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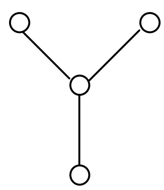
Medads and the triadic sign relation

1. In his manuscript "Probability and induction" (L 231) which has been published in Peirce's "The New Elements of Mathematics", vol. III/1 (Eisele 1976b, p. 164), Peirce has introduced the Medad, meaning "a graph or graph instance having 0 peg". In another manuscript (New Elements of Geometry, 94) he has displayed the circle of "Agon" as the polygon with 0 angles (Eisele 1976a, p. 299). Therefore, in addition to the triadic sign relation, we have here instances of "Zeroness" which has been re-introduced (without referring to the NEM-manuscripts of Peirce) by Bense (1975, pp. 45s., 65 ss.) and Stiebing (1981, 1984).

2. In this connection I also want to come back to an article of mine (published in Toth 2008, pp. 61-69), where I showed that the early Peircean sign model



is not compatible with the triadic sign relation, but requires a tetradic sign relation as the relation (Medad, Monad, Dyad, Triad) does. Since Peirce's Medad is introduced in semiotics explicitly as a 0-valued relation, it corresponds exactly to what Bense called Kategorialzahl: "Ein unabhängig von jeder Zeichenrelation existierendes, aber mögliches Mittel M° hat die Relationszahl r = 0 (...). Der Raum mit der 0-relationalen oder 0-stelligen semiotischen Struktur wäre kein semiotischer Raum, sondern der ontische Raum aller verfügbaren Etwase O°, über denen der (r > 0)-relationale semiotische Raum thetisch definiert bzw. eingeführt wird" (1975, p. 65). Therefore, the category Zeroness to which Medads belong does not settle in the space of signs, but in the space of objects. From that it follows that a triadic sign relation, which is extended to a tetradic sign relation containing 0-valued objects is a sign relation in which the contextural border between sign and object is abolished and thus a poly-contextural sign relation.

3. Is it therefore so simple, that all we have to do is to embed Medads into triadic sign relations and thus fulfil the above tetradic sign model of Peirce? – I do not think so. The first argument against such a simplistic way of extending the triadic sign relation is the double character of the fundamental categories as static sub-signs on the one side and as dynamic morphisms on the other side (cf. Toth 2008, pp. 159-163). We have

(1.1) ≡ id1	(2.1) ≡ $\alpha°$	(3.1) ≡ $\alpha°\beta°$
(1.2) ≡ α	(2.2) ≡ id2	(3.2) ≡ $\beta°$
(1.3) ≡ $\beta\alpha$	(2.3) ≡ β	(3.3) ≡ id3.

Therefore, we have the right to introduce the prime-signs (Bense 1980) whose Cartesian (inner) products result in the sub-signs as displayed in the semiotic matrix, in a double way, i.e. statically and dynamically, too:

1. Static introduction of prime-signs

(.1., .2., .3.)

2. Dynamic introduction of prime-signs

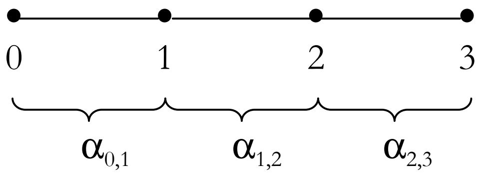
[0, 1], [1, 2], [1, 3]

Thus, we see that by the dynamic introduction of 3 prime-signs 4 categories are needed! This is obviously the idea behind representing Peirce's triadic sign model by the three outer nodes of the above tetradic sign model.

Moreover, only through dynamic introduction of prime-signs we can show, already on the level of the prime-signs, that every (n-1)-valued semiotic relation is included in the n-valued semiotic relation:

[[0, 1], [[1, 2], [1, 3]]]

Only through dynamic morphism we also can ascribe morphisms to the prime-signs already on the level of the prime-signs:



with

$[[\alpha_{0,1}], [[\alpha_{1,2}], [\alpha_{2,3}]]]$

Therefore, the 10 Peircean sign classes can be noted as follows

(3.1 2.1 1.1) ≡ [[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1], [[0, 1], [0, 1]]]]
(3.1 2.1 1.2) ≡ [[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1], [[0, 1], [0, 1, 2]]]]
(3.1 2.1 1.3) ≡ [[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1], [[0, 1], [0, 1, 2, 3]]]]
(3.1 2.2 1.2) ≡ [[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2]]]]
(3.1 2.2 1.3) ≡ [[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2, 3]]]]
(3.1 2.3 1.3) ≡ [[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1, 2, 3], [0, 1], [0, 1, 2, 3]]]]
(3.2 2.2 1.2) ≡ [[[0, 1, 2, 3], [0, 1, 2]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2]]]]
(3.2 2.2 1.3) ≡ [[[0, 1, 2, 3], [0, 1, 2]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2, 3]]]]
(3.2 2.3 1.3) ≡ [[[0, 1, 2, 3], [0, 1, 2]], [[0, 1, 2], [0, 1, 2, 3], [0, 1], [0, 1, 2, 3]]]]
(3.3 2.3 1.3) ≡ [[[0, 1, 2, 3], [0, 1, 2, 3]], [[0, 1, 2], [0, 1, 2, 3], [0, 1], [0, 1, 2, 3]]]]

Furthermore, if start not with relations, but with categories, over the sign relation

$SR = [[\alpha_{0,1}], [[\alpha_{1,2}], [\alpha_{2,3}]]]$,

we can construct a new semiotic matrix

	$\alpha_{0,1}$	$\alpha_{1,2}$	$\alpha_{2,3}$
$\alpha_{0,1}$	$\alpha_{0,1}\alpha_{0,1}$	$\alpha_{0,1}\alpha_{1,2}$	$\alpha_{0,1}\alpha_{2,3}$
$\alpha_{1,2}$	$\alpha_{1,2}\alpha_{0,1}$	$\alpha_{1,2}\alpha_{1,2}$	$\alpha_{1,2}\alpha_{2,3}$
$\alpha_{2,3}$	$\alpha_{2,3}\alpha_{0,1}$	$\alpha_{2,3}\ \alpha_{1,2}$	$\alpha_{2,3}\alpha_{2,3}$

which allow again a new writing of the 10 Peircean sign classes

[[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1], [[0, 1], [0, 1]]]] ≡
$[\alpha_{2,3}\alpha_{0,1}, \alpha_{1,2}\alpha_{0,1}, \alpha_{0,1}\alpha_{0,1}]$

[[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1], [[0, 1], [0, 1, 2]]]] ≡
$[\alpha_{2,3}\alpha_{0,1}, \alpha_{1,2}\alpha_{0,1}, \alpha_{0,1}\alpha_{1,2}]$

[[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1], [[0, 1], [0, 1, 2, 3]]]]≡
$[\alpha_{2,3}\alpha_{0,1}, \alpha_{1,2}\alpha_{0,1}, \alpha_{0,1}\alpha_{2,3}]$

[[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2]]]] ≡
$[\alpha_{2,3}\alpha_{0,1}, \alpha_{1,2}\alpha_{1,2}, \alpha_{0,1}\alpha_{1,2}]$

[[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2, 3]]]] ≡
$[\alpha_{2,3}\alpha_{0,1}, \alpha_{1,2}\alpha_{1,2}, \alpha_{0,1}\alpha_{2,3}]$

[[[0, 1, 2, 3], [0, 1]], [[0, 1, 2], [0, 1, 2, 3], [0, 1], [0, 1, 2, 3]]]] ≡
$[\alpha_{2,3}\alpha_{0,1}, \alpha_{1,2}\alpha_{2,3}, \alpha_{0,1}\alpha_{2,3}]$

[[[0, 1, 2, 3], [0, 1, 2]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2]]]] ≡
$[\alpha_{2,3}\ \alpha_{1,2}, \alpha_{1,2}\alpha_{1,2}, \alpha_{0,1}\alpha_{1,2}]$

[[[0, 1, 2, 3], [0, 1, 2]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2, 3]]]] ≡
$[\alpha_{2,3}\ \alpha_{1,2}, \alpha_{1,2}\alpha_{1,2}, \alpha_{0,1}\alpha_{2,3}]$

[[[0, 1, 2, 3], [0, 1, 2]], [[0, 1, 2], [0, 1, 2, 3], [0, 1], [0, 1, 2, 3]]]] ≡
$[\alpha_{2,3}\ \alpha_{1,2}, \alpha_{1,2}\alpha_{2,3}, \alpha_{0,1}\alpha_{2,3}]$

[[[0, 1, 2, 3], [0, 1, 2, 3]], [[0, 1, 2], [0, 1, 2, 3], [0, 1], [0, 1, 2, 3]]]] ≡
$[\alpha_{2,3}\alpha_{2,3}, \alpha_{1,2}\alpha_{2,3}, \alpha_{0,1}\alpha_{2,3}]$

Each sign class consists now of three inner products of morphisms.

4. The second argument against a simplistic way of extending the triadic sign relation lies in the nature of a Medad itself: As already Bense (1975, p. 65) pointed out, by its very nature, a relation like

R(0, 0)

is excluded, because the corresponding Agon has no angles for such a connection. From a more semantic point of view an expression like

*The stone of the stone (was thrown into the garden)

is ungrammatical, because most inanimate objects cannot be iterated. However, cf.

The sign of the sign (appeared on the wall),

f. ex., Belsazar's Menetekel. This sentence is grammatical, since inanimate concepts can be iterated.

On the other side, we have seen that

(0, 1) does exist.

(0, 2), too, does exist – qua (0, 1), and

(0, 3) also exists – qua both (0, 1) and (0, 2).

Therefore the question arises if the following three relations exist

(1, 0), (2, 0), (3, 0).

Clearly, they don't exist, since in a relation

R(0, x),

we have x > 0 (Bense 1975, p. 65).

However, if we dualize a sign class like

×[[[0, 1, 2, 3], [0, 1, 2]], [[0, 1, 2], [0, 1, 2], [0, 1], [0, 1, 2]]]] =
[[[[2, 1, 0], [1, 0], [2, 1, 0], [2, 1, 0], [[2, 1, 0], [3, 2, 1, 0]]]

or

$\times[\alpha_{2,3}\ \alpha_{1,2}, \alpha_{1,2}\alpha_{1,2}, \alpha_{0,1}\alpha_{1,2}] = [\alpha_{2,1}\ \alpha_{1,0}, \alpha_{2,1}\alpha_{2,1}, \alpha_{2,1}\alpha_{32}]$,

"forbidden" relations of the type

$^*R(x, 0)$ with $x > 0$

appear. Therefore, if we extend the triadic sign class in order to embed the categorial object of Zeroness as a Medad, we have to make sure that the semiotic matrix contains Zeroness only in the respective row, not in the respective column. This means that embedding Medads into the triadic semiotic matrix changes this matrix into a tetradic-trichotomic, not into a tetradic-tetratomic matrix:

	0	1	2	3
0	0.0	0.1	0.2	0.3
1	1.0	1.1	1.2	1.3
2	2.0	2.1	2.2	2.3
3	3.0	3.1	3.2	3.3

Hence, another question arises: How can the following semiotic 4-contextrual 3-adic matrix be embedded in the above matrix?

$$\left(\begin{array}{ccc} 1.1_{1,3,4} & 1.2_{1,4} & 1.3_{3,4} \\ \downarrow & \uparrow & \uparrow \\ 2.1_{1,4} & 2.2_{1,2,4} & 2.3_{2,4} \\ \downarrow & \downarrow & \uparrow \\ 3.1_{3,4} & 3.2_{2,4} & 3.3_{2,3,4} \end{array}\right)$$

Insofar, the 4[th] contexture is Zeroness, but the Medads do not have their converse Medads in the matrix and therefore there are the only sub-signs whose inner environments appear only once.

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