Prof. Dr. Alfred Toth

Sign relations from Stein number sequences

1. Under a **Stein number sequence** I shall understand any aleatoric sequence of natural numbers. The name I gave these sequence is from Gertrude Stein (1874-1946), the American writer who used to write in "litérature automatique" (cf. Bense 1971) and thus produced sequences of aleatoric words and syllables; cf. her text "Picasso":

If I told him would he like it. Would he like it if I told him.
Would he like it would Napoleon would Napoleon would would he like it.
If Napoleon if I told him if I told him if Napoleon. Would he like it if I told him if I told him if Napoleon. Would he like it if Napoleon if
Napoleon if I told him. If I told him if Napoleon if Napoleon if I told him. If I told him would he like it would he like it if I told him [...].

2. Since we are concerned here with polycontextural semiotics and especially the decimal equivalents of the proto-, deutero- and trito-numbers of signs in the semiotic contextures 1-3, we have to restrict the number of natural numbers to be selected, combined and repeated to

{0, 1, 3, 4, 5}

There is no qualitative number in C = 1-3 that corresponds to the Peano number 2. Every contexture start by 0. There is no Peano number > 5 reachable in C 1-3.

3. Our aleatoric Stein number sequence shall be:

13405435145311001514545311054351340543
51453110151454531105445311015145543513
54353514531100151454531105453110145453
11054351340543514531101514545345311035

4. If we distribute the 9 sub-signs of the semiotic 3×3 matrix to those decimal numbers that correspond to the qualitative numbers of the contextures 1-3 (cf. Toth 2009), we get the following mappings:

$$0 \leftarrow \quad (1.1), (1.2), (1.3), (2.1), (2.2), (2.3), (3.1), (3.2), (3.3)$$
$$1 \leftarrow \quad (1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3)$$
$$2 \leftarrow \quad \varnothing$$
$$3 \leftarrow \quad (1.1), (1.3), (3.1), (3.3)$$
$$4 \leftarrow \quad (1.1), (1.3), (3.1), (3.3)$$
$$5 \leftarrow \quad (1.1), (1.3), (3.1), (3.3)$$

5. By these mappings we can substitute the above Stein number sequence by the following sequence of sub-signs of the semiotic 3×3 matrix:

(1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1),
(1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1),
(1.2), (1.3), (2.1), (2.2), (2.3), (3.1), (3.2), (3.3),
(1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1),
(1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1),
(1.3), (3.1), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1),
(3.2), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1), (3.2),
(3.3), (1.1), (1.2), (1.3), (2.1), (2.2), (2.3), (3.1),
(3.2), (3.3), (1.1), (1.2), (1.3), (2.1), (2.2), (2.3),
(3.1), (3.2), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1),
(3.2), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3),
(2.2), (2.3), (3.1), (3.2), (3.3), (1.1), (1.3), (3.1),
(3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1),

(3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1),
(3.3) (1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3),
(1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1),
(1.2), (1.3), (2.1), (2.2), (2.3), (3.1), (3.2), (3.3),
(1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1),
(1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1),
(1.2), (1.3), (2.1), (2.2), (2.3), (3.1), (3.2), (3.3),
(1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1),
(1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1),
(1.3), (3.1), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1),
(3.2), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1), (3.2),
(3.3), (1.1), (1.2), (1.3), (2.1), (2.2), (2.3), (3.1),
(3.2), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1), (3.2),
(3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (2.2),
(2.3), (3.1), (3.2), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3),
(1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1),
(1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1), (1.2),
(1.3), (2.1), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1),

(1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (2.2), (2.2), (2.3), (3.1), (3.2), (3.3), etc. etc.

6. Sub-signs from the interpretant field have been marked black, sub-signs from the object relation are blue, and sub-signs from the media relation are in red. By use of colors I want to show how close the three fundamental categories of signs are in an almost totally aleatoric text. E.g., take the following part-sequence

$\boxed{(3.3)}$, (1.1), (1.2), (1.3), (2.1), (2.2), $\boxed{(2.3)}$, (3.1), (3.2), (3.3), (1.1), $\boxed{(1.3)}$, (2.2), (2.3), (3.1), (3.2), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (2.2)

If we start with the first interpretant – the argument (3.3), then the next fitting object relation is (2.3) and the next fitting media relation is (1.3). This is, when we keep up one of the two basic laws of sign classes:

Law of triadicity: SCL = <3.a, 2.b, 1.c>.

This is important, since if we abolish them, our selection out of the above sequence looks as follows:

$\boxed{(3.3)}$, (1.1), (1.2), $\boxed{(1.3)}$, (2.1), (2.2), $\boxed{(2.3)}$, (3.1), (3.2), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (2.2)

Again another selection we get, if we also abolish the second basic law of sign classes, the

Law of inclusive trichotomic order: $(a \leq b \leq c)$.

$$\boxed{(3.3)}, (1.1), (1.2), \boxed{(1.3)}, \boxed{(2.1)}, (2.2), (2.3), (3.1), (3.2), (3.3), (1.1), (1.3), (2.2), (2.3), (3.1), (3.2), (3.3), (1.1), (1.3), (3.1), (3.3), (1.1), (1.3), (2.2)$$

However, the only non-aleatoric element is the pre-given order in the enumerative sets of mappings

$0 \leftarrow \quad (1.1), (1.2), (1.3), (2.1), (2.2), (2.3), (3.1), (3.2), (3.3).$

which can of course be scrambled. Depending on this order are thus the selections of our sequences.

7. The main result of this study is that the aleatoric combination and iteration of any elements of the restricted Peano number set $\{0, 1, 3, 4, 5\}$ can serve as a basis to reconstruct the qualitative numbers whose decimal equivalents are the elements of this Peano set. And from the qualitative numbers we can reconstruct up to a certain degree the sub-signs as constituents of sign classes by aid of the above mapping scheme. **Whenever man counts, he also deals with signs and thus with semiotics.** So, there is an intrinsic connection between Peano numbers and signs which comes to broad daylight only if we start from polycontextral sign relations and thus transcend the elementary Peano counting system (1 = Firstness) $\rightarrow$ (2 = Secondness) $\rightarrow$ (3 = Thirdness).

This intrinsic connection between number and sign may have been the implicit fundamental of John von Neumann's differentiation between "primrary" and "secondary matematics". Bense, strictly from the monocontextural standpoint (but nevertheless very interesting), comments as follows: "Wenn es nun einleuchtend sein soll, dass es überhaupt eine monosystematische, tiefstliegende, operationelle Verarbeitungstechnik material und kategorial differenzierbarer Elemente und Momente als besondere, relational-strukturierte **Funktions-Schicht** und als **Prozess-Verband** gibt, deren Wirkung bis ins **Bewusstsein** hineinreicht, dann wird es annehmbar sein, wenn man das gesamte relationale Repräsentationssystem der **universalen**, **kategorialen** und **fundamentalen**

Zeichenbegriffe berücksichtigt, die Ch. S. Peirce einführte und die zu einer Theorie vervollständigt wurden, als metamathematische Primärmathematik aufzufassen" (Bense 1992, p. 30).

Bibliography:

Bense, Max: Was erzählt Gertrude Stein?" In: Probleme des Erzählens in der Weltliteratur. Festschrift für Käte Hamburger zum 75. Geburtstag. Hrsg. von Fritz Martini. Stuttgart 1971, pp. 350-347

Bense, Max, Die Eigenrealität der Zeichen. Baden-Baden 1992

Toth, Alfred, Decimal equivalents for 3-contextural sign classes. In: Electronic Journal of Mathematical Semiotics, http://www.mathematical-semiotics/pdf/dezimal.pdf (2009)

von Neumann, John, Die Rechenmaschine und das Gehirn. München 1960

29.4.2009