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Bond structures of sign classes

1. In Toth (2008b), it was shown that the sign relation shows similar bond phenomena like the atom thus. Therefore, we differentiated between monadic, dyadic and triadic semiotic bond structures. In the following contribution, we shall deal exclusively with bond structures of sign classes. The first part is dedicated to bonds between different sign classes, and the second part deals with bonds between transpositions of the same sign class.

2. First, we shall have a look at bonds between different sign classes. For the following overview, we shall refer to the below numbering of the 10 sign classes:

1 (3.1 2.1 1.1)
2 (3.1 2.1 1.2)
3 (3.1 2.1 1.3)
4 (3.1 2.2 1.2)
5 (3.1 2.2 1.3)
6 (3.1 2.3 1.3)
7 (3.2 2.2 1.2)
8 (3.2 2.2 1.3)
9 (3.2 2.3 1.3)
10 (3.3 2.3 1.3)

If we skip the trivial cases of the combination of a sign class with itself, we get the following combinatorial possibilities:

1/2 = 2; 1/3 = 2; 1/4 = 1; 1/5 = 1; 1/6 = 1; 1/7 = 0; 1/8 = 0; 1/9 = 0; 1/10 = 0
2/3 = 2; 2/4 = 2; 2/5 = 1; 2/6 = 1; 2/7 = 1; 2/8 = 0; 2/9 = 0; 2/10 = 0
3/4 = 1; 3/5 = 2; 3/6 = 2; 3/7 = 0; 3/8 = 1; 3/9 = 1; 3/10 = 1
4/5 = 2; 4/6 = 1; 4/7 = 2; 4/8 = 1; 4/9 = 0; 4/10 = 0
5/6 = 2; 5/7 = 1; 5/8 = 2; 5/9 = 1; 5/10 = 1
6/7 = 0; 6/8 = 1; 6/9 = 2; 6/10 = 2
7/8 = 2; 7/9 = 1; 7/10 = 0
8/9 = 2; 8/10 = 1
9/10 = 2

Thus, the semiotic valency can take the values 0, 1 or 2. Now, we will show the semiotic bonds, referring to the semiotic valency (SV) of the pairs of sign classes and indicating if the bound sub-signs are adjacent or not:

1/2 = (3.1 2.1 1.1) / (3.1 2.1 1.2)	SV = 2	adjacent
1/3 = (3.1 2.1 1.1) / (3.1 2.1 1.3)	SV = 2	adjacent
1/4 = (3.1 2.1 1.1) / (3.1 2.2 1.2)	SV = 1	-
1/5 = (3.1 2.1 1.1) / (3.1 2.2 1.3)	SV = 1	-
1/6 = (3.1 2.1 1.1) / (3.1 2.3 1.3)	SV = 1	-

1/7 = (3.1 2.1 1.1) / (3.2 2.2 1.2)	SV = 0	-
1/8 = (3.1 2.1 1.1) / (3.2 2.2 1.3)	SV = 0	-
1/9 = (3.1 2.1 1.1) / (3.2 2.3 1.3)	SV = 0	-
1/10 = (3.1 2.1 1.1) / (3.3 2.3 1.3)	SV = 0	-
2/3 = (3.1 2.1 1.2) / (3.1 2.1 1.3)	SV = 2	adjacent
2/4 = (3.1 2.1 1.2) / (3.1 2.2 1.2)	SV = 2	non-adjacent
2/5 = (3.1 2.1 1.2) / (3.1 2.2 1.3)	SV = 1	-
2/6 = (3.1 2.1 1.2) / (3.1 2.3 1.3)	SV = 1	-
2/7 = (3.1 2.1 1.2) / (3.2 2.2 1.2)	SV = 1	-
2/8 = (3.1 2.1 1.2) / (3.2 2.2 1.3)	SV = 0	-
2/9 = (3.1 2.1 1.2) / (3.2 2.3 1.3)	SV = 0	-
2/10 = (3.1 2.1 1.2) / (3.3 2.3 1.3)	SV = 0	-
3/4 = (3.1 2.1 1.3) / (3.1 2.2 1.2)	SV = 1	
3/5 = (3.1 2.1 1.3) / (3.1 2.2 1.3)	SV = 2	non-adjacent
3/6 = (3.1 2.1 1.3) / (3.1 2.3 1.3)	SV = 2	non-adjacent
3/7 = (3.1 2.1 1.3) / (3.2 2.2 1.2)	SV = 0	-
3/8 = (3.1 2.1 1.3) / (3.2 2.2 1.3)	SV = 1	-
3/9 = (3.1 2.1 1.3) / (3.2 2.3 1.3)	SV = 1	-
3/10 = (3.1 2.1 1.3) / (3.3 2.3 1.3)	SV = 1	-
4/5 = (3.1 2.2 1.2) / (3.1 2.2 1.3)	SV = 2	adjacent
4/6 = (3.1 2.2 1.2) / (3.1 2.3 1.3)	SV = 1	-
4/7 = (3.1 2.2 1.2) / (3.2 2.2 1.2)	SV = 2	adjacent
4/8 = (3.1 2.2 1.2) / (3.2 2.2 1.3)	SV = 1	-
4/9 = (3.1 2.2 1.2) / (3.2 2.3 1.3)	SV = 0	-
4/10 = (3.1 2.2 1.2) / (3.3 2.3 1.3)	SV = 0	-
5/6 = (3.1 2.2 1.3) / (3.1 2.3 1.3)	SV = 2	non-adjacent
5/7 = (3.1 2.2 1.3) / (3.2 2.2 1.2)	SV = 1	-
5/8 = (3.1 2.2 1.3) / (3.2 2.2 1.3)	SV = 2	adjacent
5/9 = (3.1 2.2 1.3) / (3.2 2.3 1.3)	SV = 1	-
5/10 = (3.1 2.2 1.3) / (3.3 2.3 1.3)	SV = 1	-
6/7 = (3.1 2.3 1.3) / (3.2 2.2 1.2)	SV = 0	-
6/8 = (3.1 2.3 1.3) / (3.2 2.2 1.3)	SV = 1	-
6/9 = (3.1 2.3 1.3) / (3.2 2.3 1.3)	SV = 2	adjacent
6/10 = (3.1 2.3 1.3) / (3.3 2.3 1.3)	SV = 2	adjacent
7/8 = (3.2 2.2 1.2) / (3.2 2.2 1.3)	SV = 2	adjacent
7/9 = (3.2 2.2 1.2) / (3.2 2.3 1.3)	SV = 1	-
7/10 = (3.2 2.2 1.2) / (3.3 2.3 1.3)	SV = 0	-
8/9 = (3.2 2.2 1.3) / (3.2 2.3 1.3)	SV = 2	non-adjacent
8/10 = (3.2 2.2 1.3) / (3.3 2.3 1.3)	SV = 1	-
9/10 = (3.2 2.3 1.3) / (3.3 2.3 1.3)	SV = 2	adjacent

Further, we may group our results into the following 4 blocks of semiotic bonds: strong semiotic bonds (SV = 2; adjacent), weaker semiotic bonds (SV = 2; non-adjacent), weak semiotic bonds (SV = 1), and semiotic zero-bonds (SV = 0):

Strong semiotic bonds:

1/2 = (3.1 2.1 1.1) / (3.1 2.1 1.2)	SV = 2	adjacent
1/3 = (3.1 2.1 1.1) / (3.1 2.1 1.3)	SV = 2	adjacent
2/3 = (3.1 2.1 1.2) / (3.1 2.1 1.3)	SV = 2	adjacent
4/5 = (3.1 2.2 1.2) / (3.1 2.2 1.3)	SV = 2	adjacent
4/7 = (3.1 2.2 1.2) / (3.2 2.2 1.2)	SV = 2	adjacent
5/8 = (3.1 2.2 1.3) / (3.2 2.2 1.3)	SV = 2	adjacent
6/9 = (3.1 2.3 1.3) / (3.2 2.3 1.3)	SV = 2	adjacent
6/10 = (3.1 2.3 1.3) / (3.3 2.3 1.3)	SV = 2	adjacent
7/8 = (3.2 2.2 1.2) / (3.2 2.2 1.3)	SV = 2	adjacent
9/10 = (3.2 2.3 1.3) / (3.3 2.3 1.3)	SV = 2	adjacent

Weaker semiotic bonds:

2/4 = (3.1 2.1 1.2) / (3.1 2.2 1.2)	SV = 2	non-adjacent
3/5 = (3.1 2.1 1.3) / (3.1 2.2 1.3)	SV = 2	non-adjacent
3/6 = (3.1 2.1 1.3) / (3.1 2.3 1.3)	SV = 2	non-adjacent
5/6 = (3.1 2.2 1.3) / (3.1 2.3 1.3)	SV = 2	non-adjacent
8/9 = (3.2 2.2 1.3) / (3.2 2.3 1.3)	SV = 2	non-adjacent

Weak semiotic bonds:

1/4 = (3.1 2.1 1.1) / (3.1 2.2 1.2)	SV = 1	-
1/5 = (3.1 2.1 1.1) / (3.1 2.2 1.3)	SV = 1	-
1/6 = (3.1 2.1 1.1) / (3.1 2.3 1.3)	SV = 1	-
2/5 = (3.1 2.1 1.2) / (3.1 2.2 1.3)	SV = 1	-
2/6 = (3.1 2.1 1.2) / (3.1 2.3 1.3)	SV = 1	-
2/7 = (3.1 2.1 1.2) / (3.2 2.2 1.2)	SV = 1	-
3/4 = (3.1 2.1 1.3) / (3.1 2.2 1.2)	SV = 1	
3/8 = (3.1 2.1 1.3) / (3.2 2.2 1.3)	SV = 1	-
3/9 = (3.1 2.1 1.3) / (3.2 2.3 1.3)	SV = 1	-
3/10 = (3.1 2.1 1.3) / (3.3 2.3 1.3)	SV = 1	-
4/6 = (3.1 2.2 1.2) / (3.1 2.3 1.3)	SV = 1	-
4/8 = (3.1 2.2 1.2) / (3.2 2.2 1.3)	SV = 1	-
5/7 = (3.1 2.2 1.3) / (3.2 2.2 1.2)	SV = 1	-
5/9 = (3.1 2.2 1.3) / (3.2 2.3 1.3)	SV = 1	-
5/10 = (3.1 2.2 1.3) / (3.3 2.3 1.3)	SV = 1	-
6/8 = (3.1 2.3 1.3) / (3.2 2.2 1.3)	SV = 1	-
7/9 = (3.2 2.2 1.2) / (3.2 2.3 1.3)	SV = 1	-
8/10 = (3.2 2.2 1.3) / (3.3 2.3 1.3)	SV = 1	-

No semiotic bonds:

1/7 = (3.1 2.1 1.1) / (3.2 2.2 1.2) SV = 0 -
1/8 = (3.1 2.1 1.1) / (3.2 2.2 1.3) SV = 0 -
1/9 = (3.1 2.1 1.1) / (3.2 2.3 1.3) SV = 0 -
1/10 = (3.1 2.1 1.1) / (3.3 2.3 1.3) SV = 0 -
2/8 = (3.1 2.1 1.2) / (3.2 2.2 1.3) SV = 0 -
2/9 = (3.1 2.1 1.2) / (3.2 2.3 1.3) SV = 0 -
2/10 = (3.1 2.1 1.2) / (3.3 2.3 1.3) SV = 0 -
3/7 = (3.1 2.1 1.3) / (3.2 2.2 1.2) SV = 0 -
4/9 = (3.1 2.2 1.2) / (3.2 2.3 1.3) SV = 0 -
4/10 = (3.1 2.2 1.2) / (3.3 2.3 1.3) SV = 0 -
6/7 = (3.1 2.3 1.3) / (3.2 2.2 1.2) SV = 0 -
7/10 = (3.2 2.2 1.2) / (3.3 2.3 1.3) SV = 0 -

3. Now, we shall turn our attention to bonds between transpositions of sign classes. As a representative example, we take the sign class (3.1 2.1 1.3). We will group all possible combinations of transpositions in the following three blocks: Combinations of transpositions amongst themselves (3.1), combinations of dual transpositions amongst themselves (3.2), and combinations of transpositions and dual transpositions (3.3). With straight underlining we mark bonds between sub-signs or pairs of sub-signs in the same order, with dotted underlining bonds between pairs of sub-signs in reverse order. Adjacency is marked by through underlining of sub-signs, while the weaker form of adjacency, which we call "neighborhood" is marked by non-through underlining. Thus, not only the quality of the sub-signs counts but their places, too, and we are not surprised that there are bonds between sub-signs that stand in different corresponding places. Some combinations have bond variations, which we shall list specially.

3.1. Transpositions vs. transpositions (SV = const. = 3):

(3.1 2.1 1.3) / (3.1 1.3 2.1)
(3.1 2.1 1.3) / (2.1 3.1 1.3)
(3.1 2.1 1.3) / (2.1 1.3 3.1)
(3.1 2.1 1.3) / (1.3 3.1 2.1)
(3.1 2.1 1.3) / (1.3 2.1 3.1) (3.1 2.1 1.3) / (1.3 2.1 3.1)

(3.1 1.3 2.1) / (2.1 3.1 1.3)
(3.1 1.3 2.1) / (2.1 1.3 3.1) (3.1 1.3 2.1) / (2.1 1.3 3.1)
(3.1 1.3 2.1) / (1.3 3.1 2.1)
(3.1 1.3 2.1) / (1.3 2.1 3.1)

(2.1 3.1 1.3) / (2.1 1.3 3.1)
(2.1 3.1 1.3) / (1.3 3.1 2.1) (2.1 3.1 1.3) / (1.3 3.1 2.1)
(2.1 3.1 1.3) / (1.3 2.1 3.1)

(2.1 1.3 3.1) / (1.3 3.1 2.1)
(2.1 1.3 3.1) / (1.3 2.1 3.1)

(1.3 3.1 2.1) / (1.3 2.1 3.1)

3.2. Dual transpositions vs. dual transpositions (SV = const. = 3):

(3.1 1.2 1.3) / (1.2 3.1 1.3)
(3.1 1.2 1.3) / (3.1 1.3 1.2)
(3.1 1.2 1.3) / (1.3 3.1 1.2)
(3.1 1.2 1.3) / (1.2 1.3 3.1)
(3.1 1.2 1.3) / (1.3 1.2 3.1) (3.1 1.2 1.3) / (1.3 1.2 3.1)

(1.2 3.1 1.3) / (3.1 1.3 1.2)
(1.2 3.1 1.3) / (1.3 3.1 1.2) (1.2 3.1 1.3) / (1.3 3.1 1.2)
(1.2 3.1 1.3) / (1.2 1.3 3.1)
(1.2 3.1 1.3) / (1.3 1.2 3.1)

(3.1 1.3 1.2) / (1.3 3.1 1.2)
(3.1 1.3 1.2) / (1.2 1.3 3.1) (3.1 1.3 1.2) / (1.2 1.3 3.1)
(3.1 1.3 1.2) / (1.3 1.2 3.1)

(1.3 3.1 1.2) / (1.2 1.3 3.1)
(1.3 3.1 1.2) / (1.3 1.2 3.1)

(1.2 1.3 3.1) / (1.3 1.2 3.1)

3.3. Transpositions vs. dual transpositions (SV = const. = 2):

(3.1 2.1 1.3) / (1.2 3.1 1.3) non-adjacent/
(3.1 2.1 1.3) / (3.1 1.3 1.2) non-adjacent/neighboring
(3.1 2.1 1.3) / (1.3 3.1 1.2) non-adjacent/neighboring
(3.1 2.1 1.3) / (1.2 1.3 3.1) non-adjacent/neighboring
(3.1 2.1 1.3) / (1.3 1.2 3.1) non-adjacent/non-adjacent

(3.1 1.3 2.1) / (3.1 1.3 1.2) adjacent/adjacent
(3.1 1.3 2.1) / (1.3 3.1 1.2) adjacent/inverse-adjacent
(3.1 1.3 2.1) / (1.2 1.3 3.1) adjacent/inverse-adjacent
(3.1 1.3 2.1) / (1.3 1.2 3.1) neighboring/inverse-non adjacent

(2.1 3.1 1.3) / (1.3 3.1 1.2) adjacent/inverse-adjacent
(2.1 3.1 1.3) / (1.2 1.3 3.1) adjacent/inverse-adjacent
(2.1 3.1 1.3) / (1.3 1.2 3.1) neighboring/inverse-non adjacent

(2.1 1.3 3.1) / (1.2 1.3 3.1) adjacent/adjacent
(2.1 1.3 3.1) / (1.3 1.2 3.1) neighboring/non-adjacent

(1.3 3.1 2.1) / (1.3 1.2 3.1) neighboring/non-adjacent

Thus, adjacency and neighborhood are categories that become relevant only if we have to deal with combinations of transpositions and their dual counterparts, thus reality thematics.

The results obtained in this article as well as the previous results in Toth (2008b) show that the idea of interpreting connections between prime-signs, sub-signs, sign classes and their transpositions as semiotic bounds depending on semiotic valencies, goes far beyond an artistic paralleling of semiotics and atomic theory, since semiotic valency depends mostly on the relational (monadic, dyadic or triadic) type of the above mentioned semiotic items.

Bibliography

Toth, Alfred, Semiotic Ghost Trains. Klagenfurt 2008 (2008a)
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