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Representation classes of contextural orders

1. As it is known, in changing from the monocontextural Peircean sign schema to the n-contextural 3-triadic polycontextural sign schema, both the abstract sign relation and its order type remain unchanged:

$SR(3) = (3.a_{i,j,}\ 2.b_{i,j,}\ 1.c_{i,j,})$, with $a \leq b \leq c$

When we have a look at the corresponding 3-contextural matrix

$$\begin{pmatrix} 1.1_{1,3} & 1.2_{1} & 1.3_{3} \\ 2.1_{1} & 2.2_{1,2} & 2.3_{2} \\ 3.1_{3} & 3.2_{2} & 3.3_{2,3} \end{pmatrix}$$

we find the following connections between trichotomic order an contextural numbers:

$$\boxed{\begin{array}{ccccccccccc} & \nearrow & (2.1) & & & & & & & & \\ (3.1) & \rightarrow & (2.2) & & (3.2) & \rightarrow & (2.2) & & (3.3) & & \\ & \searrow & (2.3) & & & \searrow & (2.3) & & & \searrow & (2.3) \end{array}}$$

$$\boxed{\begin{array}{ccccccccccc} & \nearrow & (1) & & & & & & & & \\ (3) & \rightarrow & (1,2) & & (2) & \rightarrow & (1,2) & & (2,3) & & \\ & \searrow & (2) & & & \searrow & (2) & & & \searrow & (2) \end{array}}$$

$$\boxed{\begin{array}{ccccccccccc} & \nearrow & (1.1) & & & & & & & & \\ (2.1) & \rightarrow & (1.2) & & (2.2) & \rightarrow & (1.2) & & (2.3) & & \\ & \searrow & (1.3) & & & \searrow & (1.3) & & & \searrow & (1.3) \end{array}}$$

$$\begin{array}{ccccccccccc} & \nearrow & (1,3) & & & & & & & & \\ (1) & \rightarrow & (1) & & (1,2) & \rightarrow & (1) & & (2) & & \\ & \searrow & (3) & & & \searrow & (1) & & & \searrow & (1) \end{array}$$

despite (1) → (1,3), the contextural numbers get smaller with increasing trichotomical values of the interpretant and the object relations (from which we construct sign classes either by union of dyadic semioses or via matching conditions, if they are polycontextural).

2. If we now have a look at the (3^3 –10 =) 17 remaining sign classes we get, if we abolish the inclusive order restriction:

$(3.1_{3}\ 2.2_{1,2}\ 1.1_{1,3}) \quad \rightarrow [3\text{-}1,2\text{-}1,3]$
$(3.1_{3}\ 2.3_{2}\ 1.1_{1,3}) \quad \rightarrow [3\text{-}2\text{-}1,3]$
$(3.1_{3}\ 2.3_{2}\ 1.2_{1}) \quad \rightarrow [3\text{-}2\text{-}1]$
$(3.2_{2}\ 2.1_{1}\ 1.1_{1,3}) \quad \rightarrow [2\text{-}1\text{-}1,3]$
$(3.2_{2}\ 2.1_{1}\ 1.2_{1}) \quad \rightarrow [2\text{-}1\text{-}1]$
$(3.2_{2}\ 2.1_{1}\ 1.3_{1,3}) \quad \rightarrow [2\text{-}1\text{-}1,3]$
$(3.2_{2}\ 2.2_{1,2}\ 1.1_{1,3}) \quad \rightarrow [2\text{-}1,2\text{-}1,3]$
$(3.2_{2}\ 2.3_{2}\ 1.1_{1,3}) \quad \rightarrow [2\text{-}2\text{-}1,3]$
$(3.2_{2}\ 2.3_{2}\ 1.2_{1}) \quad \rightarrow [2\text{-}2\text{-}1]$
$(3.2_{2}\ 2.3_{2}\ 1.1_{1,3}) \quad \rightarrow [2\text{-}2\text{-}1,3]$
$(3.2_{2}\ 2.3_{2}\ 1.2_{1}) \quad \rightarrow [2\text{-}2\text{-}1]$
$(3.3_{2,3}\ 2.1_{1}\ 1.1_{1,3}) \quad \rightarrow [2,3\text{-}1\text{-}1,3]$
$(3.3_{2,3}\ 2.1_{1}\ 1.2_{1}) \quad \rightarrow [2,3\text{-}1\text{-}1]$
$(3.3_{2,3}\ 2.1_{1}\ 1.3_{1,3}) \quad \rightarrow [2,3\text{-}1\text{-}1,3]$
$(3.3_{2,3}\ 2.2_{1,2}\ 1.1_{1,3}) \quad \rightarrow [2,3\text{-}1,2\text{-}1,3]$
$(3.3_{2,3}\ 2.3_{2}\ 1.1_{1,3}) \quad \rightarrow [2,3\text{-}2\text{-}1,3]$
$(3.3_{2,3}\ 2.3_{2}\ 1.2_{1}) \quad \rightarrow [2,3\text{-}2\text{-}1]$,

we see that the classes of contextural orders are just complementary to those of the regular sign classes.

However, if we also recognize that in a matrix the converse sub-signs have the same contextural indices ($(a.b)_{i,j}{}^{\circ} = (a.b)_{i,j}$), but that the order of the sub-signs in a sign class also makes it clear, which triadic value we have at certain position (i.e., e.g., a legi-sign (1.3) or an index ((1.3)° = (3.1)), we can say that the system of all possible 27 3-adic sign classes can be represented by classes of contextural orders in a non-ambiguous way. Since the same is true for sign classes and reality thematics which can be written by using environments alone, e.g.

(3-1-1,3) = (3.1 2.1 1.1)
(3-1-1) = (3.1 2.1 1.2)
(3-1-3) = (3.1 2.1 1.3), etc.

(3,1-1-3) = (1.1 1.2 1.3)
(1-1-3) = (2.1 1.2 1.3)
(3-1-3) = (3.1 1.2 1.3), etc.,

we can say that inner semiotic environements (i.e. contextural indices) are representing every semiotic relation, starting with K = 3.

Bibliography

Toth, Alfred, New elements of theoretical semiotics (NETS), based on the work of Rudolf Kaehr. In: Electronic Journal for Mathematical Semiotics, http://www.mathematical-semiotics.com/pdf/NETS1.pdf (2009)

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