Diamond Disremption

Diamond interpretation of the kenomic succession operation

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Abstract

Diamond interpretation of kenomic succession.
Kenomic disremption and equality in contrast to semiotic, category and diamond theory. Diamondization of the concept of explanation and hermeneutic circles. Complementary commutativity.

1. Diamondization of kenogrammatics

1.1. Descriptive interpretation of disremption

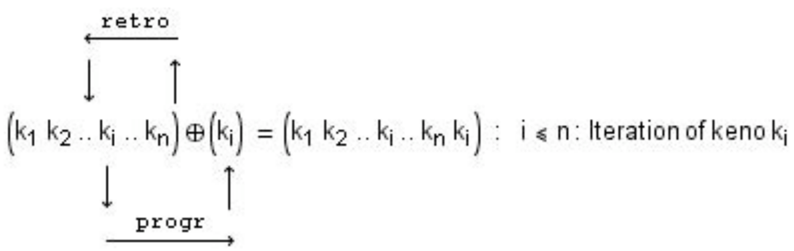
Iteration and accretion

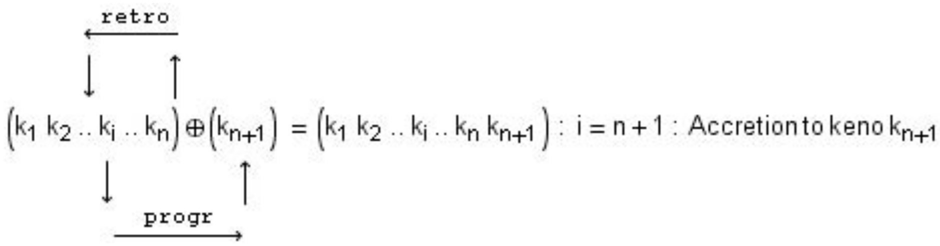
In contrast to the successor operation in word algebras, the operation of *disremption*, with its two aspects of *iteration* and *accretion*, is always defined by the simultaneity of a retro-grade and a progression action.

$$S_{iter}\left(k_1\ k_2 \ldots k_n\right) = \left(k_1\ k_2 \ldots k_n\right) \oplus \left(k_i\right),\ 1 \leqslant i \geqslant n \in \mathbb{N}$$
$$S_{accr}\left(k_1\ k_2 \ldots k_n\right) = \left(k_1\ k_2 \ldots k_n\right) \oplus \left(k_{n+1}\right),\ n \in \mathbb{N}$$

Disremption in kenogrammatics seems to be an operation which is defined by a simultaneous interplay of retro-grade and progressive interactions.
If we take this double-movement of the kenogrammatic succession into account a reasonable formalization of it might be given by the diamond approach.

Retro-grade progression





A word arithmetic approach, as it was developed in several papers, is still result-oriented and is not reflecting on the double movement of the construction as such. Thematization of this kind of double-movement of retro-/progression (recipatory/anticipatory) is guided by an interactional approach which gets its formalization within the diamond model.

Self-referentiality

Self-referential parts of the recursion scheme are thematized.
The recursion scheme gets a self-reflectional thematization.

Chiastic interplay

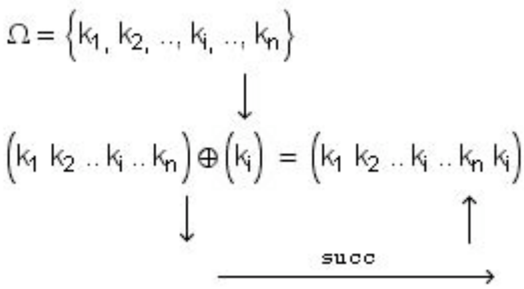
Circularity of self-referential structures gets a chiastic interpretation.

Diamond interaction

Double movements of chiastic implementation gets a diamond formalization.
In which sense are kenogrammatic operations diamondal and interacting with bi-objectional structures?

1.2. Semiotic Concatenation

Concatenation for word arithmetic is defined by a recursion which is involving its pre-ordered alphabet (sign repertoire) Ω.



Independently of the sign sequence k, a new sign out of the pre-given alphabet Ω is added to it. Hence the number of successors is depending on the size of the alphabet and not in anyway on the structure of the predecessor sign sequence.

Semiotic succession is defined in strict analogy to the concept of number-theoretic recursion.

There is also a kind of circularity in the recursive definition of succession: concatenation is introduced as addition and addition is introduced as succession.
Because disremption is not relying on an alphabet, the number of successions is strictly depending on the structure of the kenogrammatic compound of the disremption operation.

Circularity of Atomic Equality

Signs are based in perception. There is no chance for semiotics to proof the identity of two atomic signs. The whole game of type and token of signs is not producing more than a circular introduction of signs. Two signs are equal if they are equiform. And two signs are equiform if they are equal in all there (graphemic) parts. And the parts of two signs are equal if they are equiform. Etc.

Hence, the objectivation of the sign process has stopped on the half way to subject independendness. For semiotic systems to work means to be founded in subjective perception. Computer science knows this dilemma as paradox of “Symbol Grounding".
Therefore, A. A. Markov introduced his *“Abstraction of identification”* into algorithm theory, i.e. semiotic economy.

Semiotic Equality

Again, the equality of two words in a semiotic system is established by the graphemic identity (equality) of the signs at the same locality (position) of the compared words.

Semiotic Equality :

$$Seq_x \text{ equiv } Seq_y \Longleftrightarrow \forall\, i, j \in Seq_{x,y}, : loc_i = loc_j \bigwedge loc_i(atom_x) = loc_j(atom_y).$$

Or:

$$Seq_x \text{ equiv } Seq_y \Longleftrightarrow \forall\, i, j \in Seq_{x,y},$$

$$lenght(Seq_x) = lenght(Seq_y) \bigwedge \forall\, i, j \in Seq_{x,y} : loc_i(atom_x) = loc_j(atom_y).$$

The fact of the identification of position and identity of signs has a very clear consequence for the equality of two sign sequences (words). Two words with different length are semiotically unequal. Or, two sign sequences can be equal if and only if they are of equal length.

Hence, the radical challenge to graphematical systems is the madness to crack exactly this presumption of equality. That is, the equality (similarity, dissimilarity) of kenomic patterns (morphograms) is independent of the length (complication) of the patterns to be compared. That is, two kenomic “sequences" (morphograms) might be kenomically equal independently of the length of the morphograms. Morphograms of different length might be kenomically equal.

How is this possible?
Semiotic sequences are equal iff they are decomposable into equal atomic signs, i.e. iff they are atomically equiform and of the same number.
If we take the idea of *decomposability* as the leading strategy for a comparison of sign systems or morphograms we can abstract from the sign repertoires and the singularity of the successor operation. Hence, the test of equality is based on decomposability.

This leads to the observation:
Morphograms are kenomically (morphogrammatically) equal iff they can be decomposed into equal monomorphies.
Morphograms are kenomically (morphogrammatically) equal iff they have the same decomposition.

Morphograms, as well as sign sequences, are composed, thus decomposition is the dual operation of composition. But duality can have different attributes. The main attributes might be symmetry and asymmetry of the duality operation.

Semiotically, composition of parts to a word and decomposition of the word into its parts are *symmetric*. That is, the inversion of the composition, the decomposition, results into the same parts of the composition, i.e. the operation of composition and decomposition are commutative:
Comp(Dec($X^{(m)}$) = Dec(Comp($X_1, \ldots, X_m$)).

Kenomically, composition and decomposition are asymmetric.[1]

1.3. Kenomic Disremption

1.3.1. Categorical interpretation

The categorical thematization of the successor operation is characterizing its structure *"up to isomorphism".*

NN: $\begin{array}{ccccc} 1 & \overset{0}{\rightarrow} & N & \overset{s}{\rightarrow} & N \\ & g\searrow & \downarrow f & & \downarrow f \\ & & A & \overset{h}{\rightarrow} & A \end{array}$	A natural number object consists of an object and two morphisms 0: 1 --> N, s: N --> N such that for all objects A and all morphisms g, h g: 1 --> A, h: A --> A there exist a unique morphism f: N --> A making *commute* the diagramm NN.

1.3.2. Chiastic interpretation

I can not deny that I was never really happy with the *categorical* introduction of the natural numbers (up to isomorphism). It looks good but I think it gives us only have of the story. That is, natural numbers **N** are defined with the help of other objects **A** which themselves are not defined with the help of the objects **N** of the whole construction. There is a hierarchy between the defined objects **N** and the means of the definition, the objects **A**. This is correct and adequate for an introduction or definition. That is, the hierarchy of the definition scheme is preserved.

But it is unnecessarily hierarchically one-sided. The fact, that the construction is involved into morphisms between the objects is not in conflict with my observation. The defining morphisms *g, h* are founding the object **N** in one and only one direction.

Definition scheme:
definition $=_{Def}$ definiens --> definiendum.

(Definiens := That which defines the definiendum in a definition. Definiendum := The term defined in a definition.) Definitions are hierarchic but the definition scheme gets a circular introduction (definition).

Therefore, *commutativity* of the categorical diagram **NN** is only the half of the graphematic construction. The other half is sublimed in the mind of the reader.

A further step to understand and introduce natural numbers in the framework of category theory is to contemplate on the *chiasm* between the "*object*-" and the "*medium-language*" or source- and target-concepts.
A formalization of the chiastic interplay of "*source*-" and "*target*-concepts" might be designed in a polycontextural framework.

A chiasm between object- and medium-language to characterize diamondally natural numbers as a complementarity of commutativity in categories and in saltatories is distributed over *two* loci. The aim of this interplay is to characterize natural numbers, hence, there is a *third* locus required, the locus of the natural numbers as such. That is as the product of the foundational or constructional actions.

It seems that a *logification* of the diamondal interplay, necessary to handle the characterization of the natural numbers logically, is demanding for a 3-contextural logic.

A more concrete phenomenological description should take into account that the number system involved in the classic modelling isn't a number system but acts *as* a number system to be legitimated. These, not yet legitimated natural numbers are based on the intuition and the pre-understanding of natural numbers. That is, the whole construction as such is characterizing natural numbers, thus it gets a third locus of final inscription. Classically, it seems, that this third inscription is left to the mental imagination of the reader, i.e. the mathematician. And has no realization as an inscription.

Again, what's the profit?
The existing paradigms are working! We have found water on mars! There is nothing wrong with our universal approach to natural numbers! Children, robots and Aliens do it![2]

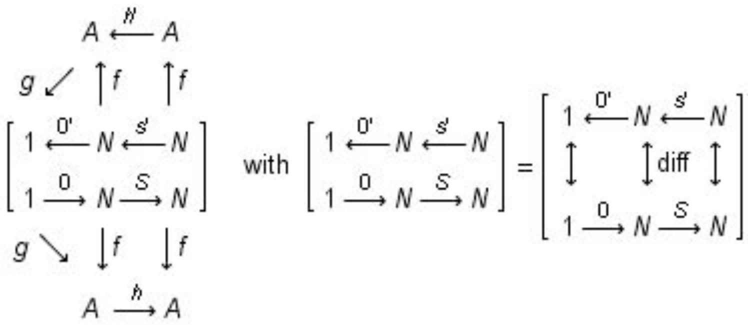
If it is correct that the main part of the introduction mechanism for natural numbers is depending on a *mental* representation in the understanding by a mathematician and not on a scriptural notation in a textual space, i.e. on inscription, then there is no hope to create Artificial Intelligence capable of doing arithmetic *as* arithmetic and not of doing arithmetic *as* physical manipulations on informatical objects depending on the mental decisions of mathematicians or programmers.

The project of implementing subjectivity into the formalism - *"Das Ich in den Formalismus hinenin definieren."* (Gunther 1937) - has nothing to do with the AI and AL intentions to add empirical features of human behaviors to artificial living systems.

1.3.3. Diamond interpretation

A more direct formalization of the chiastic concept of the categorical introduction of natural numbers (or other structures) is designed as a diamond interplay between the two complementary aspects of the construction.

Because of the complementary character of diamond theory, commutativity of constructions have to take into account the simultaneous complementarity of commutativity. Hence, a construction is specified only iff both diagrams, the categorical and the saltatorical, commutes.



Parallelism of differentness, differentness and antidromic directions

While the process of succession goes forwards, at once it goes backwards. The step forwards can be done only in cooperation with a step backwards.

This step backwards is not a subtraction but a consultation of the history of the previous steps done to produce the morphogram to be succeeded.

To go forwards, we have to go backwards. This sentence might be interpreted in a temporal order as “to go forwards we first have to go backwards and then forwards”. This may be correct from an observational point of view. But it is not adequate from a conceptual view-point. From this, both actions happens at once. Forwards and backwards “movements” are interdependent. In a kenomic succession there is no need to go backwards without going forwards, and there is no forwards movement needed without its complementary backwards movement (Fichte, Husserl, Derrida).

Semiotically, this situation is strictly separated between the pre-given sign repertoire, which as a set of signs has its independent role, and the successor operation defined on the set of signs.

Semantic composition

Composition of two sentences is not necessarily a semantic concatenation of two separated and context independent units, like “car” and “parc”. But the term “parc” gets a specification in a composition with the term “car”, which is changing its former separated literal meaning. Hence, comp("car”, “parc”)--> “car parc".

By composing two sentences, i.e by adding one semantic unit to an existing semantic unit a *retrograde* determination of the first unit by the new composition might happen. That is, the first unit gets its further semantic distinction by the additional semantic unit which is adding not only a new semantic unit to the first but is also adding specification to the definition of the context of the first semantic unit.

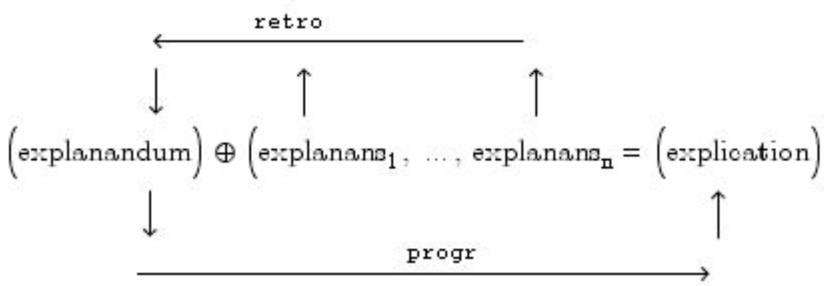
Explication, explanandum, explanans

Hence, explanations in general, might be given an antidromic interpretation as defining backwards the explanandum by adding forwards the new explanans.

“By the *explanandum*, we understand the sentence describing the phenomenon to be explained (not that phenomenon itself); by the *explanans*, the class of those sentences which are adduced to account for the phenomenon" (p.152).
The crucial comment, with respect to the scientific method, is given as follows:
"It may be said... that an *explanation* is not fully adequate unless its explanans, if taken account of in time, could have served as a basis for predicting the phenomenon under consideration.... It is this potential *predictive force* which gives scientific explanation its importance: Only to the extent that we are able to explain empirical facts can we attain the major objective of scientific research, namely not merely to record the phenomena of our experience, but to learn from them, by basing upon them theoretical *generalizations* which enable us to *anticipate* new occurrences and to control, at least to some extent, the changes in our environment" (p.154). (WiKi)
Hempel, C.G. & Oppenheim, P. (1948). "Studies in the Logic of Explanation." Philosophy of Science, XV, pp.135-175.

The logical problems involved in the explanation of the process of explanation had been a hot topic in the coffee houses of the famous Viennese time.

Diamond Explacation Scheme



The hermeneutics circle
Such structures are also known as hermeneutical circles between pre-knowledge and knowledge.

"The hermeneutic circle describes the process of understanding a text hermeneutically. It refers to the idea that one's understanding of the text as a whole is established by reference to the individual parts and one's understanding of each individual part by reference to the whole. Neither the whole text nor any individual part can be understood without reference to one another, and hence, it is a circle." WiKi

A diamond interpretation can be given to the concept of *explication* and the concept of the *hermeneutic circle*. First, the metaphor of circle (or even feedback loop) shall be transformed into polycontextural chiasms, second chiasms shall be transformed into diamonds.

1.4. Diamond modeling of hermeneutics

1.4.1. Circle

Well known is Martin Heidegger's metaphorics of the circle: "Im Wirbel des Denkens".
One of the famous opposites of the Wirbel is the "Strudel", a multi-layered Viennese cake, a favorite of Rudolf Carnap.

„Die Idee der Logik selbst löst sich auf im Wirbel eines ursprünglicheren Fragens." (Martin Heidegger, Was ist Metaphysik., 1929, S. 37).

Despite the circularity of the hermeneutic concept of understanding there is still a chance for a conflict about the beginning of the circle. Should it be the whole or the part?
The metaphor of the "Wirbel" is not offering any chances to grasp *at once* the part and the whole as heterachically organized components of the circular concept of understanding. In fact, the metaphor "Wirbel" easily hints to a hierarchy towards a final ground (Abgrund, Urgrund, Ungrund).
Hermeneutics is denying the possibility of formalization and thus is depending on the linearity of notional analysis of all sorts.

1.4.2. Chiasm

Hermeneutic circle = [Text, Understanding, Whole, Part]
Even if the question of the beginning of the chiastic interdependency of the whole and parts of the process of hermeneutical understanding has a resolution, the figure produced is still uni-directional albeit it can be read explicitly in both directions: first part then whole and then first whole then part. With that, the general circularity is getting a differentiated structuration which lacks circularity as "Wirbel des Denkens".

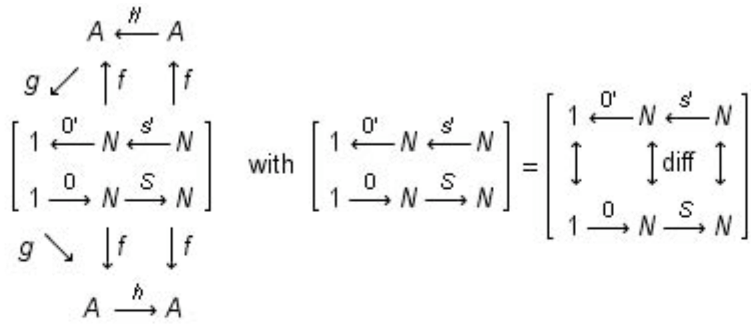
1.4.3. Diamond

Diamonds are implementing both directions of understanding at once. Hence, the metaphor is no longer given with a non-ambiguous and identifiable figure. It seems, that only the diamond approach resists any reduction to a more classical paradigm.

Obviously, all three constructions, *Circle*, *Chiasm*, *Diamond* would disappoint Rudolf Carnap and provoke a final destruction of the whole project of diamondization.
Unfortunately, in between, mathematical logic itself has run into troubles.

1.5. Diamond explication of natural numbers

Chiastified circular strategies like *explanation* and *hermeneutical* circles might add to the understanding of the diamond strategic introduction of natural numbers.



A proper analysis of the diamond construction of the antidromic “movements” of natural numbers based on the difference relation in diamonds is given by a modeling of it in an explicit diamond with its chiastic properties. What was at first a diamondal *difference* operation is now involved into the full relational conceptionality of diamonds.

$$\text{Diam}^{(2,1)} = \chi\left[\text{Cat, Salt, NN, AA}\right]$$

$$= \left[\begin{array}{c} \text{level}_{\text{Cat}} : \left[N \cong N \longrightarrow N' \cong N'\right] \\ \downarrow \quad \updownarrow \;\times\; \updownarrow \quad \uparrow \\ \text{level}_{\text{Salt}} : \left[A' \cong A' \longleftarrow A \cong A\right] \end{array}\right]$$

1.6. Initial and final objects in diamonds

2. Kenomic sameness

2.1. Semiotic identity

Sign(A) eq sign(B): type(A) id type(B) iff for all token: token(A) id token(B)

2.2. Monomorphic equivalence

Two kenomic patterns are equal iff they are decomposable into the same monomorphies.
Two kenomic patterns are equal iff they have the same monomorphic decomposition.

2.3. Chiastic sameness

chiasm(typeA, typeB, tokeA, tokenB)

2.4. Diamond strangeness

diam(cat(A, B), salt(a, b))

Notes

[1] http://www.thinkartlab.com/CCR/2008/08/web-mobility.html

[2] http://www.thinkartlab.com/pkl/media/Equality/Equality.html