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How many saltatories does a sign have?

1. Rudolf Kaehr (e.g. Kaehr 2009, p. 1) introducesd the basic element of diamond theory, the diamond category consisting out of category and its “saltatory” like follows:

$$\left(\begin{array}{c||c} \begin{tikzcd} A \arrow[r, "f"] \arrow[dr, "h"'] & S \arrow[d, "g"] \\ & C \end{tikzcd} & \begin{array}{c} \text{saltatory} \\ a \leftarrow b \end{array} \\ \hline \text{category} & \end{array}\right)$$

Therefore, every sign class (3.a 2.b 1.c) has exactly one saltatory:

$$\begin{array}{c||c} \begin{tikzcd} (3.a)_{i,k} \arrow[r] \arrow[dr] & (2.b)_{k,l} \\ & (1.c)_{l,m} \end{tikzcd} & (3.a)_{k,i} \leftarrow (1.c)_{m,l} \end{array}$$

2. The question is now, what is a semiotic category. For Kaehr 2009 (as well as for me), it is obviously a sign class (or reality thematic). Then, we have two possibilities how to treat the sub-sings: 1. as objects, 2. as morphisms. In the second class, therefore, we have a functor category with a few nice properties that have never been applied yet to semiotics (and which we spare for another publication). However, since a sign class is semiotic category, we do not get one, but 6 saltatories:

$$\begin{array}{l||l} (3.a_{i,k} \rightarrow 2.b_{k,l}) & (3.a_{i,k} \leftarrow 2.b_{k,l}) \\ (2.b_{k,l} \rightarrow 1.c_{l,m}) & (2.b_{l,k} \leftarrow 1.c_{m,l}) \\ (3.a_{i,k} \rightarrow 1.c_{l,m}) & (3.a_{i,k} \leftarrow 1.c_{m,l}), \end{array}$$

corresponding to the following types of composition:

$(3.a_{i,j} \rightarrow 2.b_{k,l}) \lozenge (2.1_{k,l} \rightarrow 1.c_{m,n})$
$(1.c_{m,n} \rightarrow 2.b_{k,l}) \lozenge (2.b_{k,l} \rightarrow 3.a_{i,j})$
$(3.a_{i,j} \rightarrow 1.c_{m,n}) \lozenge (1.c_{m,n} \rightarrow 2.b_{k,l})$
$(2.b_{k,l} \rightarrow 1.c_{m,n}) \lozenge (1.c_{m,n} \rightarrow 3.a_{i,j})$
$(1.c_{m,n} \rightarrow 3.a_{i,j}) \lozenge (3.1_{i,j} \leftarrow 2.b_{k,l})$
$(2.b_{k,l} \rightarrow 3.a_{i,j}) \lozenge (3.a_{i,j} \leftarrow 1.c_{m,n})$,

with matching conditions according to the maximal number 2 contextural indices, if C = 3 and of maximal number of 3 contextural indices, if C = 4 (maximal number in both cases with genuine sub-signs or identitive morphims/functors, resp., 0nly). However, in contextures C ≥ 3, we have 3!, 4!, 5!, etc. possible permutations of the contextural indices, so that from categorial indices alone, we have in C = 4 (3! = 6), in C = 5 (4! = 25) weitere Saltatorien.

Hence, summing up, every 3-adic n-contextural sign class has 3! = 6 permutations of their objects or morphisms, resp., plus n! permutations of their caegorial indices, thus together 3! · n! saltisitions.

Bibliography

Kaehr, Rudolf, Generalized diamonds. http://www.thinkartlab.com/pkl/media/Generalized_Diamonds/Generalized_Diamonds.pdf (2009)

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