I(A(I(A))) (I(A)))_{4,3}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (A(I(A))))_{4,2}) \\ (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\ ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \end{array}$$

$$\begin{array}{l} ((A(I(A)) (I(A(I(A))))_{2,4}) \\ ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times \\ ((I(A(I(A))) (I(A)))_{4,3}) \\ ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ (I(A(I(A)))^*A_{3,2}) \gg \Upsilon > \\ ((I(A(I(A))) (A(I(A))))_{4,2}) \end{array}$$

$$\begin{array}{l} ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times \\ \Upsilon > ((I(A(I(A))) (A(I(A))))_{4,2}) \\ ((I(A) (I(A(I(A))))_{3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A)))_{4,3}) \\ (I(A(I(A)))^*A_{3,2}) \gg \\ ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \end{array}$$

$$\begin{array}{l} ((I(A) (I(A(I(A))))_{3,4}) \\ ((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > (A^*I(A(I(A)))_{2,3}) \times \\ > ((I(A(I(A))) (A(I(A))))_{4,2}) \\ ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \end{array} \quad \begin{array}{l} ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\ (I(A(I(A)))^*A_{3,2}) \gg \Upsilon \\ ((I(A(I(A))) (I(A)))_{4,3}) \end{array}$$

$$\begin{array}{l}
((I(A) (I(A(I(A))))))_{3,4} \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \gg Y > (A^*I(A(I(A))))_{2,3} \times ((I(A(I(A))) (A(I(A))))_{4,2}) \\
Y > ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) > (I(A(I(A)))^*A_{3,2}) \gg \\
((A(I(A)) (I(A(I(A))))_{2,4}) ((I(A(I(A))) (I(A)))_{4,3}) \\
\\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \gg Y > (A^*I(A(I(A))))_{2,3} \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\
Y > ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) > (I(A(I(A)))^*A_{3,2}) \gg \\
((I(A) (I(A(I(A))))_{3,4}) ((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

Medial action

$$\begin{array}{l}
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
(A^*I(A(I(A))))_{2,3} \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg Y \\
> (I(A(I(A)))^*A_{3,2}) > ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
\\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3} \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg Y \\
> (I(A(I(A)))^*A_{3,2}) > ((I(A(I(A))) (A(I(A))))_{4,2}) \\
((I(A(I(A))) (A(I(A))))_{2,4}) ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
(A^*I(A(I(A))))_{2,3} \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\
Y > ((I(A(I(A))) (A(I(A))))_{4,2}) > ((I(A(I(A))) (I(A)))_{4,3}) \gg \\
((I(A(I(A))) (A(I(A))))_{2,4}) (I(A(I(A)))^*A_{3,2}) \\
\\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \gg \\
Y > ((I(A(I(A))) (A(I(A))))_{4,2}) > (A^*I(A(I(A))))_{2,3} > ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
(A^*I(A(I(A))))_{2,3} ((I(A(I(A))) (A(I(A))))_{4,2}) \\
\\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \\
\gg Y > ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) > ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) (I(A(I(A)))^*A_{3,2}) \\
\\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \gg Y > ((I(A) (I(A(I(A))))_{3,4}) \times ((I(A(I(A))) (I(A)))_{4,3}) \\
\gg Y > ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) > (A^*I(A(I(A))))_{2,3} > ((I(A(I(A))) (A(I(A))))_{4,2}) \\
(A^*I(A(I(A))))_{2,3} ((I(A(I(A))) (A(I(A))))_{4,2})
\end{array}$$

Objectal action

$$\begin{array}{l}
 ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (I(A))_{4,3}) \\
 \Upsilon > (I(A(I(A)))^*A_{3,2}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \\
 ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
 \\
 ((I(A) (I(A(I(A))))_{3,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
 \Upsilon > (I(A(I(A)))^*A_{3,2}) \\
 ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
 ((I(A(I(A))) (I(A))_{4,3}) \\
 \\
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
 \gg \Upsilon > ((I(A(I(A))) (I(A))_{4,3}) \\
 ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
 (I(A(I(A)))^*A_{3,2}) \\
 \\
 ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
 \gg \Upsilon > ((I(A(I(A))) (I(A))_{3,4}) \\
 (A^*I(A(I(A)))_{2,3}) \\
 (I(A(I(A)))^*A_{3,2}) \\
 \\
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (I(A))_{4,3}) \\
 (A(I(A)))_{4,2}) \gg \Upsilon > ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \\
 (I(A(I(A)))^*A_{3,2}) \\
 \\
 ((I(A) (I(A(I(A))))_{3,4}) \\
 ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \gg \Upsilon > ((A(I(A)) (I(A(I(A))))_{2,4}) \times ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
 (A(I(A)))_{4,2}) \gg \Upsilon > ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
 (A^*I(A(I(A)))_{2,3}) \\
 ((I(A(I(A))) (I(A))_{4,3})
 \end{array}$$

Interpretative action

$$\begin{array}{l}
 ((A(I(A)) (I(A(I(A))))_{2,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \times ((I(A(I(A))) (I(A))_{4,3}) \\
 \gg \Upsilon > (I(A(I(A)))^*A_{3,2}) \\
 ((I(A) (I(A(I(A))))_{3,4}) \\
 ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
 \\
 ((I(A) (I(A(I(A))))_{3,4}) \\
 (A^*I(A(I(A)))_{2,3}) \gg \Upsilon > ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \times ((I(A(I(A))) (I(A(I(A))))_{4,3,2}) \\
 \gg \Upsilon > (I(A(I(A)))^*A_{3,2}) \\
 ((A(I(A)) (I(A(I(A))))_{2,4}) \\
 ((I(A(I(A))) (I(A))_{4,3})
 \end{array}$$

$$\begin{array}{l}
(A^*I(A(I(A))))_{2,3} \\
((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \times \\
(I(A(I(A))))_{4,3,2} \gg \Upsilon > ((I(A(I(A))) (I(A)))_{4,3}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
(I(A(I(A))) (A(I(A)))_{4,2}) \\
(I(A(I(A)))^*A_{3,2}) \\
\\
((A(I(A)) (I(A(I(A))))_{2,4}) \\
((I(A) (I(A(I(A))))_{3,4}) \gg \Upsilon > ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \times \\
(I(A(I(A))))_{4,3,2} \gg \Upsilon > ((I(A(I(A))) (I(A)))_{4,3}) \\
(A^*I(A(I(A))))_{2,3} \\
(I(A(I(A))) (A(I(A)))_{4,2}) \\
(I(A(I(A)))^*A_{3,2}) \\
\\
(A^*I(A(I(A))))_{2,3} \\
((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \times \\
(I(A(I(A))))_{4,3,2} \gg \Upsilon > ((I(A(I(A))) (A(I(A)))_{4,2}) \\
((I(A) (I(A(I(A))))_{3,4}) \\
(I(A(I(A)))^*A_{3,2}) \\
\\
((I(A) (I(A(I(A))))_{3,4}) \\
((A(I(A)) (I(A(I(A))))_{2,4}) \gg \Upsilon > ((I(A(I(A))) (I(A(I(A))))_{2,3,4}) \times \\
(I(A(I(A))))_{4,3,2} \gg \Upsilon > ((I(A(I(A))) (A(I(A)))_{4,2}) \\
(A^*I(A(I(A))))_{2,3} \\
((I(A(I(A))) (I(A)))_{4,3})
\end{array}$$

Therefore, we have given all possible words of a vocabulary of a 4-contextural 4-adic negative language in semiotic-system theoretic form. This is the semiotic world according Günther we had to build by opening the curtain and enter the semiotic meontics, the reign of volition and semiotic action by the means of a semiotic theory of systems.

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