

What Chinese Grammar?

Interchangeability and morphogramatics of interpretations

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Abstract

To put it bluntly: Ancient Chinese characters (signs, hieroglyphs, characters) are conceived in a transclassic setting as *morphograms*. This insight is achieved with the approach of a polcontextural transformation of the categorical concept of bifunctionality and understood as the interchangeability of locus of a character and the character itself. Furthermore the interchangeability of Western grammatical categories to characterize Chinese characters and sentences is applied. This is proposed with the help of a positive reading of Rolf Elberfeld studies (2003, 2007) and a negative differentiation to other approaches which are not reflecting their complicity with Western grammar.

1. Ancient Chinese Grammar

1.1. Rolf Elberfeld, Bilder und Bedeutung

This paper is continuing my reflexions about Ancient Chinese ways of thinking as I started 2006 with the blog “The Chinese Challenge :: 中国挑战” with the main question: “*What can we learn from China that China is not teaching us?*”

<http://www.thinkartlab.com/CCR/rudys-chinese-challenge.html>

I will refer mainly to two recent papers of Rolf Elberfeld written in German. ¹

1

“Für das Antikchinesische, muß mit allem Nachdruck festgehalten werden, „*dass die Schriftzeichen keine Wörter sind, sondern dass sie für Wörter stehen bzw. die Schriftform verschiedener Wörter sein können.*” ²Ein Zeichen kann je nach Gebrauchskontext die Funktion einer bestimmten Wortart annehmen. Es ist nicht in sich auf eine einzelne Wortart festgelegt, sondern in jeweils bestimmten

Grenzen *wortartoffen*. So kann das Zeichen 死 mit der Aussprache *si* in einigen Fällen zum Verb "sterben" oder „tot sein“, Verbaladjektiv „tot“ oder Substantiv „Tod“ oder "Toter" werden.

Zwei Beispielsätze aus dem *Zhuangzi* können den Sachverhalt verdeutlichen:

生生者不生(*sheng sheng zhe bu sheng*)

[Das] Be-lebende, [das] leben [läßt], [ist selber] nicht lebendig /kein Lebendiges / lebt nicht.

物物者非物(*wu wu zhe fei wu*)

Das Be-dingende, das dingen läßt, ist selber nicht dinglich /kein Ding / dingt nicht.

Die einzelnen Zeichen lassen sich bei der Übersetzung im Deutschen hinsichtlich ihrer Wortart variieren. Die chinesischen Sätze sind jedoch ohne diese Differenzierung in eindringlicher Eleganz und Einfachheit aussagekräftig und verständlich.

Vielleicht ist es aber auch hinderlich, das Problem der Wortarten auf die chinesische Sprache zu projizieren, da sie in dieser Hinsicht anders funktioniert. Denn fraglich ist insbesondere die Einteilung in Wortarten, die für uns in ihrem Grundbestand — Substantiv, Verb, Adjektiv — unstrittig scheint.” (Elberfeld, Grammatik, p. 8) ³

Surprisingly, most translators, interpreters or grammarians of Ancient Chinese scriptures try to translate directly from the source to a modern target language. This happens, not specially surprisingly, with the comparative method of *negative* distinctions which in itself says nothing positively about the source language but all about the modern language in use.

Hence, to deny the Ancient Chinese language some grammatical structures tells only that the interpreter is using modern grammar to analyze an Ancient language which, obviously, isn't a modern language and therefore is 'lacking' most or all the 'achievements' of modern Indogermanic languages but nevertheless stays reasonable and understandable in itself.

As much it might be reasonable, at least for a first step, to translate the uncommon into the common, it might be reasonable as well to translate it

into another uncommon, say a new mathematical scripture which has not necessarily to inherit all the obstacles of the modern common language and its grammar, logic and ontology. Furthermore it would be helpful to involve another Ancient language, in our case, the best would probably be Ancient Greek. In another context it would be of help to get involved with Ancient Sanskrit or Ancient Egypt.

1.2. Strategies for translations

List of negative characteristics:

Count vs. Mass nouns

no Substantives

no Verbs

no Articles

no Logic

no Alphabet

no No.

1.2.1. Mass/noun distinction

Mass nouns

"Finally, the analysis does not spare us a syntactic distinction between *mass nouns* and *count nouns* after all. One of the differences between mass nouns like wine and *count nouns* like bear is that the former can be used as names of *kinds* right away, whereas the latter need a definite article or pluralization to perform this task. The only reason for these operations seems to be syntactic: singular count nouns cannot be used as noun phrases. So we need to distinguish between mass nouns and count nouns anyway. While these are no knockdown arguments, they make the first analysis more plausible, and it is the analysis I will assume in what follows."

Manfred Krifka, "Common Nouns: A Contrastive Analysis of English and Chinese", in G.N. Carlson & F. J. Pelletier (eds.), *The Generic Book*, Chicago University Press 1995, 398-411.

Comments

"Being", ontologically and linguistically, is used as a mass noun, (das Sein). Deconstruction by Heidegger of "Being" and countification of "Being" by Gunther. Gunther's strategy of polycontextuality might be read in both directions: 1. *countification* of Being as a transition from the singularity of the universal Being to a multitude of universes of Being(s); and 2. as a *massification* of intra-ontological kinds (mass nouns) towards Being(s); both together as a *chiasm* of "*elementary and compound contextures*"

(Gunther).

Mass/Set and object/morphism

Joseph Goguen's distinction of object/morphism and noun/verb and the traditional Western focus on object/noun in contrast to the Asian focus on morphism/verb.

Chad Hansen on nouns and 'count/mass' in Chinese theory of language.

Alfred Toth on proper names in semiotics.

Kent Palmer on set/mass as a distinction for system and meta-system.

"In his book *Language and Logic in Ancient China*, Chad Hansen advances a novel and provocative theory about the nature of classical Chinese language. The central thesis of Hansen's theory is his mass-noun hypothesis. Its main ideas are these:

(1) The (folk) semantics of Chinese nouns is like that of mass nouns (i.e., those nouns referring to the so-called inter-penetrating stuffs, like 'water' and 'snow'), and naming in Chinese is not grounded on the existence of, or roles for, abstract entities (either on the ontic level or on the conceptual level) but rather on finding 'boundaries' between things ("to know a word is simply to be able to discriminate").

(2) Influenced by the mass-noun semantics, the classical Chinese semantic theorists and ontological theorists view words in ways that are natural to view mass nouns rather than count nouns, and Chinese theorists tend to organize the objects in the world in a mereological stuff-whole model of reality. In this way, according to Hansen, the language theory of classical Chinese philosophers differs fundamentally from the language theory of Western philosophy.

To my knowledge, Hansen's mass-noun hypothesis of the classical Chinese semantics and ontology, since being put forward, has been challenged mainly in two ways. One way is to challenge the mass-stuff model from the perspective of a holographic process ontology. The other way is to challenge Hansen's mass-noun hypothesis directly, arguing that there is a clear grammatical distinction in classical Chinese between count nouns and other nouns (generic nouns and mass nouns)."

(Bo Mou)

Bo Mou, HE STRUCTURE OF THE CHINESE LANGUAGE AND ONTOLOGICAL INSIGHTS: A COLLECTIVE-NOUN HYPOTHESIS

<http://www.jstor.org/pss/1400116>

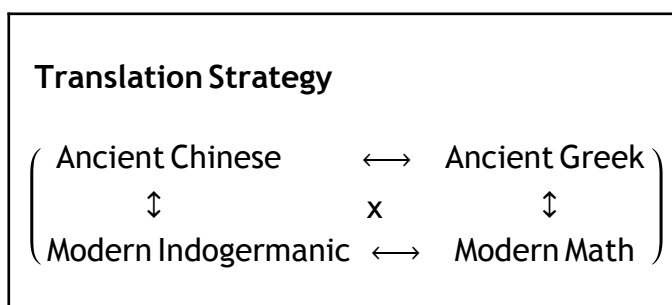
"It is well known that the count-mass distinction in English is defined according to morphological and syntactic criteria rather than ontological distinctions."

"Scholars who work on Chinese since Chao (1968) have argued that while indeed nouns are not marked for the count-mass distinction, this does not mean that the count-mass distinction is not relevant to Chinese nominal syntax. The view put forward by Chao, and more recently by Cheng and Sybesma (1998, 1999) says that the count-mass distinction in Chinese is encoded not in nouns, but in the classifier system. In general, classifiers can be divided into two broad classes, sortal classifiers, also called individual classifiers, which encode ontological properties of the referents of the nouns that they select, and mensural classifiers, which are typically nouns in their own right, and provide units of measure for counting the noun denotations."

(Dongfan Hua and Thomas Hun-tak Lee)

Chinese ESL Learners' Understanding of the English Count-Mass Distinction

<http://www.lingref.com/cpp/gasla/7/paper1162.pdf>



What could be learned: What happened by the transition, say, from Pre-Socratic, Pythagorean language-use and world-view, to the Aristotelian language and philosophy? Aristotle has given a lot of hints with his refutation of the Pythagorean world-view about the use of Ancient Greek by the Pythagoreans and their concept of cosmos, numbers, time, etc. The trick of refutation is simple: The old are mythological, the new are scientific and fit well to the new economic system.

My stipulation is simple too: Today we encounter a similar situation as during the transition from the mythological and Ancient to the 'scientific' and 'modern' with the need to transcend our Western scientific and political system to a 'post'-modern and trans-classical paradigm or epoch. Hence, a trans-classical paradigm of mathematics is in itself again a

transformation from the classic modern to the unknown of a trans-classic paradigm. Therefore, the study of Ancient cultures, especially the Chinese, might help to open the eyes for the historical restrictions of the modern concept of science and technology.

"Das kann bedeuten, daß das Studium der Sprachform des Altchinesischen eine maieutische Funktion für die Entwicklung einer Denkform europäischer Gegenwartsphilosophie haben kann. Alte Sprachformen, die die neue Denkform immer noch behindern, können so besser durchschaut und reflektiert werden." (Elberfeld, 2003)

The strategy taken here is to transform the classical mechanism of bifunctoriality of composition and juxtaposition in (double) categories to a polycontextuality of distributed and mediated compositions in a polycontextural category in progress.

Today, nanotechnology, with the invention/discovery of memristive systems, is being confronted with conceptual situations far beyond classical structures based on Western subject-object-dichotomy.

"They [memristors] not only hold the potential to surpass the performance of flash memory in the short term, but also make it theoretically possible for memory and computations to be performed using the same devices—thus eliminating the differentiation between processor and memory (or storage)." (Williams)

<http://www.thinkartlab.com/pkl/lola/Memristics/Memristics:Memristors, again.pdf>

Modern math to trans-classical math

The transition from the ultimate bifunctoriality scheme of modern math to the *interchangeability* scheme of trans-classical math is not unique. There is a complex family of different types of bifunctorial interchangeability schemes naturally achievable from the transformation of the classic scheme.

<p style="text-align: center;">Bifunctoriality in category theory with \circ, \otimes</p> $\begin{bmatrix} q_1 & q_2 \\ p_1 & p_2 \end{bmatrix} : \begin{pmatrix} p_1 \\ \otimes \\ p_2 \end{pmatrix} \circ \begin{pmatrix} q_1 \\ \otimes \\ q_2 \end{pmatrix} = \begin{pmatrix} (p_1 \circ q_1) \\ \otimes \\ (p_2 \circ q_2) \end{pmatrix}$
--

Mixed interchangeability for replication, transposition and juxtaposition in composition and dissemination with $[\otimes, \circ, \diamond, \square, \Pi]$ in a

3 – contextual category

$$\begin{pmatrix}
 (f_1 \square_{1.2} f_1 \square_{1.3} f_1) \\
 \Pi_{1.2} \\
 f_2 \diamond_{2.1} f_1 \\
 \Pi_{2.3} \\
 \left(\begin{matrix} f_1 \\ \otimes_3 \\ f_2 \end{matrix} \right) \diamond_{3.1} f_1
 \end{pmatrix}
 \begin{matrix}
 \circ_{1.1} \square_{1.2} \square_{1.3} \\
 [\circ_{2.1} \circ_{2.2}] \\
 \circ_{3.1} \circ_{3.3}
 \end{matrix}
 \begin{pmatrix}
 (g_1 \square_{1.2} g_1 \square_{1.3} g_1) \\
 \Pi_{1.2} \\
 g_2 \diamond_{2.1} g_1 \\
 \Pi_{2.3} \\
 \left(\begin{matrix} g_1 \\ \otimes_3 \\ g_2 \end{matrix} \right) \diamond_{3.1} g_1
 \end{pmatrix}
 =$$

$$\begin{pmatrix}
 \left((f_1 \circ_{1.1} g_1) \square_{1.2} (f_1 \circ_{1.2} g_1) \right) \square_{1.3} (f_1 \circ_{1.3} g_1) \\
 \Pi_{1.2} \\
 (f_2 \circ_{2.2} g_2) \diamond_{2.1} (f_1 \circ_{2.1} g_1) \\
 \Pi_{2.3} \\
 \left(\begin{matrix} (f_1 \circ_3 g_1) \\ \otimes_3 \\ (f_2 \circ_3 g_2) \end{matrix} \right) \diamond_{3.1} (f_1 \circ_{3.1} g_1)
 \end{pmatrix}$$

Philosophical interpretation

'Erscheinen' = 'Ganzheit' der 'Verortung' eines 'Ding' in der 'Tätigkeit' des 'Sehens'.

O : Ort,

M : Ding,

\circ, \square, \diamond : Tätigkeit,

Π : Ganzes (in der Zeit)

"Nishitani deutet z. B. das Phänomen „sehen“ folgendermaßen:

„Der Ort, in dem die Seinsweise ‚im Erscheinen‘ entsteht, bzw. der Ort des ‚Erscheinens‘ ist gleichbedeutend mit ‚etwas ist da‘. Dort sind ‚Sehen‘ und ‚Erscheinen‘ dasselbe. ‚Sehen‘ ist unmittelbar ‚erscheinen‘ und ‚erscheinen‘ ist unmittelbar ‚sehen‘. Dies ist der ursprüngliche Zustand der Sinnlichkeit, den man ‚Sehen‘ nennt. [...],

'Sehen' bedeutet, daß die drei Momente: die *Tätigkeit* des Sehens, das

gesehene ‚Ding‘ und der Ort, in dem es erscheint, ein Ganzes bilden«.“ (Elberfeld, p. 5, 2003)

In contrast to the chiasmic characterization of "perception" by the Japanese philosopher Nishitani, Western concepts of perception are based on a clear distinction between subject and object.

Therefore, perception is conceived as the identification of an object in space.

Hence, space is pre-given, i.e. *a priori* in the sense of Kantian epistemology.

Ort- Derrida und Nishitani (1998)

http://www.uni-hildesheim.de/media/deco/1998a_Ort_Derrida_und_-Nishitani.pdf

Similar to the "Ancient" Japanese and Chinese understanding of perception, the kenomic matrix is not presuming an *a priori* space, the matrix, but is put on stage, "inszeniert", by the action of perception. This is not identical to say, it is constructed or re-constructed, but it is understood as the chiasmic *interplay* as such of 'configuration and restitution'.

Graphematic chain of Chinese sign

Chinese character: *locus* → *inscription* → *interpretation*.

"Für das Antikchinesische, muß mit allem Nachdruck festgehalten werden, 'dass die Schriftzeichen keine Wörter sind, sondern dass sie für Wörter stehen bzw. die Schriftform verschiedener Wörter sein können'." (Elberfeld)

With this graphematic chain of locus, inscription, interpretation, there is no need to privilege the "locus" as a beginning in itself. The chiasmic bifunctorial approach is emphasizing the interchangeability of the terms and not its hierarchic order. Hence, a statement, that a kenogram is an empty place which might be occupied or filled by a value - or not, is misleading. It is not taken into account the co-creative processuality and dynamics of such a filling procedure. A kenogram is not conceived as a passive pre-semiotic hole which might be filled with earthy stuff - or not. (Cf. Derrida's *chora*)

In accordance to Gunther's statement, Alfred Toth recalls: ⁴

Redefinition of *textemes*

Textemes: "Kontext als Kontext"

"Würde man diesen Gegensatz zuspitzen, dann müßte man sagen, daß „Begriffe“ in unserem Sinne sich in der chinesischen Sprache nicht nahelegen, sondern immer der Kontext als Kontext stärker in die Aufmerksamkeit gerückt wird. Jedes einzelne Zeichen gewinnt seine Bedeutung in der Beziehung zu anderem und zwar durchgehend in einem Wechselverhältnis." (Elberfeld)

Textemes had been introduced to surpass semiotic atomicity, linearity and sequentiality. It is argued that signs in the sense of semiotics are deprived of a genuine context and environment. Superisation, iteration and adjunction, and other intertextual semiotic mechanism, are *secondary* additions to the main definition of signs in semiotics and are not involved in the definition/introduction of the concept of signs as such. The slogan, signs are always related to other signs, is not reflecting this relatedness in the definition of a sign (Peirce).

A further precision of the new concept of *textemes* as anchored bi-signs might be sketched by the following hints.

Textemes had been first introduced into semiotics or graphematics as diamondized signs where their diamond environments are interacting together, and therefore building a bi-sign. Additionally, signs are conceived as anchored and hence, bi-signs are anchored by their anchors. Diamondization is a radicalization of chiasmification. As it is natural to understand the structure of bifunctionality as a special chiasm it follows directly that textemes must have a precision in bifunctionality and therefore in interchangeability.

How is a texteme introduced?

A *texteme* is reducible to its interacting bi-signs by excluding its chiasmic interactivity.

A semiotic *diamond* is a bi-sign, de-rooted from its *anchor*,

A single *bi-sign* is disconnected from its neighbor bi-sign, hence it is a bi-sign without interaction but realizing an anchored semiotic diamond with its isolated, and hence restricted, *environment*.

A *sign* is a semiotic diamond, deprived from its environment.

Precision steps:

From diagrams to bifunctional formulas in a 2-contextual category. More concretizations concerning a proper category-theoretic definition of monoidal axioms defining categorical bifunctionality are omitted too. But

the introduction of the interchangeability schemes is clear enough to extend it easily, without the fussiness of complex diagrams, to more complex texteme configurations.

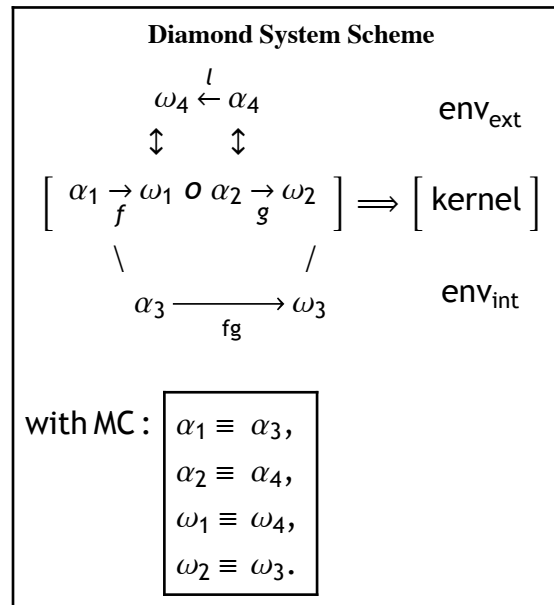
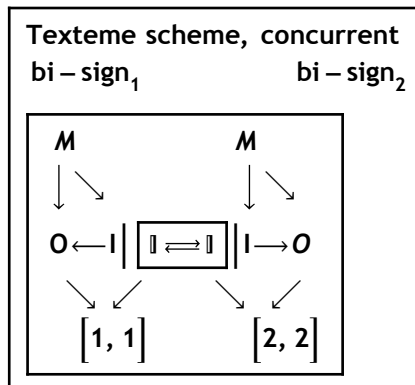
The question is:

How are two signs, each having an independent environment, related and composed together to build a 2-texteme?

The answer is given by the bifunctionality of both, signs and environments. This is structurally nothing new. What's definitively new is its formal and operative presentation in the framework of (polycontextural) category theory.

According to the slogan: *'From the mind to the blackboard'*, the interchangeability rules for textemes are explicitly operationalizing exactly what still has to be constructed mentally to understand the diagram notation for textemes.

From conceptual graphs to polycontextural monoidal categories



Abstract interchange of sign and environment

$$\text{sign}_1 | \text{env}_1 \amalg \text{sign}_2 | \text{env}_2 = (\text{sign}_1 \amalg \text{sign}_2) | (\text{env}_1 \amalg \text{env}_2)$$

sign = (M, O, I), env₁(sign) = \mathcal{I} , anchors [..]: omitted

Bifactoriality of a 2 -texteme with [° , II]

$$\begin{array}{c}
 \mathbf{M} \\
 \downarrow \searrow \\
 \left[\begin{array}{c} \mathbf{O} \leftarrow \mathbf{I}_1 \quad \mathcal{I}_1 \\ \mathbf{M} \end{array} \right] : \\
 \downarrow \searrow \\
 \mathbf{O} \leftarrow \mathbf{I}_2 \quad \mathcal{I}_2
 \end{array}$$

$$\left(\begin{array}{c} \mathbf{M} \\ \downarrow \searrow \\ \mathbf{O} \leftarrow \mathbf{I}_1 \\ \mathbb{I} \\ \mathbf{M} \\ \downarrow \searrow \\ \mathbf{O} \leftarrow \mathbf{I}_2 \end{array} \right) \circ \left(\begin{array}{c} \mathcal{I}_1 \\ \mathbb{I} \\ \mathcal{I}_2 \end{array} \right) = \left(\begin{array}{c} \mathbf{M} \\ \downarrow \searrow \quad \circ \quad \mathcal{I}_1) \\ \mathbf{O} \leftarrow \mathbf{I}_1 \\ \mathbb{I} \\ \mathbf{M} \\ \downarrow \searrow \quad \circ \quad \mathcal{I}_2) \\ \mathbf{O} \leftarrow \mathbf{I}_2 \end{array} \right)$$

$$\Pi_{\text{Type}}^{(1,2)} \left(\begin{array}{c} \mathbf{M} \quad - \\ \downarrow \searrow \\ \mathbf{I} \rightarrow \mathbf{O} \end{array} \right)$$

texteme
0-anch

$$\left[\begin{array}{c} \mathbf{M} \quad - \\ \mathbf{I} \quad \mathbf{O} \end{array} \right] \left| (\bar{\mathbf{I}} \rightleftharpoons \bar{\mathbf{I}}') \left| \left[\begin{array}{c} - \quad \mathbf{M}' \\ \mathbf{O}' \quad \mathbf{I}' \end{array} \right]$$

Formula for 0 – anchored 2 – texteme
(Xanadu – version)

$$\Pi_{\text{Type}}^{(1,2)} \left(\begin{array}{c} M \quad - \\ \downarrow \searrow \\ \text{I} \rightarrow O \end{array} \right)$$

0-anch

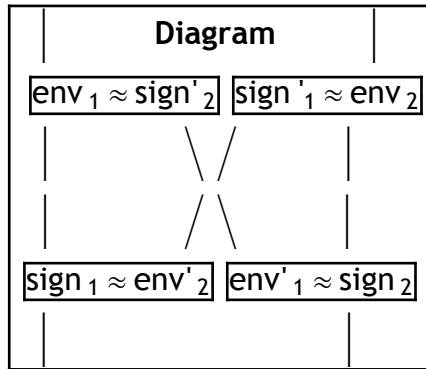
$$\left(\begin{array}{c} M \\ \downarrow \searrow \\ O \leftarrow I_1 \\ \Pi \\ M \\ \downarrow \searrow \\ O \leftarrow I_2 \end{array} \right) \circ \left(\begin{array}{c} I_1 \\ \Pi \\ I_2 \end{array} \right) = \left(\begin{array}{c} M \quad \quad \quad \circ I_1) \\ \downarrow \searrow \quad \quad \quad \circ I_2) \\ O \leftarrow I_1 \\ \Pi \\ M \\ \downarrow \searrow \quad \quad \quad \circ I_2) \\ O \leftarrow I_2 \end{array} \right)$$

Bifunctorial notation for 0 – anchored (1, 3) –textemes

$$\Pi_{\text{Type}}^{(1,3)} \left(\begin{array}{c} M \quad - \\ \downarrow \searrow \\ \text{I} \rightarrow O \end{array} \right)$$

0-anch

$$\left(\begin{array}{c} \left(\left(\text{sign}_1 \circ_{1.0 \times 0} \text{env}_1 \right) \right) \\ \Pi_{1.2 \times 0} \\ \left(\text{sign}_2 \circ_{0.2 \times 0} \text{env}_2 \right) \\ \Pi_{1.2 \times 3} \\ \left(\text{sign}_3 \circ_{0.0 \times 3} \text{env}_3 \right) \end{array} \right) = \left(\begin{array}{c} \text{sign}_1 \\ \Pi_{1.2 \times 3} \\ \text{sign}_2 \\ \Pi_{1.2 \times 3} \\ \text{sign}_3 \end{array} \right) \circ_{1.2 \times 3} \left(\begin{array}{c} \text{env}_1 \\ \Pi_{1.2 \times 3} \\ \text{env}_2 \\ \Pi_{1.2 \times 3} \\ \text{env}_3 \end{array} \right)$$



**Metamorphic Interchangeability in the
as – mode $[\approx, \diamond, \circ, \Pi]$**

$$\left(\begin{array}{cc} (sign_1 \approx env'_2) & \circ & (env_1 \approx sign'_2) \\ & \diamond & \Pi & \diamond \\ (sign_2 \approx env'_1) & \circ & (env_2 \approx sign'_1) \end{array} \right) =$$

$$\left[\begin{array}{cc} (sign_1 \approx env'_2) & (env_1 \approx sign'_2) \\ \Pi & \diamond \end{array} \right] \circ \left[\begin{array}{cc} \Pi & \diamond \\ (sign_2 \approx env'_1) & (env_2 \approx sign'_1) \end{array} \right] =$$

$$\left[\begin{array}{cc} (sign_1 \circ env_1) & (env'_2 \circ sign'_2) \\ \Pi & \diamond \end{array} \right] \approx \left[\begin{array}{cc} \diamond & \\ (sign_2 \circ env_2) & (env'_1 \circ sign'_1) \end{array} \right]$$

Π : mediation between contextures

\circ : composition of morphisms

\diamond : cross – interchange between levels

$=$: equivalence

\approx : as – abstraction

Motivations

The main reason to choose polycontextural logics and morphogramatics as mathematical interpretations of ‘Chinese Grammar’ is simple. Both are as far as possible neutral to logocentric grammatical categories, like sentence, proposition, words, nouns, concepts, verbs, etc. In contrast, existing math, logic and linguistics based on it, are fundamentally linked to logocentrism. As it is stated, Chinese characters are as such neither words nor pictures. Therefore, for a proper understanding, a scriptural system has to be involved which is itself not based on signs, propositions, notions or ideograms.

2. Morphograms as a complementarity of locus and sign

A complementarity of locus and system (sign, category) explains the interdependency (Wechselverhältnis) of both. There is no locus without system and no system without locus. Only after this difference is established by its mechanism a neglect of the one or the other might be accepted for isolated studies of loci, say kenogramatics, and of systems, say logics, semiotics or categories. Such a mechanism between system and locus is nicely realized with the application of the *bifunctoriality* concept of category theory.

Bifunctoriality and general interchangeability are exactly offering the mechanism of a parallelism and interchange between autonomous entities like locus and system combined with mathematical operativity which wasn't as easily accessible by chiasmic, proemial and diamond formulations.

In this study, categorical bifunctoriality of composition and juxtaposition is generalized to bifunctoriality as the *interchangeability* between composition and mediation - and other polycontextural operators too. With that, the degree of autonomy in parallelism and complementarity is radically augmented. Both operators, composition and mediation, are *per se* autonomous; and are interacting in such an autonomous framework.

One place – one system

$$\begin{matrix} O_1 \\ \left[\begin{matrix} M_1 \\ (G_1) \end{matrix} \right] \end{matrix} =_{MG} \begin{matrix} M_1 \\ \left[\begin{matrix} O_1 \\ (\overline{G_1}) \end{matrix} \right] \end{matrix} =_{MG} \left[\begin{matrix} MG_{100} \end{matrix} \right]$$

$$\begin{bmatrix} O_1 & M_1 \\ M_1 & O_1 \end{bmatrix} : \begin{matrix} \left(\begin{matrix} O_1 \\ \Pi \\ M_1 \end{matrix} \right) \\ \circ \\ \left(\begin{matrix} M_1 \\ \Pi \\ O_1 \end{matrix} \right) \end{matrix} = \begin{matrix} \left(\begin{matrix} O_1 \circ M_1 \\ \Pi \\ M_1 \circ O_1 \end{matrix} \right) \\ \circ \\ \left(\begin{matrix} O_1 \\ \Pi \\ M_1 \end{matrix} \right) \end{matrix} :: \begin{matrix} \left(\begin{matrix} G_{100} \\ \Pi \\ \overline{G_{100}} \end{matrix} \right) \end{matrix} =_{MG} \left[\begin{matrix} MG_{100} \end{matrix} \right]$$

The place (O) is enabling the system (M);

the system (M) is enabling the place (O).

Simultaneity of horizontal,

sequential (time) composition of M and O with horizontal,

parallel (space) distribution (yuxtaposition) of O and M .

Two places – two systems

$$\begin{matrix} O_1 \\ \left[\begin{matrix} M_1 \\ (G_{100}) \end{matrix} \right] \\ O_2 \\ \left[\begin{matrix} M_2 \\ (G_{020}) \end{matrix} \right] \end{matrix} = \begin{matrix} M_1 \\ \left[\begin{matrix} O_1 \\ (\overline{G_{100}}) \end{matrix} \right] \\ M_2 \\ \left[\begin{matrix} O_2 \\ (\overline{G_{020}}) \end{matrix} \right] \end{matrix} :: \begin{matrix} MG & O_1 & O_2 \\ M_1 & MG_{100} & - \\ M_2 & - & MG_{020} \end{matrix}$$

$$\begin{bmatrix} O_1 & O_2 \\ M_1 & M_2 \end{bmatrix} : \begin{matrix} \left(\begin{matrix} O_1 \\ \Pi \\ O_2 \end{matrix} \right) \\ \circ \\ \left(\begin{matrix} M_1 \\ \Pi \\ M_2 \end{matrix} \right) \end{matrix} = \begin{matrix} \left(\begin{matrix} O_1 \circ M_1 \\ \Pi \\ O_2 \circ M_2 \end{matrix} \right) \\ \circ \\ \left(\begin{matrix} O_1 \\ \Pi \\ O_2 \end{matrix} \right) \end{matrix} :: \begin{matrix} \left(\begin{matrix} G_{100} \\ \Pi \\ G_{020} \end{matrix} \right) \end{matrix}$$

$$\begin{matrix} O_1 \\ \left[\begin{matrix} M_1 \\ (G_{100}) \end{matrix} \right] \end{matrix} \left[\begin{matrix} O_2 \\ \left[\begin{matrix} M_2 \\ (G_{020}) \end{matrix} \right] \end{matrix} \right] = \begin{matrix} PM & O_1 & O_2 \\ M_1 & G_{100} & - \\ M_2 & - & G_{020} \end{matrix}$$

Interchangeability for morphograms with two loci

$$\begin{bmatrix} O_1 & O_2 \\ M_1 & M_2 \end{bmatrix} =_{\text{mg}} \begin{bmatrix} M_1 & M_2 \\ O_1 & O_2 \end{bmatrix}$$

$$\left[\begin{bmatrix} O_1 & O_2 \\ M_1 & M_2 \end{bmatrix} \right] \approx \left[\begin{bmatrix} M_1 & M_2 \\ O_1 & O_2 \end{bmatrix} \right]:$$

$$\left(\begin{bmatrix} O_1 \\ \text{II} \\ O_2 \end{bmatrix} \circ \begin{bmatrix} M_1 \\ \text{II} \\ M_2 \end{bmatrix} \right) \approx \left(\begin{bmatrix} M_1 \\ \text{II} \\ M_2 \end{bmatrix} \circ \begin{bmatrix} O_1 \\ \text{II} \\ O_2 \end{bmatrix} \right) =$$

$$\left(\begin{array}{c} (O_1 \circ M_1) \approx (M_1 \circ O_1) \\ \text{II} \\ (O_2 \circ M_2) \approx (M_2 \circ O_2) \end{array} \right) ::$$

$$\left(\begin{array}{c} (G_{100}) \approx (\overline{G_{100}}) \\ \text{II} \\ (G_{020}) \approx (\overline{G_{020}}) \end{array} \right) =_{\text{MG}} \begin{bmatrix} (MG_{100}) \\ \text{II} \\ (MG_{020}) \end{bmatrix}$$

Different notation

$$\left[\begin{bmatrix} O_1 & O_2 \\ M_1 & M_2 \end{bmatrix} : \begin{bmatrix} O_1 \\ \text{II} \\ O_2 \end{bmatrix} \circ \begin{bmatrix} M_1 \\ \text{II} \\ M_2 \end{bmatrix} = \begin{bmatrix} (O_1 \circ M_1) \\ \text{II} \\ (O_2 \circ M_2) \end{bmatrix} :: \begin{bmatrix} (G_{100}) \\ \text{II} \\ (G_{020}) \end{bmatrix} \right] =_{\text{MG}} \begin{bmatrix} (MG_{100}) \\ \text{II} \\ (MG_{020}) \end{bmatrix}$$

$$\left[\begin{bmatrix} M_1 & M_2 \\ O_1 & O_2 \end{bmatrix} :: \begin{bmatrix} M_1 \\ \text{II} \\ M_2 \end{bmatrix} \circ \begin{bmatrix} O_1 \\ \text{II} \\ O_2 \end{bmatrix} = \begin{bmatrix} (M_1 \circ O_1) \\ \text{II} \\ (M_2 \circ O_2) \end{bmatrix} :: \begin{bmatrix} (\overline{G_{100}}) \\ \text{II} \\ (\overline{G_{020}}) \end{bmatrix} \right] =_{\text{MG}} \begin{bmatrix} (MG_{100}) \\ \text{II} \\ (MG_{020}) \end{bmatrix}$$

"Wenn ich das Gesagte noch einmal zuspitzend zusammenfasse, so wurde an der Fragestellung nach dem grammatischen Subjekt, der Aktionsart der Verben und der Einteilung der Wortarten in bezug auf das Altchinesische deutlich, daß hier eine Denkform nahegelegt wird, die eher bestimmte Geschehensqualitäten in den Blick treten läßt, die noch vor der Trennung von Subjekt und Objekt liegen.

Sowohl die stilistisch sehr weit ausgearbeitete Möglichkeit von subjektlosen Sätzen wie auch die eher mediale Verwendung von Verben und auch das Fehlen der Wortklasse „Adjektiv“ im Sinn des Akzidensschemas und die dadurch mithervorgerufene zentrale Stellung des Verbs eignen sich besonders für die Beschreibung von Phänomenen, auf die wir bei vorprädikativen Handlungs- oder Geschehensvollzügen stoßen, beispielhaft realisiert in Naturvorgängen oder kreativen Prozessen künstlerischen Schaffens." (Rolf Elberfeld, Grammatik des Altchinesischen, 2003)

http://www.uni-hildesheim.de/media/deco/2003d_Grammatik_des_Altchinsischen.pdf

Interchangeability of interpretations

3.1. Interpretations

Based on the interchangeability of loci and systems of Chinese characters, a new interchangeability is introduced: the interchangeability of grammatical interpretations.

"Verb „sterben" oder „tot sein", Verbaladjektiv „tot" oder Substantiv „Tod" oder "Toter" werden."

Character: IE

Functions:

Verb

Adjective

Substantive

Mediation of interpretations (as verb, adjective, substantive, etc.) is avoiding to understand the interplay of the different interpretations as an abstraction in the sense of an equivalence class between the grammatical categories of verb, substantive and adjective.

This modeling is obviously in the chain: *Ancient Chinese* → *Modern Indogermanic*.

Elberfeld's interpretation is using a kind of 'negative' comparatistics: The Chinese sign is neither a word, a verb or an adjective but it is also interpretable as all of them at once. Hence, a positive statement is missing; except that he insists that Chinese terms are "*wortartoffen*" and the interchange of meaning is understood as *Vexierbilder*.

The logic of *Vexierbilder* is quite complex. There is a study of mine where I develop a 6-contextual logic to grasp the dynamics of the interchangeability of aspects by the *Vexierbild*. This is in strict contrast to the rudimentary thoughts of the *circulus virtuosus* and *re-entry* speculations of the follower of the Second-order Cybernetics movement.

The 'vexare' of the *Vexierbild* (also called *Kippfigur*, engl. *Puzzle Picture*) is understood as the interchangeability of the figure(s) of interpretations. A simple *Vexierbild* is transporting a second and irritating different picture

or meaning. But the second picture is not in any sense the true picture. Between both perceptions of the pictures there is no hierarchy with a domination of one over the other but much more a heterarchy with both at once being meaningfulness on the same level of understanding. It might be more preferable to see the face of a young woman than the face of an old woman. But this has nothing to do with the heterarchic mechanism of a Vexierbild. In this sense, the term Kippfigur or Puzzle Picture is more neutral to a preference than the 'vexare' of Vexierbild suggests.

Again, the metaphor and mechanism of a Vexierbild or Kippfigur, i.e. Puzzle Picture, is *interchangeability* and might get an appropriate modeling with the figure of polycontextural interchangeability which is seen in analogy to categorical bifunctionality. With that, the mechanism is positively constructed. The different appearances of the figures are not isolated but mediated. All figures together, here the grammatical figures of verb, adjective and substantive, are forming together a system of grammaticality.

Nevertheless, it is of importance to see that Ancient Chinese characters are not derived essentially from pictures, neither from Puzzle Pictures.

"Am Anfang der chinesischen Schrift stehen unter anderem konkrete Bilder, aber nicht nur. Daher ist die chinesische Schrift in ihrer Urform nicht als eine Bilderschrift zu bezeichnen, wie immer wieder behauptet wurde." (Elberfeld, 2007)

Bilder und Bedeutung zwischen Sinnlichkeit und Denken - Vexierbilder und chinesische Schrift, in: Weltbild - Bildwelt, hg. v. W. Schweidler, St. Augustin 2007, 337-346.

http://www.uni-hildesheim.de/media/deco/2007b_Bilder_und_Bedeutung_zwischen_Sinnlichkeit_und_Denken.pdf

But what is the figure of the figuration itself? Here, the figuration is the Ancient Chinese character. This is answered by the *morphogram* of the mechanism of the figuration.

3.2. Mechanism of interacting interpretations

3.2.1. Interchangeability of interpretations

$\{\circ\}$ = interpretation, (O) = character, $[\Pi]$ = mediation

1. The Chinese character O interpreted (modeled)

by the Indogermanic term M_1 as Chinese character O_1 .

$[\text{Verb}_1 \quad \text{Substantive}_2 \quad \text{Adjective}_3]$,
 $[O_1 \quad O_2 \quad O_3]$,

$$\begin{bmatrix} M_1 & - & M_3 \\ O_1 & M_2 & - \\ - & O_2 & O_3 \end{bmatrix} : \begin{pmatrix} \left(\begin{matrix} (M_1 \circ_{1.0 \times .0} O_1) \\ \Pi_{1.2 \times .0} \\ (M_2 \circ_{0.2 \times .0} O_2) \\ \Pi_{0.2 \times .3} \\ (M_3 \circ_{0.0 \times .3} O_3) \end{matrix} \right) \end{pmatrix} =$$

$$\begin{pmatrix} \left(\begin{matrix} M_1 \\ \Pi_{1.2 \times .0} \\ M_2 \\ \Pi_{0.2 \times .3} \\ M_3 \end{matrix} \right) \end{pmatrix} \begin{matrix} \circ_{1.0 \times .0} \\ [\circ_{0.2 \times .0}] \\ \circ_{0.0 \times .3} \end{matrix} \begin{pmatrix} \left(\begin{matrix} O_1 \\ \Pi_{1.2 \times .0} \\ O_2 \\ \Pi_{0.2 \times .3} \\ O_3 \end{matrix} \right) \end{pmatrix}$$

2. The Indogermanic term M interpreted (elicited)

by the Chinese character O_1 as Indogermanic term M_1

$[\text{Verb}_1 \quad \text{Substantive}_2 \quad \text{Adjective}_3]$,
 $[M_1 \quad M_2 \quad M_3]$,

$$\begin{bmatrix} O_1 & - & O_3 \\ M_1 & O_2 & - \\ - & M_2 & M_3 \end{bmatrix} : \begin{pmatrix} \left(\begin{matrix} (O_1 \circ_{1.0 \times .0} M_1) \\ \Pi_{1.2 \times .0} \\ (O_2 \circ_{0.2 \times .0} M_2) \\ \Pi_{0.2 \times .3} \\ (O_3 \circ_{0.0 \times .3} M_3) \end{matrix} \right) \end{pmatrix} =$$

$$\begin{pmatrix} \left(\begin{matrix} O_1 \\ \Pi_{1.2 \times .0} \\ O_2 \\ \Pi_{0.2 \times .3} \\ O_3 \end{matrix} \right) \end{pmatrix} \begin{matrix} \circ_{1.0 \times .0} \\ \left[\circ_{0.2 \times .0} \right] \\ \circ_{0.0 \times .3} \end{matrix} \begin{pmatrix} \left(\begin{matrix} M_1 \\ \Pi_{1.2 \times .0} \\ M_2 \\ \Pi_{0.2 \times .3} \\ M_3 \end{matrix} \right) \end{pmatrix}$$

Morphogram of interchangeability of interpretations

The figure of the figuration, i.e. both interpretations at once, is given, inscribed by the *morphogram* of the simultaneity of both patterns of interchangeability.

Short cut :

$$\begin{bmatrix} M_1 & - & M_3 \\ O_1 & M_2 & - \\ - & O_2 & O_3 \end{bmatrix} =_{MG} \begin{bmatrix} O_1 & - & O_3 \\ M_1 & O_2 & - \\ - & M_2 & M_3 \end{bmatrix} = \begin{bmatrix} \circ \\ \square \\ \diamond \end{bmatrix}$$

Hence, the morphogram as the "*Gestaltqualität*" of Chinese characters get its pre-semantic (pre-logical, etc.) inscription as the kenomic pattern [○ □ ◇], called in the polycontextural modeling language used here, '*morphogram*'.

Gestaltqualität as morphogram

"Wenn das Vexierbild insbesondere das Denken im Bild zeigt, so zeigen chinesische Zeichen die sinnliche *Gestaltqualität* von Vexierbildern — ohne selbst notwendig Bilder zu sein — im Denken und der Sprache."

"Die einzelnen Zeichen lassen sich bei der Übersetzung im Deutschen hinsichtlich ihrer Wortart variieren. Die chinesischen Sätze sind jedoch *ohne* [emph, rk] diese Differenzierung in eindringlicher Eleganz und Einfachheit aussagekräftig und verständlich."

"Im Gegensatz dazu kann man bei einem chinesischen Zeichen zunächst auf lexikalischer Ebene nicht von Wortarten sprechen. Nur durch die Funktion im Satz läßt sich zwar nicht immer eindeutig, aber immerhin eingrenzen,

in welcher Wortartfunktion es den Sprachgebrauchskonventionen gemäß im betreffenden Satz fungiert.“

„Vielmehr ist es notwendig, das Gesehene Bild einmal als Bild vollständig zu zerstören, um den Aspektwechsel als den Aufbau eines neuen Bildes vornehmen zu können. Somit ist die Zerstörung des einen Bildes zeitgleich mit dem Aufbau des anderen. Beide Bilder existieren dennoch nicht getrennt voneinander, sondern in *Differenz zugleich*.

Das Vexierbild ist Abbild und zugleich Kritik an jeder vermeintlich fixierenden Abbildung.“ (Elberfeld)

But the hint that the Chinese sentences are well understandable *without* the differentiation into different grammatical categories is again negative and doesn't give any hint what then is left after the elimination of the differentiation. On the other hand, the first sentence in the above citation mentions the *variability* of possible translations, hence the *Vexierbild* and '*Wortartoffenheit*', but doesn't show how this variability is working. Therefore, both parts of the process of understanding (by a translator) are not given to a reader who wants to learn to translate. That is, the mechanism of translation (Vexierbilder) remains hidden and the (grammatical) elements stay barred from the game.

The eminent restrictions of the current modeling is inherited by the application of a highly restricted interpretation of the Chinese character in terms of the grammatical terms “verb”, “substantive” and “adjective”.

3.2.2. Monoidal and polycontextural approaches to meaning

Monoidal modeling of “*John likes Mary.*”

Coecke gives a treatment of meaning in the set up of monoidal categories. The pretention isn't shy at all:

“We propose a mathematical framework for a unification of the distributional theory of meaning in terms of vector space models, and a compositional theory for grammatical types, for which we rely on the algebra of Pregroups, introduced by Lambek. This mathematical framework enables us to compute the meaning of a well-typed sentence from the meanings of its constituents.” (Coecke et al., Mathematical Foundations for a Compositional Distributional Model of Meaning, 2010)

www.comlab.ox.ac.uk/files/2879/LambekFestPlain.pdf

The example is, as usual in such a case, “*John likes Mary.*”

“(John ⊗ subj) ⊗ likes ⊗ (Mary ⊗ obj)”

Or in another more parallel notation:

$$\begin{pmatrix} \text{John} \\ \otimes \\ \text{subj} \end{pmatrix} \otimes \text{likes} \otimes \begin{pmatrix} \text{Mary} \\ \otimes \\ \text{obj} \end{pmatrix}.$$

For some modeling reasons the verb “*likes*” doesn’t get a grammatical distinction as a “*verb*” in Coecke’s modeling of the sentence “*John likes Mary.*”

“*This vector in the tensor product space should then be regarded as the meaning of the sentence ‘John likes Mary.’*” (Coecke, Lambek, p.17)

Contextual modeling of “*John likes Mary.*”

Some like it more complex. I didn’t even know that I will ever write something about *Mary* and *John* who are with us since linguistics had been dominated by the Anglo-American hegemony. But even in Chinese studies of Chinese comparatives, like *bi*, we get bored by this couple.

<http://mitcho.com/academic/handout-20080503.pdf>

Monoidal juxtaposition might stress on the feature of *parallelism*, here of grammar and meaning. Nevertheless it seems to be a very weak kind of parallelism introduced by monoidal categories. Monoidal parallelism is also excluding by definition any *interactivity* between the levels in focus. What is proposed in this paragraph is not intended to enter the competition between quantum- and neuro-linguistics or similar trends. It is hoped that it might serve as an example to exercise and apply the new approach of polycontextural category theory as such.

$$\text{“likes”} \equiv \begin{bmatrix} \text{meaning}_2 & \text{grammar}_2 \\ \text{meaning}_1 & \text{grammar}_1 \end{bmatrix} : \begin{pmatrix} \text{John}_1 \circ \text{Mary}_2 \\ \text{II} \\ \text{subj}_1 \circ \text{obj}_2 \end{pmatrix} =$$

$$\begin{pmatrix} \text{John}_1 \\ \text{II} \\ \text{subj}_1 \end{pmatrix} \circ \begin{pmatrix} \text{Mary}_2 \\ \text{II} \\ \text{obj}_2 \end{pmatrix}$$

This kind of polycontextural modeling is including
 "likes" and "verb" implicitly inside the modeling.

In contrast, a more explicit modeling of both, the verb and the meaning, is proposed with the following modeling.

$$\left(\begin{array}{c} \left(\left(\text{John}_1 \circ^{1.0 \times .0} \text{Mary}_1 \right) \right) \\ \text{II}_{1.2 \times .0} \\ \left(\text{subj}_2 \circ^{0.2 \times .0} \text{obj}_2 \right) \\ \text{II}_{1.2 \times .3} \\ \left(\text{likes}_3 \circ^{0.0 \times .3} \text{verb}_3 \right) \end{array} \right) = \left(\begin{array}{c} \left(\text{John}_1 \right) \\ \text{II}_{1.2 \times .3} \\ \text{subj}_2 \\ \text{II}_{1.2 \times .3} \\ \left(\text{likes}_3 \right) \end{array} \right) \circ_{1.2 \times .3} \left(\begin{array}{c} \left(\text{Mary}_1 \right) \\ \text{II}_{1.2 \times .3} \\ \text{obj}_2 \\ \text{II}_{1.2 \times .3} \\ \left(\text{verb}_3 \right) \end{array} \right)$$

Here, *verb* and *meaning* are explicitly involved into the interchangeability of the contextural formula.

The next formula is treating "verb" and "like" again implicitly but is specifying the abstract operation of composition according to the concrete example. Hence, the operation of composition is specified for each contexture accordingly on the levels of "sentence", "grammar" and "semantics".

$$\left(\begin{array}{c} \left(\left(\text{John}_1 \circ^{1.0 \times .0} \text{Mary}_1 \right) \right) \\ \text{II}_{1.2 \times .0} \\ \left(\text{subj}_2 \circ^{0.2 \times .0} \text{obj}_2 \right) \\ \text{II}_{1.2 \times .3} \\ \left(\text{prop}_3 \circ^{0.0 \times .3} \text{meaning}_3 \right) \end{array} \right) = \left(\begin{array}{c} \left(\text{John}_1 \right) \\ \text{II}_{1.2 \times .3} \\ \text{subj}_2 \\ \text{II}_{1.2 \times .3} \\ \left(\text{prop}_3 \right) \end{array} \right) \circ_{1.2 \times .3} \left(\begin{array}{c} \left(\text{Mary}_1 \right) \\ \text{II}_{1.2 \times .3} \\ \text{obj}_2 \\ \text{II}_{1.2 \times .3} \\ \left(\text{meaning}_3 \right) \end{array} \right),$$

Sentence: $\circ^{1.0 \times .0}$ = "likes",

Grammar: $\circ^{0.2 \times .0}$ = "verb"

Semantics: $\circ^{0.0 \times .3}$ = "denotation".

This again, is another possible contextural
 model of the sentence "John likes Mary. "

$$\left(\begin{array}{c} \left(\text{John}_1 \circ^{1.0} \text{Mary}_1 \circ^{1.0} \text{likes}_1 \right) \\ \text{II}_{1.2} \\ \left(\text{subj}_2 \circ^{0.2} \text{obj}_2 \circ^{0.2} \text{verb}_2 \right) \end{array} \right) = \left(\begin{array}{c} \left(\text{John}_1 \right) \\ \text{II}_{1.2} \\ \text{subj}_2 \end{array} \right) \circ_{1.2} \left(\begin{array}{c} \left(\text{Mary}_1 \right) \\ \text{II}_{1.2} \\ \text{obj}_2 \end{array} \right) \circ_{1.2} \left(\begin{array}{c} \left(\text{likes}_1 \right) \\ \text{II}_{1.2} \\ \text{verb}_2 \end{array} \right)$$

Both approaches, the monoidal and the polycontextural, try to define, albeit on a highly abstract level only, a composition mechanism which produces a sentence out of words. What should be achieved is a new answer to the old holistic question in (computational) linguistics: “*The ‘from-meaning-of-words-to-meaning-of-a-sentence’*” (Coecke) take the polycontextural principle of super-additivity of the operation of mediation into account.

4. Metamorphic Interchangeability

4.1. Mechanism of metamorphism

Interchangeability in the sense sketched above as *Puzzle Pictures* are not yet flexible enough to change their terms in the process of the game. Vexierbilder might be quite irritating and ‘devilish’ but such irritations follow simple rules of exchange and interchange. The ‘pictures’ involved are not changing during the change. Hence, a term like a ‘substantive’ remains a ‘substantive’. In other words, the whole game is still ruled by the so called is-abstraction: a term is a term, and not yet by the as-abstraction.

In other words, if in a Puzzle Picture, the image changes from the state “old face” to the state “young face”, there is an interchange of “old” and “young”, but the attributes of the “young face” remain constant, i.e. the hair are the hair, the nose the nose, etc., as well as the attributes of the “old face” remain stable. Their is in the mechanism of the puzzle picture no change from nose to hair and from hair to chin.

Things are becoming more lively if they change during the game. If a term, say a substantive, becomes, while involved in an interpretation game, an ‘adjective’, the dissolution of the interpretation categories are becoming much more evident than in the interchangeability game ruled by identity. Obviously, the grammatical apparatus presumed for the interpretation loses its soundness.

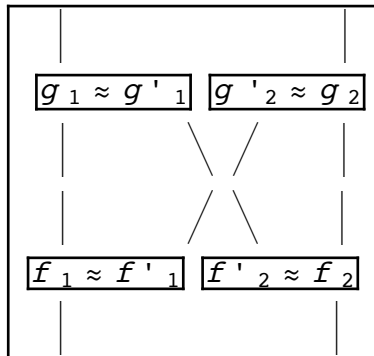
A term₁ as a term₂, with term₁ ≠ term₂, is not exactly what a hierarchy determined grammar allows.

But a radical “*Wortartoffenheit*”, i.e. grammatical category openness, might just force to such a *metamorphic* interpretation of interchangeability. Especially, if the interpretation of Ancient Chinese

writing is abandoning not only Occidental taxonomy of grammar and ontology but the identity rules of logic too.

If we want to keep the common and convenient wordings we simply could refer to a chiasmic formulation between the terms. But with that, all the operationality introduced would be lost in favor of a much less efficient formalism.

On the other hand, metamorphic interchangeability in polycontextural categories is in no way supported by the nice concept of bifunctoriality of monoidal categories. There is no such “vexare” (trouble, shake, jolt, annoy) as metamorphosis in category theory. System-switches by symmetry are not troubling but permuting systems keeping their enclosure with identity stable.



**Metamorphic Interchangeability in the
as - mode [\approx , \diamond , \circ , \sqcup]**

$$\left(\left(\begin{array}{cc} (f_1 \approx f'_1) & \circ & (g_1 \approx g'_1) \\ & \diamond & \end{array} \right) \right) \begin{array}{c} \sqcup \\ \diamond \end{array} =$$

$$\left(\left(\begin{array}{cc} (f_2 \approx f'_2) & \circ & (g_2 \approx g'_2) \\ & \diamond & \end{array} \right) \right)$$

$$\left[\begin{array}{cc} (f_1 \approx & f'_1) \\ & \sqcup & \diamond \\ (f_2 \approx & g'_2) \end{array} \right] \circ \left[\begin{array}{cc} (g_1 \approx & g'_1) \\ & \sqcup & \diamond \\ (g_2 \approx & f'_2) \end{array} \right] =$$

$$\left[\begin{array}{cc} (f_1 \circ & g_1) \\ & \sqcup \\ (f_2 \circ & g_2) \end{array} \right] \approx \left[\begin{array}{cc} (f'_1 \circ & g'_1) \\ & \diamond \\ (g'_2 \circ & f'_2) \end{array} \right]$$

Operators

$$[\approx, \diamond, \circ, \sqcup] = [\text{as, transvers, composition, mediation}]$$

Wording

1. f_1 as f_1 , $f_1 \equiv f_1$, is connected with g_1 as g_1 , $g_1 \equiv g_1$, by *composition* : $(f_1 \circ g_1)$
2. f_2 as f_2 , $f_2 \equiv f_2$, is connected with g_2 as g_2 , $g_1 \equiv g_1$, by *composition* : $(f_2 \circ g_2)$;
3. f_1 as f_1 is connected with f_2 as f_2 by *mediation* : $\begin{pmatrix} f_1 \\ \sqcup \\ f_2 \end{pmatrix}$
4. g_1 as g_1 is connected with g_2 as g_2 by *mediation* : $\begin{pmatrix} g_1 \\ \sqcup \\ g_2 \end{pmatrix}$;

5. f_1 as f'_1 , $(f_1 \approx f'_1)$,
 is connected with g_2 as g'_2 , $(g_2 \approx g'_2)$,
 by *transversality* : $\begin{pmatrix} f'_1 \\ \diamond \\ g'_2 \end{pmatrix}$
6. g_1 as g'_1 , $(g_1 \approx g'_1)$,
 is connected with f_2 as f'_2 , $(f_2 \approx f'_2)$,
 by *transversality* : $\begin{pmatrix} g'_1 \\ \diamond \\ f'_2 \end{pmatrix}$.

Hence, the term "f" as (f, f') is at
 once in a *compositional* relation with "g"
 and in a *transversal* relation with "g'",
 as well as in a *mediational*
 relation with the composition " \circ ".

4.2. Metamorphic interchangeability of interpretations

Metamorphic interchangeability of interpretations

1. verb_1 as verb_1 , is connected with substantive_1 as substantive_1 ,
 by *composition* : $(\text{verb}_1 \circ \text{substantive}_1)$
2. verb_2 as verb_2 , is connected with substantive_2 as substantive_2 ,
 by *composition* : $(\text{verb}_2 \circ \text{substantive}_2)$;
3. verb_1 as verb_1 is connected with verb_2 as verb_2 by *mediation* : $\begin{pmatrix} \text{verb}_1 \\ \text{II} \\ \text{verb}_2 \end{pmatrix}$
4. substantive_1 as substantive_1 is connected with substantive_2 as substantive_2 by
mediation : $\begin{pmatrix} \text{substantive}_1 \\ \text{II} \\ \text{substantive}_2 \end{pmatrix}$;
5. verb_1 as verb'_1 , $(\text{verb}_1 \approx \text{verb}'_1)$,

Notes

- ¹ Rolf Elberfeld, Bilder und Bedeutung zwischen Sinnlichkeit und Denken - Vexierbilder und chinesische Schrift, in: Weltbild - Bildwelt, hg. v. W. Schweidler, St. Augustin 2007, 337-346. http://www.uni-hildesheim.de/media/deco/2007b_Bilder_und_Bedeutung_zwischen_Sinnlichkeit_und_Denken.pdf

Rolf Elberfeld, Aspekte einer philosophischen Grammatik des Altchinesischen, in: Denkformen - Lebensformen, hg. v. Tilman Borsche, Hildesheim 2003, 169-185. http://www.uni-hildesheim.de/media/deco/2003d_Grammatik_des_Altchinsischen.pdf

- ² Gassmann, Grundstrukturen der antikchinesischen Syntax, 24. Nach Gassmann liegt der Zeitraum des „Antikchinesischen“ zwischen 800 v. Chr. und 200 n. Chr.
- ³ Alle Funktionen, die in indoeuropäischen Sprachen durch die Flexionen erfüllt werden, können im Chinesischen durch Wortstellung und zusätzliche Zeichen zum Ausdruck gebracht werden. In diesem Sinne wird das Verhältnis „zum ganzen Satz nicht durch irgendein ihnen selbst anhaftendes Kennzeichen zum Ausdruck gebracht, sondern in erster Linie durch eine bestimmte Regelung der Folge und dann auch, jedoch ganz entschieden erst in zweiter Linie, durch einen Zusatz von solchen Wörtern, deren ursprünglich sinnliche Bedeutung wenigstens so weit verblaßt ist, daß eine Verwendung zu formalem Zweck etwa wie bei unseren sogenannten Hilfswörtern möglich ist.“

Den Zeichen selber haften somit keine grammatischen Kennzeichen an, ihnen steht vielmehr offen, in einem Zusammenhang eine bestimmte grammatische Funktion zu übernehmen. Jedes Zeichen trägt in sich ein Bedeutungsfeld, ohne daß die Bedeutung als ein festliegendes Wesen verstanden werden könnte, da es ja in sich keine eindeutige Determination enthält, sondern vielmehr offen ist, verschiedenen Sinn in verschiedenen Gestalten beizutragen.

Würde man diesen Gegensatz zuspitzen, dann müßte man sagen, daß „Begriffe“ in unserem Sinne sich in der chinesischen Sprache nicht nahelegen, sondern immer der Kontext als Kontext stärker in die Aufmerksamkeit gerückt wird. Jedes einzelne Zeichen gewinnt seine Bedeutung in der Beziehung zu anderem und zwar durchgehend in einem Wechselverhältnis.

In diesem Sinne könnten chinesische Schriftzeichen als *Vexierbilder* im erweiterten Sinne angesprochen werden. Es sei hier noch einmal betont, daß damit nicht gesagt ist, chinesische Zeichen seien „Bilder“, sondern, daß sie sich auf der Ebene ihrer Bedeutungsentstehung wie Vexierbilder verhalten, da sie je nach Kontext in ihrer Bedeutung und in ihrem Gebrauch kippen und umspringen. Sie bilden nur Sinn im Rahmen einer konkreten *Bedeutungsgestalt*. Diese Form schriftlicher Sinnbildung hat sich jedoch vermutlich nur nahegelegt, weil die bildliche Dimension aus der chinesischen Schrift nie ganz verschwunden ist, auch wenn sie nur als Nebenprodukt der Schrifterfindung aufgekommen sein sollte. Chinesische Zeichen bewahren in ihrer Form eine Gestaltqualität, die denen von Vexierbildern entspricht, aber zugleich übergreift in die Formen *sprachlicher* und darüber hinaus auch *denkerischer* Sinnbildung.

Wenn das Vexierbild insbesondere das Denken im Bild zeigt, so zeigen chinesische Zeichen die sinnliche *Gestaltqualität* von Vexierbildern — ohne selbst notwendig Bilder zu sein — im Denken und der Sprache. In Vexierbildern und chinesischen Zeichen überkreuzen sich Bildlichkeit und Denken auf spezifische und eigene Weise. Ausgehend von diesen Beispielen

kommt auf der einen Seite ein Denken in Sicht, das die Sinnlichkeit nicht schwächt, sondern mit Nachdruck stärkt und auf der anderen Seite eine Sinnlichkeit, die die spekulativen Möglichkeiten der Sprache und des Denkens erhöht und dimensional erweitert." (Elberfeld, p.344)

- ⁴ "2. Das Kenogramm ist eine Leerstelle, ein Platz, der nur durch sich selbst andeutet, dass etwas in ihn eingeschrieben werden kann. So besehen, ist es also weder ein präsentierendes noch ein repräsentierendes Zeichen, sondern am ehesten mit Kenneth Pikes „Kenem“ zu vergleichen. Der „Auffüllung“ des Kenems zu einem Plerem entspräche dann die Belegung eines Kenogramms entweder mit logischen Werten, mit mathematischen Zahlen oder mit semiotischen Werten, und das Resultat wäre dann ein logischer Ausdruck, eine Zahl oder ein Zeichen. Wie man also erkennt, hängen diese drei Wissenschaften, die Logik, die Mathematik und die Semiotik, insofern engstens mit der Kenogrammatik zusammen, als sie das Material zur Füllung der von ihr bereitgestellten Leerstellen, der Kenogramme, liefern."

<http://www.mathematical-semiotics.com/pdf/Zeichen%20und%20Kenogramm.pdf>