

# Classical Kenogrammatics - A Semiotic Localization

Rudolf Matzka

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# Classical Kenogrammatics

## A Semiotic Localisation

Dr. rer. nat. Dr. rer. pol. Rudolf F. Matzka, Juli 2010

### 1. Negating the Atomic Shape Abstraction

A central theme in Gotthard Günther's works is a critique of the principle of identity that underlies classical logic. Günther pointed out that the two other Aristotelian principles of logic (Non-Contradiction and Excluded Middle) have been repeatedly questioned and modified in modern logic discussions, while the identity principle has not been modified at all. From today's perspective, this is due to the fact that the identity principle is not a logical but a semiotic principle. The principle of identity is not just the basis of classical logic, but also the very basis of our use of language [¹].

Thus it becomes understandable why the modern logic discussion has no access to the identity principle. But this also reveals the problem of any kind of critique of identity that wants to express itself linguistically: it is performatively bound to the principle of identity. For Gotthard Günther's works, therefore, *kenogrammatics* [²] plays a decisive role, a new way of using scriptural signs that is not subject to the principle of identity in the same way as the classical use, so that the principle of identity can be interrupted, made conscious, and modified *in the medium of scripture*.

To show how this happens, I start with a definition of identity which is inspired by the Buddhist *philosophy of the Middle Way*. In the term *identity* I summarize three properties: *Unity*, *difference*, and *duration*. The Buddhist critique of identity is radical, it focuses from the outset on all three properties [³]. Günther's approach is less radical [⁴], he starts with the property of difference, by contrasting the classical difference of character strings with a kenogrammatic difference of character strings [⁵]. Difference is the property of a character string which enables the transition from the concrete string present here and now to the abstract string which exists beyond all places and times [⁶], in Peirce's terminology the transition from the *token* to the *type* of a characters string. Only as types character strings can become carriers of information.

The special thing about the classical construction of the difference of character strings is that it is two-stage and atomic. In the first stage the difference is constructed for a certain number of atomic (i.e. indivisible) characters, in the second stage the difference of the character strings is constructed on this basis. The first stage is the cultural-historical process of inventing and institutionalizing an alphabet, the second stage results almost automatically from it. The question whether two character strings are equal or not can be decided by a simple algorithm, if the corresponding question for an individual character can be decided in each case. It reads: *Two character strings are equal if they are of the same length and have the same characters in every position, otherwise they are different*.

However, this is not the only way to construct a difference between character strings. Another possibility is: *Two character strings are equal if they have the same length, otherwise they are different*. By this way of reading we reduce the string to a kind of tally sheet, so we have constructed a difference for numbers. Gotthard Günther has also discovered the three kenogrammatic constructions of difference that lead to the keno numbers, and George Spencer Brown independently of Günther has discovered a fourth construction of difference that I call *commutative semiotics* [⁷] that leads to the heaps

1 Here and in the following I use "language" and "writing" synonymously. In classical rationality there is an isomorphy between writing and (spoken) language, and our critical propositions apply equally to writing and language. Kenogrammatics, on the other hand, can only be developed in the medium of writing.

2 Kenogrammatics as it is introduced here, I call *classical* kenogrammatics in order to distinguish it from further developments of kenogrammatics, with which it detaches itself from its classical origin and provides those hermeneutic and dialectical services that are needed for a polycontextural logic.

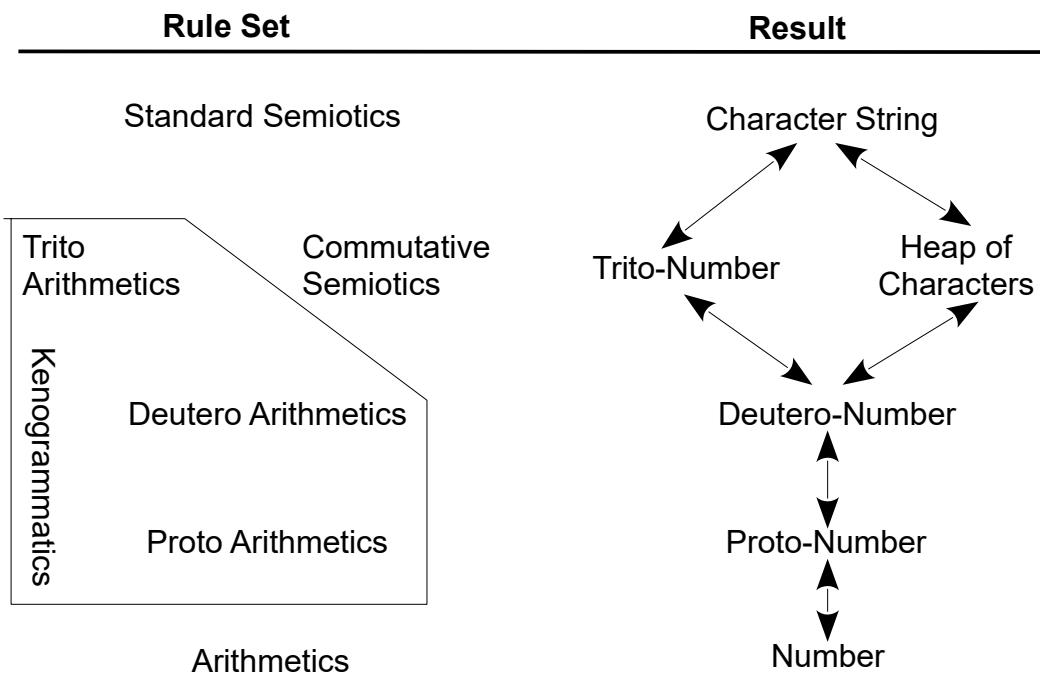
3 In Buddhism, the identity principle is interrupted performatively by the practices of meditation and contemplation. In Buddhism, therefore, writing is not sufficient as a medium of identity criticism; direct oral transmission is indispensable.

4 In Western contexts, on the other hand, I know of no more radical critique of identity than that of Gotthard Günther.

5 Instead of character strings, we should better speak of character structures in this context, because the string characteristic is not retained in all variations. In the following I will describe kenogrammatic character structures as keno *numbers* throughout (even if they have string form), whereby this terminological difficulty disappears.

6 This statement must of course be limited by the fact that the alphabet is a cultural phenomenon and is therefore linked to the place and duration of our culture.

of characters. Each of these four new kinds of semiotic entity is more abstract than the strings of characters and more concrete than the numbers.



Standard semiotics and commutative semiotics are based on a two-stage atomic difference construction, the three kenogrammatic rule sets are based on one-stage and non-atomic difference constructions. The latter do not generate or use a fixed repertoire of atomic characters, they do not base the difference of a character structure in the difference of its atomic components, but in its own internal difference structure. Thus a *holistic token type abstraction*<sup>[8]</sup> replaces the atomically founded token type abstraction.

## 2. The Relationship Between Multiplicity and Shape Diversity

The world of classical rationality is populated by character strings and numbers, the other kinds of semiotic entities are not used at all. This is so despite the fact that proto-numbers, deutero-numbers and heaps of characters are structurally well known and frequently used in mathematics: Proto-numbers are structurally nothing more than ordered pairs of numbers, deutero-numbers are structurally nothing more than number-theoretical partitions, and heaps of characters are structurally nothing more than multisets. However, trito-numbers hardly play a role in mathematics structurally.

The innovation lies less in the newly found structures than in their *semiotic meaning*. Let us first consider the semiotic meaning of the *number* and the *character (= letter)*.

- The *number* is the measure of multiplicity, it does not know the difference between equality of shape and shape difference, it counts only equal shapes, and if it counts different shapes, then it neglects their difference. We can add apples and pears, but then we lose sight of the difference between apple and pear.

<sup>7</sup> In G. S. Brown's *Calculus of Indications*, the commutativity of concatenation is only one of several semiotic innovations (besides inclusion and reentry), and Brown himself has not given it a name on its own. For a systematic description of these relationships, see Rudolf Matzka: Semiotic Abstractions in the Theories of Gotthard Günther and George Spencer Brown, *Acta Analytica* 1993, Download: [www.rudolf-matzka.de/dharma/semabs.pdf](http://www.rudolf-matzka.de/dharma/semabs.pdf).

<sup>8</sup> The term holism is heard unwillingly in some Günther circles. But it is a huge difference whether we already incorporate holism into semiotic material or whether we only introduce it conceptually. In the latter case we always have to say it when we think holistically, in the former case we cannot think otherwise than holistically when we make this semiotic material the basis of our thinking. It is the conceptually introduced holism that we should be skeptical of.

- The *character* is an abstract atomic (i.e. indivisible) shape, it is a member of an alphabet, the alphabet members are different from each other, and their number is constant.

The number thus processes *multiplicity*, ignoring differences in shape; the letter manifests *differences in shape* as a member of an alphabetic with constant multiplicity.

Classical rationality brings together the semiotic dimensions of multiplicity and shape in the medium of the character string, in its use as semiotic carrier of word, sentence and text. The number functions here as a supplier for positions at which letters can be located, whereby each letter can also occur repeatedly. The character string manifests differences in shape diversity, like the character, but breaks away from the restriction of a constant number of shapes. The number of different character strings over a given alphabet increases with the length of the character string and is potentially infinite. Thus, the number helps the letter to generalize the semiotic processing of shape difference with regard to multiplicity.

Conversely, the letter provides assistance to the number when it comes to optimizing the semiotic processing of multiplicity. Without a plural of character shapes the number can only take the form of a tally sheet. However, the alphabet can now provide a stock of numeric characters or numerals. Then only the problem has to be solved how to denote those numbers which are not provided as numerals (and there must be such numbers because the number of numerals is finite and fixed, whereas the number of numbers is potentially infinite). The modern notation is the natural generalization of the tally-sheet by using the shape difference of the number characters; it uses the numerical sense of the positions in the character string arithmetically and can thus represent arbitrarily large numbers with a finite alphabet of number characters.<sup>[9]</sup>

From this determination of the semiotic meaning of number and character we can derive something about the semiotic meaning of the kenogrammatic entities. If we start from the classical concept of number, kenoarithmetics<sup>[10]</sup> introduces the difference between shape equality and shape difference into the concept of numbers, without using an alphabet that would manifest the shape differences as a fixed repertoire of abstract atomic signs. Let us take a closer look at the path of concretion from number to character string.

The *number* just indicates how many things there are. The *proto number* also records how many different kinds of things there are. The *deutero number* also records how many things of every kind of thing there are. The *trito number* also arranges the partly identical and partly different things in a sequence, so that the old multiplicity meaning of the number can interfere with the new diversity meaning of the number. In each of these transitions, the internal structure of the totality to be processed is determined more concretely or enriched with additional information.

However, the concretion step from the trito number to the character string (or from the deutero number to the heap of characters) is of a different kind than the preceding ones. Here a connection has to be established between the keno number on the one hand and an alphabet on the other, which exists independently of it and belongs to a surrounding context. An example: The trito number  $\square\Diamond\square$  states that there are four things arranged in a sequence, that there are two equals on the left and on the right and two equals in the middle, but that otherwise the two kinds of things are different. In the transition from the trito number to the character string, this becomes ABBA, whereby references like "A are apples" and "B are pears" become possible. At the transition to the character string the trito number  $\Diamond\square\square\Diamond$  is thus embedded into an atomically determined world, in which there are not only letters, but also apples and pears, as abstract atomic shapes, which can be attached to the letters (or words) by reference relation.

If, conversely, we start from the character string, in its function as word and carrier of concepts, and if we try to follow the path of abstraction via trito number, deutero number and proto number to number, we are already at an abyss at the first step. The letters lose their identity in this transition, and so do the words, thus letter and word lose their ability to designate extralingual entities or to fulfill grammatical functions.

A word, a sentence, a text, written with classical intentions, makes no sense in a kenogrammatic reading. We use the word "moon" to denote the moon, but the trito number " $\square\circ\circ\Diamond$ " contained in the word "moon" does not contain any references to the moon; the reference relation between "moon" and the

<sup>9</sup> The Roman notation of numbers, as a counter-example, does not get by with a finite alphabet, it must creatively expand its numerals alphabet again and again, if it wants to proceed to higher number ranges.

<sup>10</sup> I use the terms Kenogrammatics and Kenoarithmetics synonymously. This is permissible in classical kenogrammatics.

moon is a convention that loses its semiotic basis at the transition from the character string to the trito number.

If the trito structure of the words is irrelevant to their meaning, then perhaps we should take the words as atoms instead of letters, and read a sentence this way kenogrammatically. However, this trace does not lead far either, because then we can no longer make use of the grammar that was used when writing the sentence, so that we understand the sentence neither in its content nor in its structure.

In fact, every word has a trito structure, and in some cases it may contain hints to the meaning of the word. In fact, every sentence has a trito structure, and to some extent it is used by the grammatical rules. An example: in the statement  $(x)Ax$  (for all  $x$  proposition  $Ax$  applies) the letter  $x$  occurs twice in very specific places, and only that is essential, not the identity of the letter  $x$ ; the proposition  $(y)Ay$  says exactly the same thing. The variable is an example of a grammatical category that makes substantial use of the trito structure of the character strings. In fact, the text also has a trito structure, but it is far from obvious what its trito structure tells us about its meaning. It can be said that the meanings and grammatical functions of the text are, by and large, arbitrarily placed onto the tritostructure.

### 3. Rules for scriptural sign usage

It is instructive to relate the rule systems for kenogrammatics to the rule systems for classical strings. For this purpose I consider scriptural sign usage in the context of a scientific *theory*. I choose a physical theory as a simple example and limit myself to the part of the physical language that we understand particularly well, namely the mathematical part [1]. Since *mathematics* was formalized by Gottlob Frege and Bertrand Russell, we understand it as a system of rules for manipulating strings of characters. The rule system of a mathematical theory consists of three layers: a grammatical layer, a logical layer and an axiomatic layer. In the context of Physics there is a semantic layer on top of these three layers by which the axiomatically defined mathematical structure is linked to the components of an experimental event (physicists tend to call this semantic rule system *kinematics*).

The entire architecture of mathematical language is based on the concept of character string, but the semiotic rule system which determines the concept of character string is nowhere addressed in mathematics, not even in metamathematics. Metamathematics has never been interested in possible modifications of this rule set. Only through the work of Gotthard Günther we have become aware of this possibility. If we add the rules for the new semiotic entities between string and number, the following overall picture emerges. (See next page.)

Gotthard Günther had the vision of a *negative language* [12], which coordinates the actions of the various cultural (and technical!) subjects and institutions, similar to our positive languages, but which in contrast does not work with atomic shape abstractions, but follows other patterns and generates other communicative processes. Classical kenogrammatics is certainly not yet the negative language that Günther was looking for, but it must be at least one of several starting points from which the negative language can develop.

### 4. Kenoarithmetic Processes

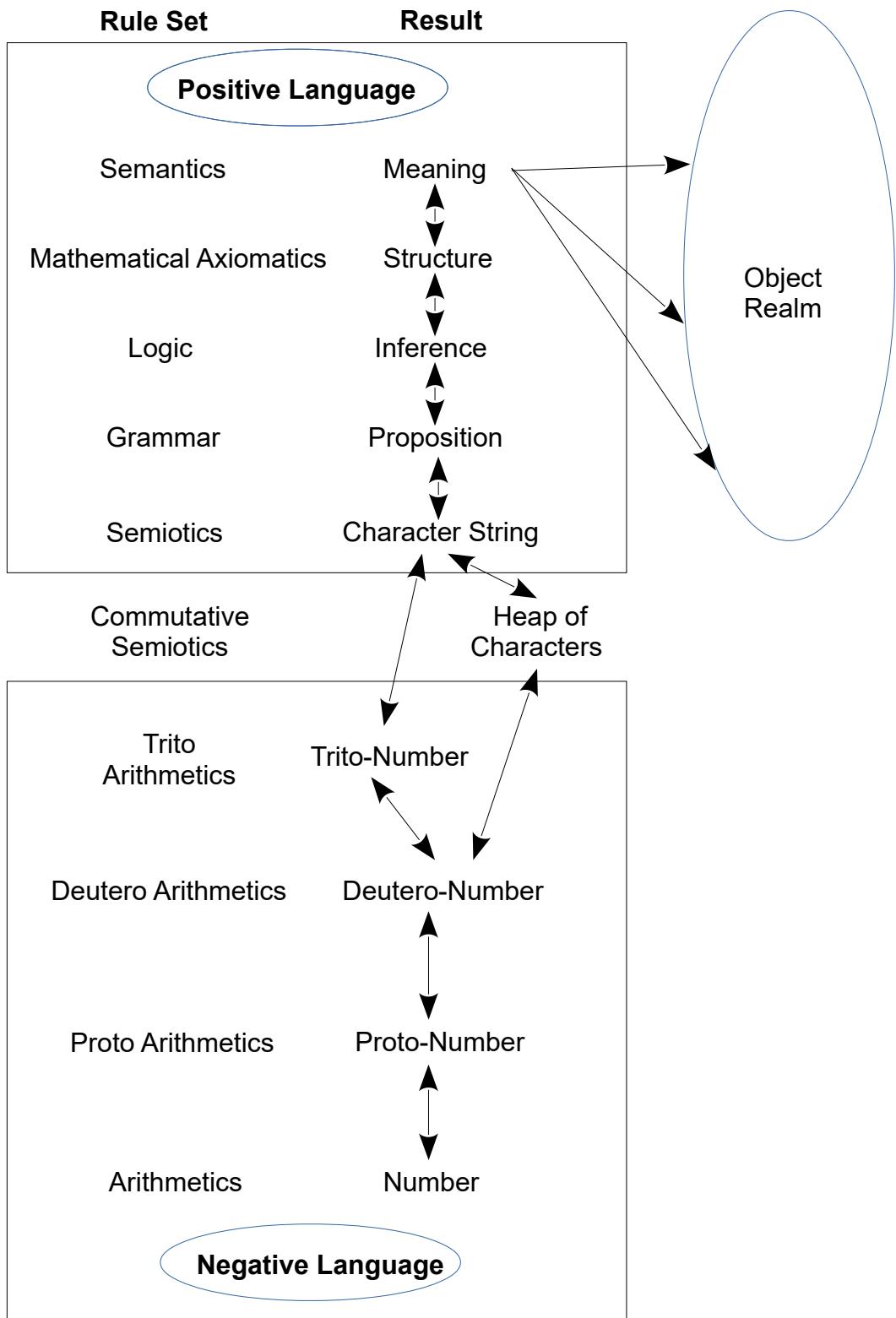
The power of arithmetic lies in its calculation operations, i.e. addition, subtraction, multiplication and division. If we now enrich the concept of number by the difference between shape equality and shape difference (in Günther's terminology: If we add an *accretive* sense to the *iterative* sense of number), then this has massive effects on the arithmetic operations. At first sight these effects seem to be anything but advantageous; it turns out that even the kenoarithmetic addition can *not* be viewed as an operator in the classical sense. A thing and another thing are two things,  $1+1=2$ , that's clear, but if instead of two things we add two kenoms [13]  $\circ+\circ$ , then it is open what the result will be. It could be  $\circ\circ$ , or it could be  $\circ\Diamond$ .

11 The example of physical theory is particularly suitable for our purposes because physical theory embodies the principle of atomic abstraction in an ideal way and because it is particularly easy to reconstruct and to understand (due to the strong mathematization). However, the thesis is that even non-mathematical empirically oriented theories can be represented in this way. The rule structure then is less sharply pronounced and less rigidly effective, but it is still there and it is similarly structured and effective as in physics. Even non-mathematical empirically oriented theories are regulatively based on the principle of atomic shape abstraction.

12 Gotthard Günther: Martin Heidegger und die Weltgeschichte des Nichts, Beiträge zur Grundlegung einer operationsfähigen Dialektik, Band 3

13 By "kenom" I designate the atom or the indivisible element of keno numbers. Globally there is but one kenom, since all keno numbers of length 1 are equal. Only within a longer keno number kenoms can differ.

## The Rule Sets of Scriptural Sign Usage



What is the difference between thing and kenom? For any two things given to me, it is always decided whether they are the same or different; for two kenoms, on the other hand, it is not always decided. The kenogrammatic rules forbid us to compare two kenoms as long as they do not belong to a common keno number. The act of adding or joining means a transition from a „before“ situation, in which the two kenoms are isolated from each other and therefore incomparable, to an „after“ situation, in which they are connected within a keno number and therefore comparable. The question whether the

two kenoms are the same or different must therefore be decided uno actu by merging one with one to two.

The classic addition operator notes our work of adding. We write "5378+3546" and mean the result of this work. We postpone, so to speak, the work of adding until later, and this is possible because the result itself is already fixed, even if we don't know it yet. The result is fixed because we can express the activity of adding through an algorithm, that is, because we can automate it. In kenoarithmetics the case is different, here the result of adding is not fixed before the work is done, here the process of adding cannot be represented by an algorithm or noted by an operator sign.

Then what is the kenoarithmetic addition if it is not an operator? It is a process in which two things happen simultaneously: two keno numbers are joined together, and for each of the newly created pairs of kenoms it is decided whether they are the same or different. The kenoarithmetic addition is a *linking and decision-making process*. Where does this process take place? Of course, between the agent of sign use and the signs. The agent is the operator, the signs are the operands. After all, this is what kenogrammatic sign use has in common with classical sign use. Or not?

With the transition from classical to kenogrammatic sign use, we change our habits to the effect that we no longer carry out the decision-making and assembling one after the other [14], but uno actu. Thus the signs also change their character; they become kenoms, i.e. they are no longer bound to an alphabet, they become free and autonomous in a certain sense. We can even think a universe of kenoms and keno numbers without the presence of an agent using them. If we grant the kenoms just a minimum of own activity, they can encounter each other. And if we postulate that the necessary decisions about equality or difference are made *between* the kenoms concerned, then they can also connect and build keno numbers. Under these circumstances, the agent of sign usage has nothing left to do. Thus we have a rudimentary model for distributed subjectivity. Activity lies in the kenoms, decision occurs between the kenoms when they additively join together or when they subtractively diverge. The universe of kenoms and keno numbers can operate without our intervention, or more correctly, we can imagine that it would.

## 5. The Concept of Contexture

We have found above that within positive language the grammatical and semantic language functions make no systematic use of the Trito Structure of strings. So there is no direct path of abstraction from concept to number. If we want to relate concept and number via kenogrammatics, we have to find indirect paths. A possibility of contact between concept and number arises when we reflect on the fact that the whole set of rules of positive language serves nothing else than to organize the relationship between a subject and its object realm. The totality, consisting of subject, object realm and positive language, is what Gotthard Günther called a contexture. The contexture is the place where a subject faces an object realm, the place where a positive language can operate with classical logic embedded in it.

This framing of the positive language by the contexture directs our attention to the dual and asymmetrical situation that exists between the subject and his object realm, and which is considered *metaphysical* by classical philosophy. Günther is particularly interested in the *environment* of the contexture, and in the possibility that other contextures may be found in this environment. This question is completely beyond classical rationality. Classical rationality knows of no place, no space, no whatsoever in which something like a contexture could emerge or exist or pass, so that it could be made a scientific object. All the more so, she knows of no space in which several contextures meet, so that one could study their interactions.

The Buddhist philosophy of the Middle Way knows such a space, it is only inadequately described by the term *emptiness*; it is opened up by the practices of meditation and contemplation, i.e. by ways of knowledge that work independently of language. With Gotthard Günther we try to open up the space between the contextures by using negative language.

The exploration of the contextures can in principle take place in two directions: intracontextural and intercontextural. In *intracontextural* research, we make use of the fact that we inhabit a contexture with our scientific positive-language and illuminate it in all directions, in particular also in the direction of language and in the direction of the subject. In *intercontextual* research, we look for possibilities of contact and mediation between several contextures. Let us first turn to the *intracontextural* direction of research.

14 More precisely, decisions here refer to decisions about the equality or diversity of character shapes. Deciding in this sense takes place in the cultural process that generates the token-type relations of the letters and that logically and historically precedes the actual use of characters. Linking is part of character use, so it happens later.

If we have advanced from the complicacies of a contexture to the simplicity of its subject-object relation, there is at least a structural connection between the contexture and the number 2. The kenoarithmetic of the number 2 then raises the question of whether subject and object realm are the same or different. Naively or pragmatically, they are different, but philosophically their equality can also be held, for instance as a metaphysical *Coincidentia Oppositorum*: The subject can only map the structures of the objective within itself by cognition because subject and object realm belong to a common (divine) rationality. Or more modern, as naturalistic monism: the consciousness of the subject is an emergence product of the one and only objective natural substance. The ambiguous character of the subject-object relation between equality and difference is structurally denoted by the keno number 2.

But another aspect of the subject-object relation is not structurally contained in the keno number 2, its asymmetry. The subject has an intention that is directed towards the object realm, and this intention is asymmetric. The subject is also characterized by the fact that we (the agents of sign use) are or could be the subject, while we are or could *not* be the object realm. Through this (potential) identification of the agent of sign use with the subject pole of a contexture, an asymmetry comes into the subject-object relation. The keno number 2 does not know the difference between symmetry and asymmetry. Only in its connection to the atomic shapes "subject" and "object realm", i.e. only in the transition from the deutero number to the heap of characters, does it acquire an asymmetric character.

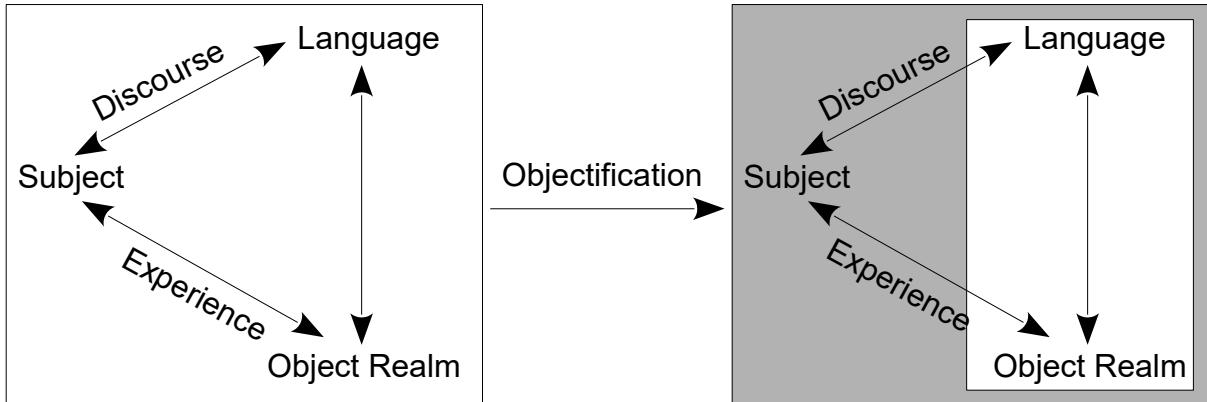
The rule sets of the positive language have the task of organizing the asymmetric duality of the subject-object relation. They solve this task by organizing themselves internally mainly by means of asymmetric category pairs. A prominent example is the pair (*True / False*) of logical values, in which Gotthard Günther was keenly interested. Günther observed that the asymmetry between true and false suggests to assign the value *true* to the object realm and the value *false* to the subject. True is what corresponds to the object realm, falsity can only have its source in the subject. The asymmetry between subject and object realm is repeated in the asymmetry between true and false. Günther has also pointed out that the asymmetry between true and false is not structurally fixed in logic, as can be seen from the fact that Boolean algebra is self-dual.

Another example of an asymmetric category pair is *Operator / Operand*. Here, too, the original meaning of the subject-object relationship can be clearly seen. The operator is the active pole, the operand the passive one. The operator offers itself to us as a place of identification, the operand doesn't. Unlike in the case of truth values, however, the asymmetry of operator and operand is structurally fixed, namely in the rules of grammar. In order to relate grammar to number, we must at least move on to number 3.

If we add language as a third pole to the subject and object realm, the subject-object duality becomes a triad. Coming from classical thought, we would place language between subject and object realm, arranged on a line, and would perhaps associate it with the idea that our knowledge of reality is filtered by language. But we can now move from standard semiotics to commutative semiotics, abstracting from the line on which subject, language and object realm are thought to be arranged. Then we have the basic structure of a triadic semiotics in the sense of Charles Sanders Peirce.

I want to demonstrate the efficiency of this basic structure by using it to render a thought from Buddhist philosophy more precisely. It is the thought that the pursuit of objectivity that dominates scientific rationality is tantamount to a clouding of consciousness [<sup>15</sup>]. The difference between language and the object realm in the triad provides two poles different from the subject, and this results in the structural possibility of building an asymmetric duality in which the subject no longer occurs. This is a great gain and a great danger. The gain lies in the possibility of abstracting from the subject and constructing objectivity. The danger lies in a narrowing of attention to the events between language and the object realm, a suppression of the subject's participation in the semiotic processes that generate the abstract shapes that seem to make up our reality. *Objectification* thus goes hand in hand with a dampening of self-consciousness, which psychologists in other contexts refer to as *projection* and are more likely to regard as pathological: We deny our own contribution to the emergence of our reality and fall prey to the illusion that it is given to us from the outside.

Now we proceed to the intercontextural research direction. After all, it is clear that the positive language cannot help us very much. By using it, we build a contexture around it (and around ourselves),



and we cannot get out of it. Distributed subjectivity cannot be positively thought or organized by a subject, not even by an objective collective scientific subject. Theory, as contexture, cannot have the task of positively determining, organizing or controlling polycontexturality. However, theory can make it its task to determine its relationship to other contexts theoretically, such as its relationship to the contexture of economics, or to the contexture of technology, or to the contexture of politics, or to the contexture of arts. Therefore it is necessary that it detaches its scientific attention from its fixation on the object realm and to develop methods that support inter-contextural communication. Can (classical) kenogrammatics help us in this?

The kenoms of kenogrammatics do not refer to anything external to language, like the classical letters, but they refer to *each other*. Perhaps we can learn something from the way in which kenoms relate to each other about how contexts relate to each other? Two connected kenoms can relate to each other as equal or as unequal, and something analogous applies to contexts as well. The case where two contexts relate to each other as equals can be interpreted as relating to each other in the mode of consensus on a common object realm; the other case can be interpreted in a way that such consensus is not possible because the contexts are structurally different, i.e. embody *different rationalities*, so that the connection between them has to be of a different nature. The former case corresponds to the classical form of communication, as an exchange of information about the object realm; the latter case is the one that interests us when we pursue the intercontextural research program.

However, the analogy does not carry any further. To know that two contexts are different is not enough; we should understand something about how they are different. Here we can see that the (two-valued) difference between equality and difference of kenoms, which determines kenogrammatics, is too poor in structure in many application contexts. Difference has a greater complexity than equality, so it should be given a structural overweight. Thus we have a reason to modify and further develop kenogrammatics.

Furthermore, kenogrammatics provides us with a concept of a *logical place* that we do not know from positive language. The keno number has a logical limit insofar as within the keno number there is a relation of equality / inequality of empty characters which does not exist outside the keno number. Unlike the word, the keno number knows a difference between *inside* and *outside*. Inside a keno number there is a difference structure of the kenoms contained therein; in the external relationship, a keno number can only relate to other keno numbers in such a way that it gets involved in addition or subtraction processes. Of course, there are also static relations between any two keno numbers (e.g. partial structural similarities), but these can only be established from the point of view of the external agent, they do not imply any interactions between the keno numbers.

Again, we can create an analogy to the contexture by associating the inside of a keno number with the intracontextural research direction, the outside with the intercontextural research direction. In this analogy, we can imagine an interaction of two contexts in such a way that they first open up to each other and merge additively, and then a process of subtraction occurs in which two others differentiate themselves out of the unified contexture. In this picture, an intercontextural interaction is not possible without the contexts intermediately giving up their identity, and also not without the structures and the boundaries of the contexts involved and even their number changing in an unpredictable way during the process.

This is an interesting thought, but if intercontextural interactions are *only* possible in this way, the scheme is obviously too rigid. There should be nuances between total static non-relatedness on one hand and total opening, dissolution and reshaping on the other, but these cannot be represented in

classical kenogrammatics, at least not in this way. Again, we have a reason to further develop kenogrammatics.

### Perspective

Gotthard Günther's discovery of kenogrammatics has shown that semiotic structures and processes are at work in the use of signs, which have hitherto remained concealed by our habit of atomic shape abstraction, and which we can explore and use if we exercise changing this habit. Kenogrammatics provides us with new "alphabets" whose members, the keno numbers, are not only different from each other, as the members of the old alphabet are. Beyond that they stand in manifold kenoarithmetic relations with each other and can be involved in manifold kenoarithmetic processes.

Even more important than the discovery of new semiotic raw material, however, appears to me to be that our *attention* is being *redirected* by the *transition* from classical to kenogrammatic sign usage. While classical sign usage directs our attention via word meanings to a realm external to the world of signs, the kenogrammatic sign usage directs our attention to what happens between the signs. We are beginning to forebode that the scriptural signs are far more alive and cooperative than we have previously assumed. Can we use this innovative impulse to make our cultural and technical products and institutions a little more lively and cooperative?