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A semiotic decagonal graph with hexagonal embedding

1. From the sign relation of the triadic-trichotomic sign $SR_{3,3}$ = (.1., .2., .3.) or $SR_{3,3}$ = (3.a 2.b 1.c) with the trichotomic inclusion order a ≤ b ≤ c, where a, b, c ∈ {.1, .2, .3}, 10 sign classes and their dual reality thematics can be constructed:

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

Further, each sign class (SCl) and each reality thematic (RTh) is ascribed to a set of 6 permutations (cf. Toth 2008a, pp. 159 ss.):

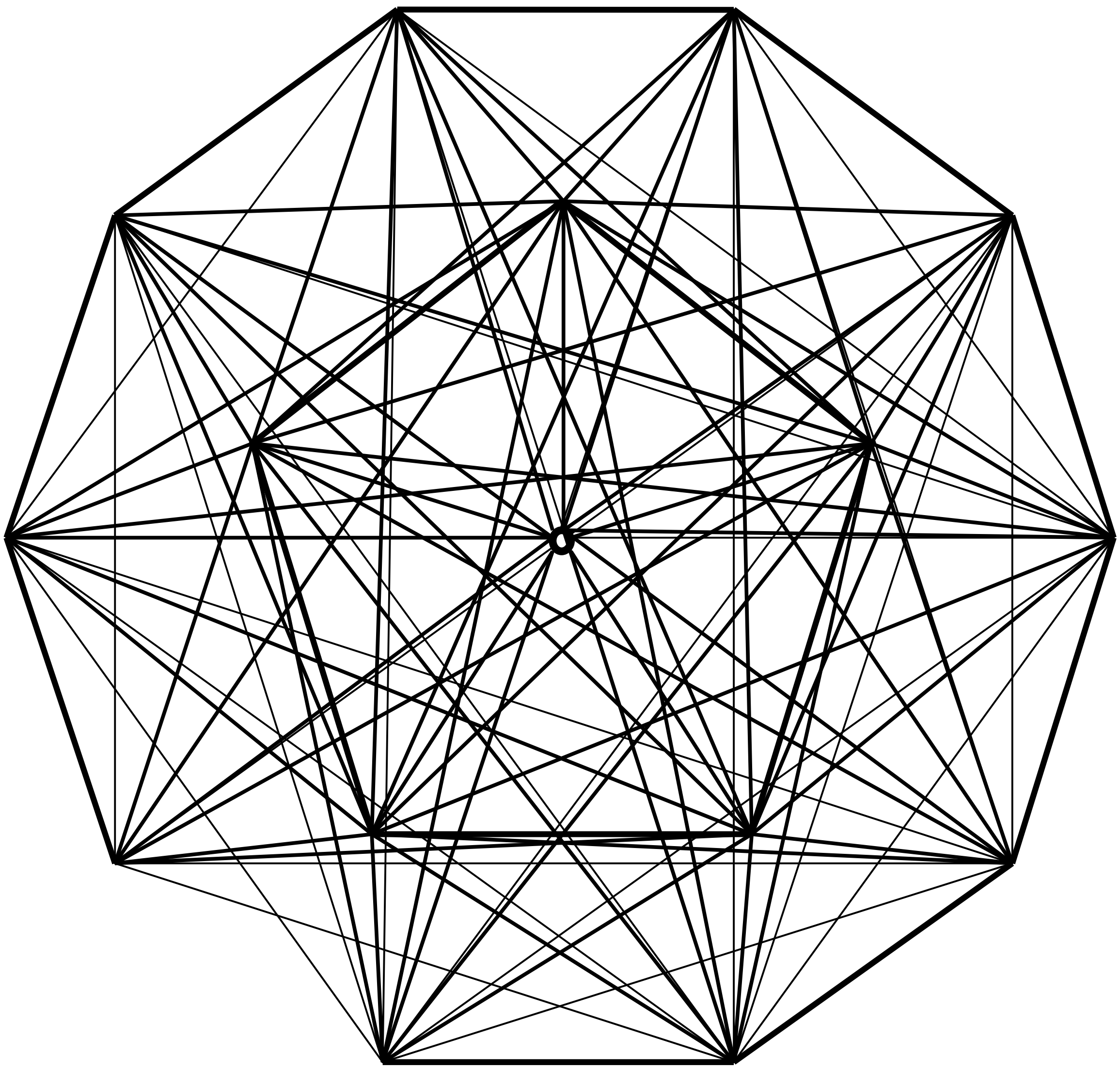
SCl = {(3.a 2.b 1.c), (3.a 1.c 2.b), (2.b 3.a 1.c), (2.b 1.c 3.a), (1.c 3.a 2.b), (1.c 2.b 3.a)}

RTh = {(c.1 b.2 a.3), (b.2 c.1 a.3), (c.1 a.3 b.2), (a.3 c.1 b.2), (b.2 a.3 c.1), (a.3 b.2 c.1)}

Therefore, in a semiotic graph with 10 vertices representing either the 10 sign classes or the 10 reality thematics, each vertex is connected by an edge with all 6 vertices of a hexagon. In order to construct this semiotic graph, we embed a semiotic pentagon with central point, representing the "unmarked" transposition (3.a 2.b 1.c) or (c.1 b.2 a.3), respectively (cf. Toth 2008c, d). Moreover, we have to take into account that not each sign class (reality thematic) is connected with all other sign classes (reality thematics). The following table from Toth (2008b, p. 28) shows in a "fractional" writing X/Y = z that sign classes X and Y share z sub-signs (or semioses) with one another:

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

Especially, we recognize that the sign classes nos. 6 and 7 are unconnected (and so are their dual reality thematics). For the following graph, we will neutralize the actual number of semiotic connections; if two vertices are connected, we will connect them by single line:



Therefore, the above semiotic graph shows all semiotic connections between the 10 sign classes or reality thematics amongst themselves, all semiotic connections between the 6 permutations of a sign class or reality thematics amongst themselves, and all semiotic connections between all sign classes or reality thematics and all of their transpositions.

Bibliography

Toth, Alfred, Semiotische Strukturen und Prozesse. Klagenfurt 2008 (2008a)
Toth, Alfred, Semiotic Ghost Trains. Klagenfurt 2008 (2008b)
Toth, Alfred, A class of semiotic graphs from transversals. Ch. 64 (2008c)
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