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Semiotic environment systems

1. In Bense (1975, pp. 94 ss.), we find a complex theory of semiotic environments in connection with the differentiation of virtual vs. effective triadic sign relations on the one side and the theory of pragmatic retrosemioses on the other side. Unfortunately, this theory has never even been noticed by anybody. In the present article, I will present its fundamental ideas and try to establish the connection to Kaehr's theory of "environments for transclusions in textemes" (2009b), therefore enabling to introduce both outer and inner semiotic environment systems and their interrelationships into semiotics.

2. Since contextuated sub-signs have only been introduced into semiotics by Kaehr (2009a), in semiotics, environment means always outer environment of signs. However, besides the rather trivial notion of an environment of a sign class formed by another sign class, thus meaning nothing more than sign connections, Bense (1975, pp. 97 ss.) introduced pragmatic retrosemioses of the form

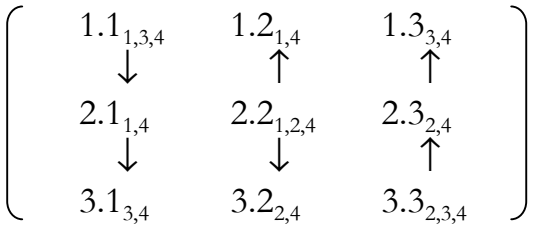
$(I \Rightarrow M)$,

i.e. the so-called "application function" of the sign in the sense that, for every object O, an external interpretant I creates an M which represents this object, thereby the relation between I and M creating an outer semiotic environment of this object which is represented. Note that R(I, M) is an ordered relation to which the converse relation R(M, I) is not defined.

3. For inner semiotic environments, i.e. hetero-morphisms, we follow Kaehr (2009a, b) in assuming a triadic sign relation being a fragment of a 4-contextural sign relation. Thus,

SR(3;4) = (3.a 2.b 1.c)

operates on the following 4-contextural 3×3 polycontextural-semiotic matrix



Since in heteromorphisms, the arrows are inverted, but not the prime-signs constituting the sub-signs, we get the following 9 environments for the 9 sub-signs or monadic semiotic relations (left column). In opposite, in dualization, not only the arrows, but also the order of the prime-signs of the sub-signs are inverted (right column):

$E((1.1)_{1,3,4}) = (1.1)_{4,3,1}$ $\quad$ $D((1.1)_{1,3,4}) = (1.1)_{4,3,1}$
$E((1.2)_{1,4}) = (1.2)_{4,1}$ $\quad$ $D((1.2)_{1,4}) = (2.1)_{4,1}$
$E((1.3)_{3,4}) = (1.3)_{4,3}$ $\quad$ $D((1.3)_{3,4}) = (3.1)_{4,3}$
$E((2.1)_{1,4}) = (2.1)_{4,1}$ $\quad$ $D((2.1)_{1,4}) = (1.2)_{4,1}$
$E((2.2)_{1,2,4}) = (2.2)_{4,2,1}$ $\quad$ $D((2.2)_{1,2,4}) = (2.2)_{4,2,1}$
$E((2.3)_{2,4}) = (2.3)_{4,2}$ $\quad$ $D((2.3)_{2,4}) = (3.2)_{4,2}$
$E((3.1)_{3,4}) = (3.1)_{4,3}$ $\quad$ $D((3.1)_{3,4}) = (1.3)_{4,3}$
$E((3.2)_{2,4}) = (3.2)_{4,2}$ $\quad$ $D((3.2)_{2,4}) = (2.3)_{4,2}$
$E((3.3)_{2,3,4}) = (3.3)_{4,3,2}$ $\quad$ $D((3.3)_{2,3,4}) = (3.3)_{4,3,2}$

4. For outer semiotic environments, we follow Bense (1975, pp. 97 ss.). Therefore, every sub-sign (a.b) can be embedded into an application relation depending on the value of its trichotomy (.b). Because we stick with the semiotic inclusion order that every sign class (3.a 2.b 1.c) must obey the order ($a \leq b \leq c$), it follows, that, if (.b) = 1, we have 3 application relations, if (.b) = 2, we have 2 application relations, and, if (.b) = 3, we have 1 application relation. In the following, we show that, for every application relation, we can establish a system of 4 outer semiotic environments on the basis of Bense's pragmatic retrosemioses:

$U((1.1)_{1,3,4}) = (((3.1)_{3,4}) \Rightarrow (1.1)_{4,3,1}))$
$U((1.1)_{1,3,4}) = (((3.1)_{4,3}) \Rightarrow (1.1)_{4,3,1}))$

$U((1.1)_{4,3,1}) = (((3.1)_{3,4}) \Rightarrow (1.1)_{1,3,4}))$
$U((1.1)_{4,3,1}) = (((3.1)_{4,3}) \Rightarrow (1.1)_{1,3,4}))$

5. For the dual reality thematics of each sign class, we therefore get the following system of 4 outer semiotic environments:

$UD((1.1)_{1,3,4}) = (((1.3)_{4,3}) \Rightarrow (1.1)_{4,3,1}))$
$UD((1.1)_{1,3,4}) = (((1.3)_{3,4}) \Rightarrow (1.1)_{4,3,1}))$

$UD((1.1)_{4,3,1}) = (((1.3)_{4,3}) \Rightarrow (1.1)_{1,3,4}))$
$UD((1.1)_{4,3,1}) = (((1.3)_{3,4}) \Rightarrow (1.1)_{1,3,4}))$

6. We can finally ask if it makes sense to introduce, besides UD, the notion of the outer semiotic environment of an inner semiotic environment, UE. In doing so, we get

$UE((1.1)_{1,3,4}) = (((3.1)_{3,4}) \Rightarrow (1.1)_{4,3,1}))$
$UE((1.1)_{1,3,4}) = (((3.1)_{4,3}) \Rightarrow (1.1)_{4,3,1}))$

$UE((1.1)_{4,3,1}) = (((3.1)_{3,4}) \Rightarrow (1.1)_{1,3,4}))$
$UE((1.1)_{4,3,1}) = (((3.1)_{4,3}) \Rightarrow (1.1)_{1,3,4})).$

As we reciognize easily, it is

$UE((a.b)_{i,jk/\varnothing}) = U((a.b)_{i,jk/\varnothing})$ $(i, j, k \in \{1, 2, 3, 4\})$

This is quite an astonishing result, which we will formulate in the following semiotic theorem:

Theorem: The inner semiotic environment is already produced by the outer semiotic environment.

7. So far, we have seen that the contextural "index" of a sub-sign (a.b) in 4 contextures

$(a.b.c)_{i,jk/\varnothing}$ $(i, j, k \in \{1, 2, 3, 4\})$

is either

i, j, k ("morphismic form")

or

k, j, i ("heteromorphismic form")

The heteromorphismic form appears, when a sub-sign is operated by operators E and D.

Obviously, for binary "indices" (i, k), (k, i), E and D as semiotic operators are sufficient. However, what is the semiotic meaning of the 6 possible permutations of the ternary "indices" (i, k, k):

1. (i, j, k)
2. (i, k, j)
3. (j, i, k)
4. (j, k, i)
5. (k, i, j)
6. (k, j, i)

Besides (i, j, k) and (k, j, i) we have

2. (i, k, j) which corresponds to the semiotic order of the prime-signs (M, I, O). This order corresponds to the semiotic creation schema introduced by Peirce (cf. Peirce 1976) an formalized by Bense (1976, pp. 110 ss.).

3. (j, i, k) which corresponds to the semiotic order of the prime-signs (O, M, I). This order corresponds to the semiotic communication schema introduced by Bense (1971, pp. 38 ss.) which O corresponding to the sender, M to the channel and I to the receiver of an elementary communication schema.

4. (j, k, i) which corresponds to the semiotic order of the prime-signs (O, I, M). This is the reality thematics of the semiotic creation schema (i, k, j).

5. (k, i, j) which corresponds to the semiotic order of the prime-signs (I, M, O). This is the reality thematics of the semiotic communication schema (j, i, k).

Therefore, all 6 order of the polycontextural-semiotic "indices" have a clear pragmatic definition. Thus, we can state that while

SR(M, O, I) = <[1,3,4], [1,2,4], [2,3,4])>

is the generativ-semiosic order of the sign relation (M, O, I) and

SR(M, O, I)° = <[4,3,2], [4,2,1], [4,3,1]>

ist the respective order of the dual reality thematics (I, O, M),

semiotic communication schemata can be assigned to the following two ordered sets of polycontextural-semiotic "indices"

SR(O, M, I) = <[1,2,4], [1,3,4], [2,3,4]>

SR(O, M, I)° = <[4,3,2], [4,3,1], [4,2,1]>,

and semiotic creation schemata can be assigned to

SR(M, I, O) = <[1,3,4], [2,3,4], [1,2,4]>

SR(M, I, O)° = <[4,2,1], [4,3,2], [4,3,1]>

Therefore, taking the notion of semiotic environment in its biggest possible sense, we can state that communication and creation are just special forms of environment structures of the sign model rather than practical application of cybernetic systems onto semiotics.

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