Prof. Dr. Alfred Toth

Matching conditions for fundamental categories

1. In Toth (2008, pp. 20 ss., pp. 51 ss.), I have given extensive lists of matching conditions of pairs of triadic sign relations. However, all these examples are monocontextural. Meanwhile, Rudolf Kaehr has added polycontextural matching conditions (Kaehr 2009). In the present article, I will suggest as a third possibility matching conditions for fundamental categories based on contextural values introduced in Toth (2009).

2. If we start with the 3-contextural 3×3 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 recognize that we can write this matrix as a matrix of the contextural values of the respective sub-signs

$$\begin{pmatrix} 4 & 1 & 3 \\ 1 & 3 & 2 \\ 3 & 2 & 5 \end{pmatrix}$$

Therefore, we get

$M(1.2) = O^{+1}(2.3)$ $\quad$ $O(2.3) = M^{-1}(1.2)$
$M(1.2) = I^{+1}(3.2)$ $\quad$ $I(3.2) = M^{-1}(1.2)$
$M(1.2) = M^{+2}(1.3)$ $\quad$ $M(1.3) = M^{-2}(1.2)$
$M(1.2) = I^{+2}(3.1)$ $\quad$ $I(3.1) = M^{-2}(1.2)$
$M(1.2) = M^{+3}(1.1)$ $\quad$ $M(1.1) = M^{-3}(1.2)$
$M(1.2) = I^{+4}(3.3)$ $\quad$ $I(3.3) = M^{-4}(1.2)$

$O(2.3) = M^{+1}(1.3)$ $M(1.3) = O^{-1}(2.3)$
$O(2.3) = O^{+1}(2.2)$ $O(2.2) = O^{-1}(2.3)$
$O(2.3) = I^{+1}(3.1)$ $I(3.1) = O^{-1}(2.3)$
$O(2.3) = M^{+2}(1.1)$ $M(1.1) = O^{-2}(2.3)$
$O(2.3) = I^{+3}(3.3)$ $I(3.3) = O^{-3}(2.3)$

$M(1.3) = M^{+1}(1.1)$ $M(1.1) = M^{-1}(1.3)$
$M(1.3) = I^{+2}(3.3)$ $I(3.3) = M^{-2}(1.3)$

$M(1.3) = M^{+1}(1.1)$ $M(1.1) = M^{-1}(1.3)$
$M(1.3) = I^{+2}(3.3)$ $I(3.3) = M^{-2}(1.3)$

$M(1.1) = I^{+1}(3.3)$ $I(3.3) = M^{-1}(1.1)$

Moreover, we have the following identities of contextural values

$M(2.3) = I(3.2)$
$M(1.3) = O(2.2) = I(3.1)$

Thus, the main diagonal of the 3-contextural 3×3 matrix consists of three times the same contextural values – just as the respective matrix of the numerical prime-signs consists of three times the same representation values.

3. For the 4-contextural 3×3 matrix

$$\begin{pmatrix} 1.1_{1,3,4} & 1.3_{1,4} & 1.4_{3,4} \\ 3.1_{1,4} & 3.3_{1,2,4} & 3.4_{2,4} \\ 4.1_{3,.4} & 4.3_{2,4} & 4.4_{2,3,4} \end{pmatrix}$$

we get exactly the same times of matching conditions, since the contextural values differ from those of the 3-contextural 3×3 matrix just by adding +4 to each contextural value. Therefore, contextural values are not only independent of all kinds of transpositions of a semiotic matrix and thus of dualization and permutation, but they are also independent of embedding a n-contextural m×m-matrix into any n+k m×m-matrix ($k \geq 1$).

Bibliography

Kaehr, Rudolf, Interactional operators in diamond semiotics. http://www.thinkartlab.com/pkl/lola/Transjunctional%20Semiotics/Transjunctional%20Semiotics.pdf (2009)

Toth, Entwurf einer allgemeinen Zeichengrammatik. Klagenfurt 2008

Toth, Alfred, Semiotic contextural values. In: Electronic Journal for Mathematical Semiotics, http://www.mathematical-semiotics.com/pdf/NETS7.pdf (2009)

17.3.2009