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Contextural operations on sub-signs

1. As Kronthaler (1986, pp. 36 ss.) and Toth (2003, pp. 36 ss.) have shown extensively, there are two kinds of operators on qualitative numbers: intra- and inter- (or trans-) operators. Intra-operators work inside of a contexture, inter-operators between contextures. As it is known from elementary semiotic arithmetic, sub-signs can be changed by adding the unit of a representation value (Rpv) to either the triadic or the trichotomic value. Thus, by simple addition or subtraction of Rpv = 1, one can produce the complete semiotic matrix, f. ex.

$(1.1) + (0.1) = (1.2)$; $(1.1) + (1.0) = (2.1)$; $(1.1) + (1.1) + (1.0) = (3.2)$, etc.

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

2. Changing sub-signs by addition of Cv = +1

$$
\begin{array}{ccc}
1.1_{1,3} & 1.2_{1} & 1.3_{3} \\
+1,0 & +1,0 & +1,0 \\
\hline
1.1_{2,3} & 1.2_{2} & 1.3_{4}
\end{array}
$$

(1.1) is now in the contextures of (3.3), (1.2) in the contexture of (2.3/3.4). The contexture of (1.3) is not defined over 3-cont. SR.

$$2.1_1 \qquad 2.2_{1,2} \qquad 2.3_2$$

$$+1,0 \qquad +1,0 \qquad +1,0$$

$$2.1_2 \qquad 2.2_{2,2} \qquad 2.3_4$$

(2.1) belongs now to the contexture of (2.3/3.2). (2.2) is excluded, since contextuated sub-signs cannot be self-referential! The new contexture of (2.3) is not defined over 3-cont. SR.

$$3.1_3 \qquad 3.2_2 \qquad 3.3_{2,3}$$

$$+1,0 \qquad +1,0 \qquad +1,0$$

$$3.1_4 \qquad 3.2_3 \qquad 3.3_{3,3}$$

The new contexture of (3.1) is not defined over 3-cont. SR. (3.2) is now in the contexture von (1.3/3.1). (3.3) would be again a case, where a sub-sign – in contrast with the abolishment of the logical law of identity – could be self-indentical.

2. Changing sub-signs by subtraction of Cv = +1

$$1.1_{1,3} \qquad 1.2_1 \qquad 1.3_3$$

$$-1,0 \qquad -1,0 \qquad -1,0$$

$$1.1_{0,3} \qquad 1.2_0 \qquad 1.3_2$$

(1.1) is now in the contextures of (1.3/3.1), (1.2) in the contexture 0, which is not defined. (1.3) is now in the constructure (1.2/2.1).

$$2.1_1 \qquad 2.2_{1,2} \qquad 2.3_2$$

$$-1{,}0 \qquad -1{,}0 \qquad -1{,}0$$

$$2.1_0 \qquad 2.2_{0,2} \qquad 2.3_1$$

A contexture 0 is not defined. $(2.2)_2$ is excluded, since identitive morphisms must have at least two (different) indices. (2.3) is not in the contexture of (1.2/2.1).

$$3.1_3 \qquad 3.2_2 \qquad 3.3_{2,3}$$

$$-1{,}0 \qquad -1{,}0 \qquad -1{,}0$$

$$3.1_2 \qquad 3.2_1 \qquad 3.3_{1,3}$$

(3.1) is now in the contexture of (2.3/(3.2), (3.2) in the contexture of (1.2/2.1), and (3.3) is in the contexture of (1.1).

As one sees, by simple addition or subtraction, one can reach any other of the several n-contextural matrices (cf. Toth 2009).

Bibliography

Kronthaler, Engelbert, Grundlegung einer Mathematik der Qualitäten. Frankfurt am Mein 1986

Toth, Alfred Die Hiochzeit von Semiotik und Struktur. Klagenfurt 2003

Toth, Alfred, Polycontextual matrices. In: Electronic Journal for Mathematial Semiotics, http://www.mathematical-semiotics.com/pdf/Polycont.%20matr..pdf (2009)

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