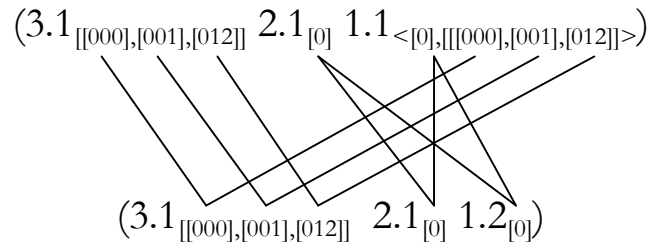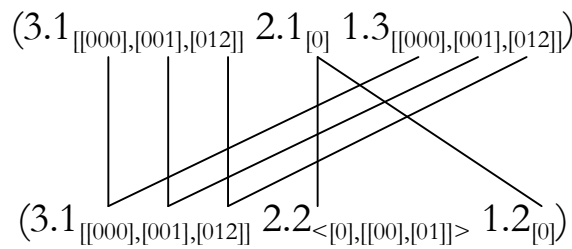# Prof. Dr. Alfred Toth

Connections of qualitative numbers in polycontextural sign classes

This article continues Toth (2009a, b). Since in qualitative mathematical systems, there are no set inclusions, but morphogrammatic fragments (Kronthaler 1986, Toth 2003), we show in this little contribution the connections between the successive pairs of the 10 Peircean sign classes in contexture C = 3 in trito-structure.
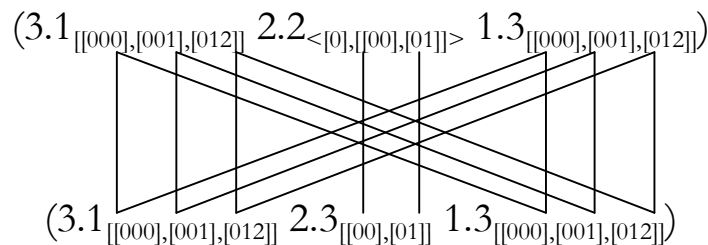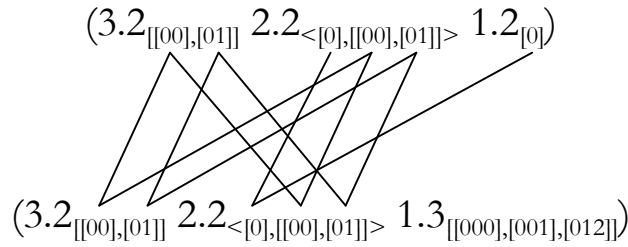
1st/2nd sign class

$$(3.1_{[[000],[001],[012]]} \quad 2.1_{[0]} \quad 1.1_{<[0],[[[000],[001],[012]]]>})$$

$$(3.1_{[[000],[001],[012]]} \quad 2.1_{[0]} \quad 1.2_{[0]})$$

3rd/4th sign class

$$(3.1_{[[000],[001],[012]]} \quad 2.1_{[0]} \quad 1.3_{[[000],[001],[012]]})$$

$$(3.1_{[[000],[001],[012]]} \quad 2.2_{<[0],[[00],[01]]>} \quad 1.2_{[0]})$$

5th/6th sign class

$$(3.1_{[[000],[001],[012]]} \quad 2.2_{<[0],[[00],[01]]>} \quad 1.3_{[[000],[001],[012]]})$$

$$(3.1_{[[000],[001],[012]]} \quad 2.3_{[[00],[01]]} \quad 1.3_{[[000],[001],[012]]})$$

7th/8th sign class

7th/8th sign class

$$(3.2_{[[00],[01]]} \quad 2.2_{<[0],[[00],[01]]>} \quad 1.2_{[0]})$$

$$(3.2_{[[00],[01]]} \quad 2.2_{<[0],[[00],[01]]>} \quad 1.3_{[[000],[001],[012]]})$$

9th/10th sign class

$$(3.2_{[[00],[01]]} \quad 2.3_{[[00],[01]]} \quad 1.3_{[[000],[001],[012]]})$$

$$(3.3_{<[[00],[01], \ [[000],[001],[012]]>} \quad 2.3_{[[00],[01]]} \quad 1.3_{[[000],[001],[012]]})$$
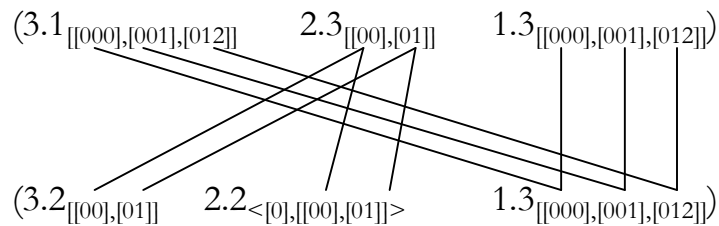
Especially, we also want to look at possible connections between the 6th and the 7th sign class, since we had found in Toth (2008) that there are neither static nor dynamic connections:

6th/7th sign class

(3.1   2.3   1.3)
∅   ∅   ∅
(3.2   2.2   1.3),

but now look at the connections via qualitative numbers:

$$(3.1_{[[000],[001],[012]]} \quad 2.3_{[[00],[01]]} \quad 1.3_{[[000],[001],[012]]})$$

$$(3.2_{[[00],[01]]} \quad 2.2_{<[0],[[00],[01]]>} \quad 1.3_{[[000],[001],[012]]})$$

Thus, qualitative (proto-, deutero-, trito-) numbers inherent in polycontextural sign establish a network between sign relations that is otherwise inaccessible.

Still note that [00] and [01] are the truth-value functions of classical logic. Moreover, these logical connections are at the same time, of course, semiotic connections. One could therefore say that semiotic connections between qualitative numbers are, depending on the respective contextures (2, 3, 4, ...) , at the same logical (2-, 3-, 4-valued) connections.

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