

University of Tartu



Σημειωτική

Sign
Systems
Studies

33.1

Sign Systems Studies

33.1

1.33

Volume 33
Number 1
Fall 2001

Тартуский университет
Tartu Ülikool

Труды по знаковым системам

Töid märgisüsteemide alalt

33.1

University of Tartu

Sign Systems Studies

volume 33.1

Editors: Peeter Torop
Mihhail Lotman
Kalevi Kull

 TARTU UNIVERSITY
PRESS

Tartu 2005

Sign Systems Studies is an international journal of semiotics and sign processes in culture and nature

Periodicity: one volume (two issues) per year

Official languages: English and Russian; Estonian for abstracts

Established in 1964

Address of the editorial office:

Department of Semiotics, University of Tartu

Tiigi St. 78, Tartu 50410, Estonia

Information and subscription: <http://www.ut.ee/SOSE/sss.htm>

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ISSN 1406-4243

Tartu University Press

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The semiotic phenomenology of Maurice Merleau-Ponty and Michel Foucault

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Abstract. Postmodern methodology in the human sciences and philosophy reverses the Aristotelian laws of thought such that (1) non-contradiction, (2) excluded middle, (3) contradiction, and (4) identity become the ground for analysis. The illustration of the postmodern logic is Peirce's (1) interpretant, (2) symbol, (3) index, and (4) icon. The thesis is illustrated using the work of Merleau-Ponty and Foucault and the *le même et l'autre* discourse sign where the ratio [Self:Same :: Other:Different] explicates the communicology of Roman Jakobson in the conjunctions and disjunctions, appositions and oppositions of *discours*, *parole*, *langue*, and *langage*.

0. The problematic of identity

The problematic with which we are confronted, the "concept of identity", is an ancient one with many testimonies in both Eastern and Western philosophies. In the West, the notion of identity is foundational in Aristotle and yet, it is turned on its head in Postmodernity (Lanigan 1995a, b). Following the foundational work in *semiotic phenomenology* of Charles Sanders Peirce (1931–1958) and Ernst Cassirer (1923; 1979; 1995), Postmodernity deals with the symbolic world of culture in which the Aristotelian model of a natural world logic is turned on its head. In short, Aristotle's "law of thought" are questioned, found to be inappropriate to human experience, reversed in sequence and reformulated as positive constitutions. Lest the

modern reader be lost in this postmodern move, I shall begin my analysis by staying with the Aristotelian statement of the laws of logic, with one exception. I shall reverse the order of the four laws, beginning with Aristotle's fourth, then, third, second, and first. This step allows us to approach the postmodern problematic by asking if there is a paradigm conscious experience that contradicts the Law(s) and thematically suggests what a positive statement of that Law(s) would be.

The Aristotelian logic of (1) formations (experiences) constituting (2) transformation (consciousness) is *reversed* such that consciousness (logic transformations) constitutes experience (logic formations) in the first instance. This to say that in the symbolic cultural world, logic transformations lead to formations (consciousness experience) which are the subject matter and process of the Human Sciences such that consciousness is formed by the rule sequence: (Postmodern 1; Aristotle 4) *Law of Non-Contradiction* [a thing cannot at once be and not be; a statement cannot be true and false at the same time], (Postmodern 2; Aristotle 3) *Law of Excluded Middle* [a thing must be or not be; a statement must be either true or false], (Postmodern 3; Aristotle 2) *Law of Contradiction* [one thing is not another thing; a statement is different from other statements], and (Postmodern 4; Aristotle 1) *Law of Identity* [one thing is only one thing; a statement is a statement].

In short, Aristotle's logic is constructed by moving from (1) to (4) as the "classical laws of thought".¹ Later on in the philosophy of

¹ The name "laws of thought" was developed in the middle ages to describe the three basic formation rules that Aristotle uses to construct the transformation rules of his famous *syllogism* or *logic of propositions*. A typical textbook on logic (Schipper, Schun 1959: 375-376) will explain that Aristotle has three propositional rules: (1) Identity, (2) Excluded Middle, and (3) Contradiction [also conflated as "Non-Contradiction"]. These *qualitative* rules derive from the combination of four *quantitative* types of propositions: (1) Universal Affirmative, (2) Universal Negative, (3) Particular Affirmative, and (4) Particular Negative. Both universal affirmative and universal negative propositions are examples of the Identity rule, they just have a different numerical valence (positive or negative signification). All logicians know this.

However, non-logicians worry about the ontology of valences. They start with (1) Identity where "a=a", then (2) go to the Contradiction of "a" where "no a = b", then (3) in excluded Middle, they choose between either "a or not a" [knowing "not a" can be "b" or anything else as an interpretant of Step 2!], and then (4) they can see that you cannot have it both ways, that is, you cannot have both "a" and

science, Leibniz extends the Aristotelian logic to cover all possible worlds, not just the natural world of experience on Earth. Much of the Postmodern view in Culture can be attributed to the constant need by old school (Modernist, Rationalist) positivists to modify Aristotle's logic as it applies to current mathematical logic in science.

To focus the postmodern problematic, we need to restate the logic transformation as they are affirmatively used by Postmodernists like Cassirer, Peirce, Merleau-Ponty, and Foucault to make positive constitutions of described conscious experience in the world of communication and culture. The Postmodern Logic Propositions listed below are stated in an inclusion order of constitution:

1. *Phenomenological Law of Non-Contradiction* — a thing can at once be and not be; a statement can be *both* true *and* false at the same time.

Eidetic/Empirical example: an *interpretant* (Peirce 1931–1958).

The eidetic and empirical example here is human embodied consciousness that is a *sign of a sign*, what Husserl calls “intentionality”. Or even more simply as an example, take an oral/written/visual image, which is and is not a statement/sentence/proposition that Michel Foucault made into a famous semiotic example, namely, Magritte's painting *L'usage de la parole* (1928–1929): “This is not a pipe” plus the image of a pipe. In this example, the image refers to the sentence and *vice versa* (Lanigan 1992: 104). As Peirce (2.28) summarizes:

A sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It **addresses** somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes [e.g., 1.551] called the *ground* of the representamen. (Peirce 2.28; my bold emphasis, R. L.)

“not a” (the Law of Non-Contradiction). Step (2) is a quantitative redundancy for logicians who thus have *three* laws of thought, but Step (2) is a qualitative embodied experience (ontology) for the rest of us who have *four* laws of thought. The ontological issue caused Aristotle to invent Enthymemes (“syllogisms” with a missing proposition supplied by the observer) and many other ontological (non-logical) rules like the Law of Contradiction that are critical to Peirce's Postmodern version of Aristotle (Lanigan 1995b).

2. *Phenomenological Law of Excluded Middle* — a thing must *both be and not be*; a statement must be both true and false. The Postmodern constitution of *reflectivity*.

Eidetic/Empirical example: a *symbol* (in C. S. Peirce's sense).

The eidetic and empirical example is a *symbol of a sign* (representation of a presentation). Writing is the the well know index of speaking. Peirce (2.247) specifies that "A *Symbol* is a sign which refers to the Object that it denotes by virtue of a law, usually an association of general ideas, which operates to cause the Symbol to be interpreted as referring to that Object." For example, Peirce (2.298) suggests, "Any ordinary word, as 'give,' 'bird,' 'marriage,' is an example of a symbol. It is *applicable to whatever may be found to realize the idea connected with the word*; it does not, in itself, identify those things."

3. *Phenomenological Law of Contradiction* — one thing is another thing; a statement is both the same as and different from other statements. The Postmodern constitution of *reversibility*.

Eidetic/Empirical example: an *index* (in C. S. Peirce's sense).

The eidetic and empirical example is the *spatial locations of a sign* such as an oral contract written down on paper, explicated in Roman Jakobson's theory of "redundancy features" (Lanigan 1992: 230). Peirce (2.247) says that "An *Index* is a sign which refers to its Object that it denotes by virtue of being really affected by that Object." "...And, it is not the mere resemblance of its Object, even in these respects which makes it a sign, but is the actual modification of it by the Object." Peirce's (2.285) example: "A rap on the door is an index. Anything which focuses the attention is an index."

4. *Phenomenological Law of Identity* — one thing is always another thing; a statement is another statement. The Postmodern constitution of *reflectivity*.

Eidetic/Empirical example: an *icon* (in C. S. Peirce's sense).

The eidetic and empirical example is the *temporal location of a sign* such as the "experience of consciousness" ("I made a mistake!") and the "consciousness of experience" ("I am alive!") explicated by Roman Jakobson's theory of "distinctive features" (Jakobson 1972: 43; Lanigan 1992: 230). As Peirce (2.247) notes, "An *Icon* is a sign which refers to the Object that it denotes merely by virtue of

characters of its own, and which it possesses, just the same, whether any Object actually exists or not". "Anything whatever, be it quality, existent individual, or law, is an Icon of anything, in so far as it is like that thing and is used as a sign of it." Peirce's (2.275) relevant example is "any material image, as a painting." This very notion of the Icon is common knowledge among all the computer users of the world as a mere function of learning the difference between virtual images, memory images, and functions on the computer screen.

That the Aristotelian, Modernist concept of identity cannot be foundational is the positive thematic of Ernst Cassirer in his *communicological turn in culture* and in Charles Sanders Peirce's *phenomenological turn in normative logics, i.e., semiotics*. The rejected Modernist view of Aristotelian logic is also fundamental in Maurice Merleau-Ponty and his *semiotic turn in phenomenology*. That the concept of *identity* is the effect of understanding [rather than the cause — Aristotle] is the thematic of Michel Foucault and his *phenomenological turn in semiotics*. To be explicit, the concept of identity is a logical function only insofar as it is derived from its ontological context of the embodied person (a phenomenology of phenomenology). The Postmoderns take the French view that the ontology of "Both the Self and the Other as Both the Same and Different" [*le même et l'autre*] constitutes the essence of human embodiment as:

- (1) expression and perception in the *consciousness of experience*
[the contribution of phenomenology]; and,
- (2) the source of logical abstraction and phenomenological description in the *experience of consciousness*
[the contribution of semiotics].

The core domain of this Postmodern analysis is concisely articulated by Roman Jakobson (1972: 43): "The cardinal property of language noted by the initiator of semiotics, Charles Sanders Peirce (1839–1914), namely the translatability of any verbal sign into another, more explicit one, renders an effective service to communication in that it counteracts ambiguities caused by lexical and grammatical homonymy or by the overlapping of elliptic forms".

The task of explicating human communication as such a Postmodern ontology of both *ambiguity* in Merleau-Ponty and *alterity* in Foucault has its ground in the human science of Communicology

(Lanigan 1997). Here, the fundamental focus is on the conjunctive theory and method of *semiotic phenomenology* at work in the *semiosphere* (Lotman 1990) where *human* communication (discourse) is, to use Merleau-Ponty's famous triadic formula, the *reflectivity*, *reversibility*, and *reflexivity* of culture (practice). The philosophy of communication explicated by Merleau-Ponty and Foucault will serve as a paradigmatic case as these themes of discourse and practice are applied in the French context. Before we can advance into the philosophical application of communication, however, we require a foundational understanding of how communication is viewed by Continental philosophers in general and by Merleau-Ponty and Foucault in particular.

1. Roman Jakobson's theory of human communication

Prerequisite to a grasp of contemporary Communication Theory (not machine instantiated Information Theory or Informatics) is a brief understanding of the theory advanced by Roman Jakobson. All contemporary discussion of communication derives from a fundamental understanding of Jakobson's work. It is no exaggeration to say that understanding the main positions and counter-positions of any contemporary author within the domain of the Philosophy of Communication is grounded in the use of Jakobson's definitional theory. It is certainly true that European philosophers of communication in the Continental tradition assume their readers, professional or lay, know the fundamental propositions demonstrated in the eidetic proofs and empirical demonstrations of Jakobson on the structure and function human communication. His theory work and applied research are preeminent as cited in the September 1972 journal issue of *Scientific American*.

Rather than a "theory" in the limited sense of a *model*, Jakobson's *theory* is a complete account of human communication from the microscopic to the macroscopic level of application. As such, Jakobson is the only person to have offered a legitimate Theory of Communication (illustrated in Fig. 1) with both eidetic and empirical application, i.e., a Communicology. The basic ELEMENTS of communication are capitalized in the diagram, while the *Elements* of communication are given in italics. While the logical and phenomeno-

logical relations and correlations of this theory are worked out in great detail (Lanigan 1992: 229–236; 1997), our present discussion must be limited to this brief version.

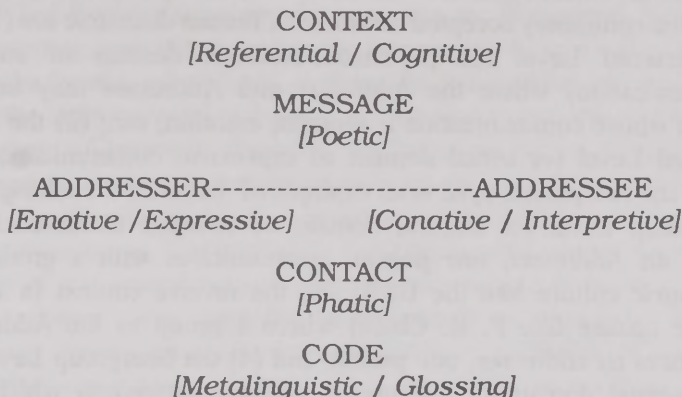


Figure 1. Roman Jakobson's (1960) theory of communication.

In Jakobson's theory, each element is contextual to the rest in binary (logical) pairs (phenomenological) and the system of pairs constitutes a *Function*. For example, in the *poetic function* of the Message, there are four relations for the Addresser (Ar) and Addressee (Ae) pair, namely, (1) Ar to Ar [Self embodiment], (2) Ae to Ae (Other embodiment), (3) Ar to Ae (thetic intentionality), and (4) Ae to Ar (Operative intentionality). Similar binary pairs exist for Context and Contact, and, for Message and Code. The *poetic function* per se is the *rule of reversibility* in which any syntagmatic category (i.e., a horizontal line of categories) can interchange with a paradigmatic category (i.e., a vertical line of categories). We need not work our way through all the relational possibilities for the formation of categories. C. S. Peirce has already done it for us and there are sixty-four (64) non-redundant categories, the basic three of interest to us being already mentioned: Symbol, Index, Icon. The discussion and illustration of the Jakobsonian categories as elements and functions is detailed in Lanigan (1992: 229–236).

It is important, as a matter of context, to note that the Addresser/Addressee relationship and its four functions (emotive, expressive,

conative, interpretive) are experienced as *four network levels* of communication transaction in human comportment. Demonstrated in the foundational work of Jürgen Ruesch, *Semiotic Approaches to Human Relations* (1972 reprint ed.), then Jürgen Ruesch and Gregory Bateson in *Communication: The Social Matrix of Psychiatry* (1951: 277), the commonly accepted networks of human discourse are (1) the Intrapersonal Level (or psychiatric/aesthetic domain of *emotive* communication) where the Addresser and Addressee may be one person whose communication is thought, emotion, etc.; (2) the Interpersonal Level (or social domain of *expressive* communication) in which the two person dyad is an example of behavioral exchange; (3) the Group Level (or cultural domain of *conative* communication) where an Addresser, one person, communicates with a group (an *egocentric* culture like the USA), or, the reverse context (a *socio-centric* culture like P. R. China) where a group as the Addresser influences an addressee, one person; and (4) the Intergroup Level (or transcultural domain of *interpretive* communication) in which one group addresses another group with such consequences as war, peace, the diffusion of innovation, and so on. In short, these four interconnected network levels contain the communicological process outlined by Roman Jakobson's theory of human communication. Historically speaking, the coincidence of this research and theory work accomplished by Ruesch, Bateson, and Jakobson in the early 1950 established the academic discipline of Communicology (human communication) in American universities.

Let me now briefly define each communication Element by its corresponding Function as a way of glossing Jakobson's (1960) Theory of Communication and its relevant parts. The **Addresser** is the human, embodied *origin of communication* and in consequence is not a mechanical "sender" or "signal source", but the *expressive* constitution of *emotion*. In linguistic terms, the Addresser is the verbal 1st Person (persona) who is *speaking*. The person may be the psychic voice the Greeks called *mythos*, or the *persona* whose oral speaking is audible as the interpretant *logos* of a person. As such, the Addresser gives (*data*) a Message that constitutes a Code and selects a Context for Contact ("choice of context" or analogue logic). Lotman (1990: 22) provides a detailed analysis of the motivation that occurs between message and code, code and message, in the formation of discourse as practice, communication as culture.

The Addressee element of communication is basically the reverse phenomenological intentionality of the Addresser. The **Addressee** is the human, embodied *origin of culture* and in consequence is not a mechanical "receiver" or "signal destination", but the *interpretive* constitution of *conation*. In linguistic terms, the Addressee is the verbal 2nd Person (persona) who is *spoken to*. The person for whom oral listening is audible becomes the interpretant *logos* for the psychic voice the Greeks called *hexis*, or the embodied practice of culture. As such, the Addressee takes (*capta*) a Code that constitutes a Message and selects a Contact for Context ("context of choice" or digital logic).

Context is the referential function of the communicative act in which signification is *denotive* within a *cognitive* system of meaning. In linguistic terms, Context is the 3rd person, someone or something *spoken of*. It is crucial to recall that Jakobson rejects Saussure's notion of an arbitrary sign (signifier in opposition to signified). Rather, Jakobson demonstrates that communication is a "choice of context" such that signs have a relative, but necessary, *motivation* to one another (signifier in *apposition* to signified). As Holenstein (1976: 157) explains Jakobson's use of Peircian semiotics, a sign's "own constitution reflects the relational structure of the thing represented". Hence, we have Peirce's preferred name for the sign as a *representamen*.

Contact is the *phatic* function operating in human communication such that a physical (interpersonal) and psychological (embodied, intrapersonal) connection is established between the Addresser and the Addressee. The best eidetic/empirical example in linguistics is the concept of an *emblem*. An emblem is the anthropologist's name for a word that stands in place of a gesture, or, the gesture that replaces a verbal message. The emblem is a sign with a culturally known interpretant that moves from (1) physical contact (signification) between Addresser and Addressee to (2) mutual psychic sharing (meaning).

The **Message** displays the phenomenology of the *poetic* function in communication. Rather than a mundane reference to poetry, the essence of *poiesis* is the shifting of verbal elements exterior to the system of language in which case you have *rhetoric*, or, interior to the language in which case you have *poetic*. While there is a long, detailed phonological analysis that is relevant at this point, we must be content to explain the poetic function in verbal communication as *paradigmatic and syntagmatic reversal* of words as units in sentences.

For example, once you know the words in a sentence by grammatical function, any word in that category can replace any other word. In the sentence, "The cat ate the dog," you immediately see that if you are a dog lover the message can be reversed as "The dog ate the cat". Moreover, you immediately know that any noun in the sentence can be replaced by a pronoun, and, any verb can substitute for any other verb. The vertical (paradigmatic) and horizontal (syntagmatic) word shifts can be remembered as a whole set, what Jakobson calls the "Prague Prism" or ever expanding *matrix* (hence, the Ruesch and Bateson use of the "social matrix" in the subtitle of their book). Jakobson concludes that messages are unique in language because human *speaking* (*parole*) consists of: (1) a linguistic utterance, (2) language as an individual, private property, and (3) the individualizing, centrifugal aspect of language (where *centrifugal* means moving from individual out to group, from person into culture). Message interpretation relies on perceiving the *diachronic* ("then and there" historical sequences) of verbal or nonverbal usage. Egocentric cultures stress the importance of messages over codes, individuals over groups.

The concept of a **Code** entails the understanding of the *meta-linguistic* or *glossing* function in communication. Every communication system, verbal or nonverbal, has both an object language (discourse about extralinguistic entities) and a *metalanguage* (discourse about linguistic entities) that specify *synchronic* relationships ("here and now" existential moments). Linguists refer to this code phenomenon as "double articulation", since an utterance or gesture refers both to itself as an entity and beyond itself to its context in a system. Most people experience the complexity of the language code when they look up a word (message) in a dictionary (code) only to find themselves referred to other words (messages in the same code), thus acting to no avail in an unknown code. Jakobson also judges that codes are unique in language because social language (*langue*) consists of (1) linguistic norm, (2) language as supraindividual, social endowment, and (3) the unifying, centripetal aspect of language (where *centripetal* means moving from group to individual, from culture to person). Sociocentric cultures stress the importance of codes over messages, groups over individuals.

The conjunction of egocentric and sociocentric cultures and the people who communicate in them is thematic for Postmodern philo-

sophers of communication. In particular, French semiotic phenomenology represented by Merleau-Ponty and Foucault focuses on the ontology of *le même et l'autre*: "Both the Self and the Other as Both the Same and Different". This ontological proposition built into a linguistic aphorism of French philosophy constitutes a specific explication of Roman Jakobson's theory of communication. Where human beings seek their identity with others in a shared lived-world, we inevitably confront the *ambiguity of identity* in the Self encountering that which is the Same — time and again. And, we confront the *alterity of identity* in the Other who is Different — home and away.

2. Merleau-Ponty's thematic of embodied identity: ambiguity

The essence of embodied identity constitutes *ambiguity* (explicated as Self consciousness/Same experience; see Fig. 2), as Merleau-Ponty reminds us in the *Phenomenology of Perception*.

I can remain within the sphere of absolute self-evidence only if I refuse to make any affirmation, or to take [capta] anything for granted, if, as Husserl has it, I stand in wonder before the world, and ceasing to be in league with it, I bring to light the flow of motivations which bear me along in it, making my life wholly aware of itself, and explicit. When I try to pass from this interrogative state to an affirmation, and *a fortiori* when I try to express myself, I crystallize an infinite collection of motives within an act of consciousness, I revert to the implicit, that is, to the equivocal and to the world's free play. My absolute contact with myself, **the identity of being and appearance cannot be posited**, but only lived as anterior to any affirmation. (Merleau-Ponty 1981: 295; my emphasis and insert, *R. L.*).

In one concise argument, Merleau-Ponty demonstrates that the Cartesian world built on Aristotelian thinking, in which the logic of experience dictates the constitution phenomena, cannot apply to embodied consciousness. Furthermore, the Aristotelian ground of logic cannot be sustained inasmuch as identity (the experience perceived and expressed) is the effect, result of consciousness ("wonder before the world"), and not the cause.

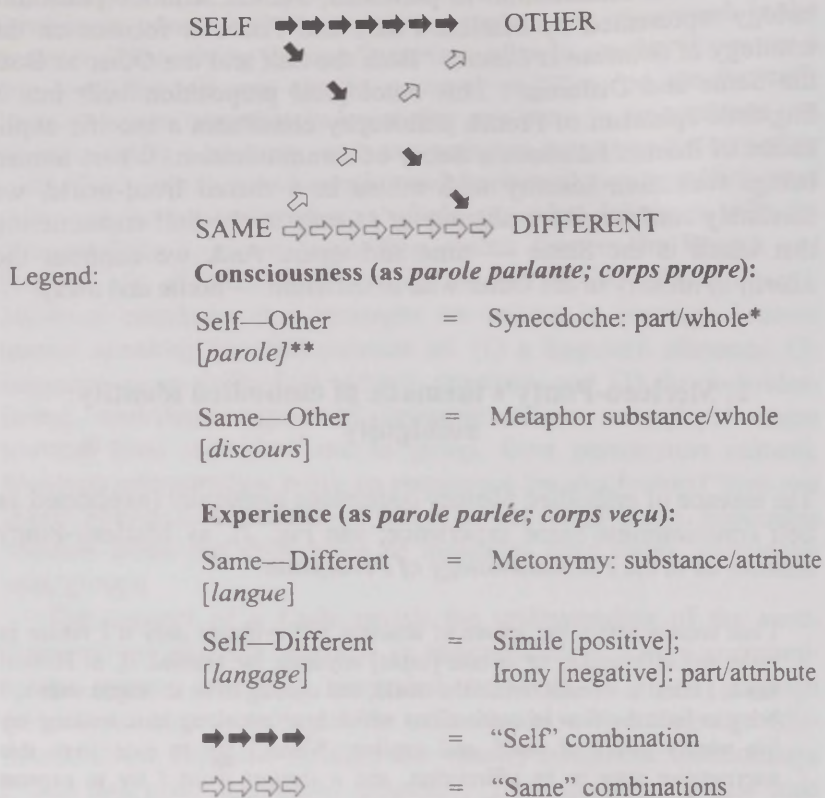


Figure 2. Merleau-Ponty's ambiguity model (Lanigan 1992: 110).

* Note the respective syntagmatic relationships, e.g.,
Self = part, Other = whole, etc.

** Traditional linguistic descriptions.

For semiotic clarity in these complex phenomenological relations, I should point out that Figures 1 is an explication of **consciousness of experience** [C>E] as a semiotic phenomenology of existential being that Husserl calls an “order of experience” [experiencer > experiencing > experienced]. In Fig. 2, the reverse reading which is the **experience of consciousness** [E>C] is what Husserl calls an “order of analysis” [experiencer < experiencing < experienced] (Lanigan 1992: 20). When the “order of experience” is assumed to match the “order of

analysis" [i.e., no reflexivity, no reversibility, no reflectivity], then we have positive science. We have the positivististic, natural attitude assumption that posits the Cartesian, Aristotelian *identity of appearances* as "being", wherein consciousness and experience are erroneously hypostatized as paradigmatic equivalents (Jakobson's sense).

Figure 2 sketches the basic elements in Merleau-Ponty's use of the *le même et l'autre* model of **identity as ambiguity** in human communication and behavior. The background analysis for this model is found in Lanigan (1988; 1992; 1997).

At this point, let me only summarize the basic position that his many works suggest. Merleau-Ponty's major work on expression, *Signs* (1960), as well as his *Phenomenology of Perception* (1945), relate semiotics, the theory of signs (aesthetic, logical, social systems), to the phenomenology of embodiment (Jakobson's communication elements: context, message, contact, code, addresser, addressee). In his explication of both perception and expression, Merleau-Ponty suggests that there are two levels of discourse: (1) *existential discourse* in which a person expresses his or her speaking in an original and perceptive speech, that is a "speech speaking" (*parole parlante*) that proffers an *authentic message* and (2) *empirical discourse* where a person merely expresses what has already been said by others, i.e., a "speech spoken" (*parole parlée*) that legitimizes the *social code*. In the speech speaking case, there is a rhetorical function of *identity* where consciousness of experience is the original reference to existential meaning, i.e., the authentic act of expression that is the linguistic message embodied in the person (*corps propre*) as *addresser* (Jakobson 1960; 1971; Holenstein 1976).

First, Merleau-Ponty corrects Saussure's static notion of *parole* by making it the dynamic *parole parlante* or what Roman Jakobson calls the "message" in his parallel correction of Saussure. Second, Merleau-Ponty corrects the concept of *langue* by the more existential *parole parlée* or what Jakobson in agreement calls the "code". In this second category of speech spoken, the rhetorical function is banal (*corps veçu*) and evokes an experience of consciousness, i.e., the commonplace meaning that is the linguistic code discovered by the *addressee* (Jakobson's sense).

Finally, let us note that Merleau-Ponty offers a major correction to the method of Husserl's phenomenology by stressing the importance

of semiotics in the description of phenomena, the importance of structural analysis in defining (reducing) phenomena, and the importance of hermeneutic principles for the interpretation of phenomena. The three step method of Description, Reduction, and Interpretation is the result of his focus on the reversible, reflexive, and reflective relations between perception and expression — all of which are the foundation for Foucault's analysis of social embodiment and institutional comportment.

3. Foucault's thematic of embodied identity: alterity

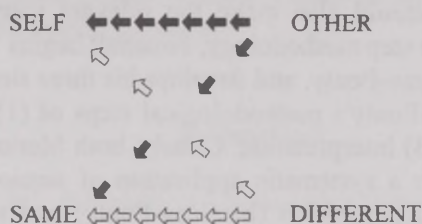
The social essence of embodied identity constitutes *alterity* (explicated as Other consciousness/Different experience; see Fig. 2), as Foucault reminds us in *Fearless Speech*.

When you accept the parrhesiastic game in which your own life is exposed, you are taking up [*capta*] a specific relationship to yourself; you risk death to tell the truth [*parrhesia*] instead of reposing in the security of a life where the truth goes unspoken. Of course, the threat of death comes from the Other, and thereby requires a relationship to the Other. But the *parrhesiates* primarily chooses a specific relationship to himself: he prefers himself as truth-teller rather than as a living being who is false to himself. (Foucault 2001: 17; my emphasis and inserts, R. L.)

Figure 3 illustrates the basic components in Foucault's use of the *le même et l'autre* model of **identity as alterity** in human communication and behavior. Again, I note that the background analysis for this model is found in Lanigan (1988; 1992; 1997). Also note, in particular, that the model is essentially the same as presented in Fig. 2. Having said that, it is critically important to see that we are reversing directional relations by moving from the Other over to the Self, and from the Different over to the Same. This movement is stressed in the presentation of the Legend information given in Fig. 3.

Michel Foucault's *Les mots et les choses* [Words and Things] (1966), intentionally retitled by him for its English translation as *The Order of Things: An Archaeology of the Human Sciences*, and its appendix essay *L'archéologie du savoir* [The Archaeology of Knowledge (*sic*) <Understanding>, 1969] add a methodological dimension to Merleau-Ponty's view. Foucault argues that Merleau-Ponty's

second, empirical code level of discourse (*énonciation*) that we know (*connaissance*) as the cultural code of social *power* hides the first, existential message level of “stating” discourse (*énoncé*) that we understand (*savoir*) as *desire*. This agonistic or contested process of rhetorical levels forms a “rupture” or ongoing discontinuity of discourses constructing and deconstructing one another in *apposition* [both are equally opposed to] to the embodied person.



Legend:

Consciousness (as *énoncé*; *savoir*):

Other—Self = Synecdoche: part/whole*
[*parole*]**

Other—Same = Metaphor substance/whole
[*discours*]

Experience (as *énonciation*; *connaissance*):

Different—Same = Metonymy: substance/attribute
[*langue*]

Different—Self = Simile [positive];
[*langage*] Irony [negative]: part/attribute

←←←←← = “Other” combinations

→→→→→ = “Different” combinations

Figure 3. Foucault's alterity model (Lanigan 1992: 110).

* Note the respective syntagmatic relationships, e.g., Other = part, Self = whole, etc.

** Traditional linguistic descriptions.

By using the method of (1) “**archaeology**” (one of Husserl’s key concepts) or knowing (*connaissance* or knowing as the *experience* of consciousness; Jakobson’s “horizontal” syntagmatic category of “code”) and the method of (2) “**genealogy**” (*savoir* or understanding as the *consciousness* of experience; Jakobson’s “vertical” paradigmatic category of “message”), Foucault engages his third level, which he names (3) “**critical methodology**” in his *L’Ordre du discours* (1971). Here, the “order of discourse” defines *parrhesiastic rhetoric* (Lanigan 1984). I should also make the relevant comment that in developing this three step methodology, Foucault begins with Edmund Husserl, as did Merleau-Ponty, and develops his three steps in *parallel function* to Merleau-Ponty’s methodological steps of (1) Description, (2) Reduction, and (3) Interpretation. Clearly, both Merleau-Ponty and Foucault account for a systematic application of semiotic phenomenology to existential perception (Merleau-Ponty) and social expression (Foucault).

Note that Foucault’s archaeology is a method of “oppositions” or “exclusions” (Jakobson’s “distinctive features”), while genealogy is a method of “interstices” or “ensemble” (Jakobson’s “redundancy features”). This critical model subjects both archaeology and genealogy to one another as a dialectic of *both* opposition *and* apposition as Foucault’s “reversal-principle” (Jakobson’s “poetic function” of paradigmatic and syntagmatic interchange). Foucault is following Merleau-Ponty’s prescription that the first step of analysis is a “phenomenology of phenomenology”. That is, the conjunctions of both consciousness and experience in discourse are seen as reversible, reflexive, and reflective in judgment.

Hence, Foucault offers a critical approach to discourse viewed as a phenomenological semiotic (Husserl’s “order of analysis”) that completes Merleau-Ponty’s approach of a semiotic phenomenology (Husserl’s “order of experience”). In short, while Merleau-Ponty examines the place of *personal perception* in public expression (intentionality as a message/code), Foucault critically studies the reverse, i.e., the place of public expression in personal perception (embodiment as a code/message) as illustrated, for example, in the narratology of his study of the hermaphrodite, Herculine Barbin.

By way of a brief conclusion, let me suggest that it is clear that where Merleau-Ponty is existential, Foucault is social. Where Merleau-Ponty interrogates perception, Foucault questions expression.

Where Merleau-Ponty explores the ambiguity of the individual's comportment, Foucault journeys into the institutions of the group and the community as political actuality. Both thinkers are grounded in traditional axiology, stressing the aesthetics, logics, and politics of perception and expression, i.e., the worldview of Communicology in which semiotics and phenomenology are in a constant Postmodern dialectic of discourse and practice, *habitus* and *hexis* — to cite Bourdieu's parallel system of cultural analysis in the French milieu of the Postmodern human sciences.²

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² An abstracted version of this paper was presented as a lecture at the 8th Congress of the International Association for Semiotic Studies, Université Lumière, Lyon 2, July 7–12, 2004, Lyon, France. An extended version is forthcoming as “Communicology: The French tradition in human science” in *Perspectives on the Philosophy of Communication*, ed. Pat Arneson (West Lafayette: Purdue University Press, in press for 2007).

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Семиотическая феноменология Мориса Мерло-Понти и Мишеля Фуко

Постмодернистская методология в гуманитарных науках и в философии отворачивается от законов мышления Аристотеля, где (1) непротиворечивость, (2) исключенное третье, (3) противоречивость и (4) тождество становятся основой анализа. Примером постмодернистской логики служат пирсовские (1) интерпретант, (2) символ, (3) индекс, и (4) икон. Этот тезис автор иллюстрирует с помощью работ Мерло-Понти и Фуко, используя знак дискурса *le même et l'autre*, где соотношение [Сам: Такой же :: Другой: Отличающийся] эксплицирует теорию коммуникации Якобсона как конъюнкции и дизъюнкции, апозиции и оппозиции терминов *discours*, *parole*, *langue* и *langage*.

Maurice Merleau-Ponty ja Michel Foucault' semiootiline fenomenoloogia

Postmodernne metodoloogia humanitaarteadustes ja filosoofias pöördub ära aristotellikest mõtlemiseseadustest, milleks on (1) mittevasturääkivus, (2) välistatud kolmas, (3) vasturääkivus, ja (4) samasus kui analüüsi alus. Postmodernse loogika näiteks on Peirce'i (1) tõlgend, (2) sümbol, (3) indeks, ja (4) ikoon. Seda väidet illustreeritakse Merleau-Ponty ja Foucault töödega ning *le même et l'autre* diskursusemärgi kasutades, kus suhe [Ise:Sama :: Teine:Erinev] eksplitseerib Roman Jakobsoni kommunikoloogia kui *discours*, *parole*, *langue*, ja *langage* konjunktsioonid ja disjunktsioonid, apositsioonid ja opositsioonid.

**The realm of continued emergence:
The semiotics of George Herbert Mead and
its implications to biosemiotics, semiotic matrix
theory, and ecological ethics**

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Abstract. This examination of the often-inaccessible work and semiotics of George Herbert Mead focuses first on his pivotal ideas of *Sociality*, *Consciousness*, and *Communication*. Mead's insight of *sociality* as forced relatedness, or forced semiosis, appearing early in evolution, or appearing in simple systems, guarantees him a foundational place among biosemioticians. These ideas are Mead's exemplar description of *multiple referentiality* afforded to social organisms (connected to his idea of the *generalized other*), thus enabling *passing* from one umwelt to another, with relative ease. Although Mead's comprehensive semiosis is basically sound, and in concordance with modern and contemporary semiotics (and biosemiotics), it nevertheless lacks a satisfactory explanation of how conscious organisms achieve *passing* into new frames of reference. Semiotic Matrix Theory (SMT), its *pansemiosis*, describes falsifiable existential and cognitive heuristics of recognizing Energy requirements, Safety concerns and Possibility or Opportunity as "passing" functions. Finally, another type of emergence, ecoethics, is an embedded constant in biosemiosis. Not all semiosis is good semiosis, not all text is good text. Because our species is moving away from ancient biosemiosis and interrelatedness, this *historicity*, even ductile enough to invent synthetic semiosis or capricious umwelten, is facing the ecological reality and consequences of an overly anthropocentric text.

Tarantula: an insect whose bite is only cured by musick.

Melvyn Bragg's (2003: 213) entry and
selection from *Johnson's Dictionary* (1755)

1. Introduction

It is an understatement to write that Mead's idea of *sociality*, and the mechanism of *passing* from *umwelt* to *umwelt*, are underused and understudied in biosemiotics today. With notable interpretations and exceptions to his contributions in general (see Wiley 1994; Harries-Jones 1995; Kilpinen 2002), a neglected obligation to his crucial ideas is due partly to the intractability of Mead's text, often promising to continue in development where some of his ideas seem to walk a step further but no more, or suddenly stopping altogether, his freedom to produce additional text restricted due to his multiple academic and administrative responsibilities.¹ The antiquated and modern term *sociality*, perhaps an unfortunate choice and label today, seems also so biased toward purely human semiosis, thus turning off potential biosemiotic readers in search of a biological synthesis.

Without deciphering what Mead meant by this term and, in general, with the apparent lack of relevance of Mead to biosemiotics, judging by the smaller ratio of his name in references to the names of other turn-of-the-20th-century semioticians, in my opinion, has forced many contemporary writers to almost reinvent the "Mead Wheel". Specifically, if *sociality* is understood as he meant it, forced and pervasive, even inescapable, relatedness or *semiosis*, it provides an additional historical foundation for understanding biosemiotics proper, from endosemiosis to the human text. This is clearly illustrated when Arthur Murphy, a better interpreter of Mead than I, while trying to summarize Mead's communicative processes, says, "[...] the appearance of mind is only the culmination of that *sociality* which is found throughout the universe".²

¹ My paraphrase of John Dewey's personal evaluation of Mead's literary productivity in his prefatory remarks in *The Philosophy of the Present*, 1934a.

² This universal and biosemiotic sounding description was written in 1932, a good seventy or so years before Jesper Hoffmeyer's *Signs of Meaning in the Universe*, in 1996. This comparison is made partly out of respect to J. Hoffmeyer's work and also because his name is associated with a canonical-now in biosemiotics providing a useful historical frame of reference.

From endosemiotical-hormonal to human communication, Mead's concept of *sociality*, in tandem with his ideas and definitions of *consciousness* and *communication*, leaves little doubt that he was thinking of a grander biosemiosis while finally being canonized by history as the father of American sociology.

These words are obviously a tease of a more complex and synergetic semiosis that must explain all three concepts to present-day biosemioticians. It may be difficult to do justice, in this short examination, to all of Mead's writings, in which, in fragmentary manner, these concepts are used as the foundations of other elemental ideas. So I have opted instead to focus on *The Philosophy of the Present* (Mead 1930, 1932) as the most cited source and text for further analysis and discussion, yet other references and works will be cited. In the next section, I will try to illustrate in broad strokes, how *sociality*, *consciousness*, and *communication* are intimately connected, thus, once again, anticipating the writings of present day non semiotician, semiotician, and biosemiotician scholars alike. Section Three will connect all three concepts of *sociality*, *consciousness*, and of *communication*, if not in a logical system, at least into a coherent definition and semiosis that exemplifies what evolved semiosis could look like.

2. Living with more or less consciousness: When is a 'thing' really a part of its Umwelt?

"Always", might answer Mead, with the rest of biosemiotics, at least since the moment it became an organism. But there are differences and degrees of differences of existential embeddedness and the ability to extract meaning from different umwelten. Depending on the organism's evolution of consciousness and the ability to communicate with gestures or signs whose meanings are constantly derived from existential doings; depending on the degree of embeddedness and the ease with which an organism *passes* from umwelt to umwelt; then its mind can reach a certain threshold referred to earlier as multiple referentiality, on in Mead's term, the capacity for *continued emergence*.

These abilities, which Mead (1932) traces in evolutionary and relativity theory terms, as he understood them, finally place the very construction and manipulation of a 'self' within and as part of all the

objects found in the *umwelt*. That is, when an organism is capable of referring to itself as an object among other objects, utilizes the sensations and experiences in reference to its *umwelten*, and is able to communicate the meanings of all these interactions to itself as well as to others, then that organism has acquired *consciousness* in Mead's (Mead 1932: 82) interpretation of this concept: "[...] the organism responds to itself as affected by a tree and at the same time to the tree as the field of possible interactions".

The interpretative participation of the 'self' emerging from and always embedded in a social universe dominates Mead's semiotics. The earlier allusion of the Batesonian phrase describing, in a pithy phrase we have all made into a slogan, the condition of interpretation, 'a difference which makes a difference' (Bateson 1979), would mean for Mead the following:

Signification has [...] two references, one to the thing indicated, and the other to the response, to the instance and to the meaning of the idea. It denotes and connotes. When the symbol is used for the one, it is a name. When it is used for the other, it is a concept. But it neither denotes nor connotes except, when in form at least, denotation and connotation are addressed both to a self and to others, when it is in a universe of discourse that is oriented with reference to a self. If the gesture simply indicates the object to another, it has no meaning to the individual who makes it, nor does the response which the other individual carries out become a meaning to him [...]. (Mead 1922: 246)

In short, the "difference" that would make a difference for Mead is that of a social entity that has internalized its social *umwelt* entirely, knows itself as a SELF, and within the province of this self, assumes universal interpretation of its broadcasted sign. This is the beginning of multiple referentiality, or the beginning of a theory of mind (Premack, Woodruff 1978).

In achieving multiple referentiality, and while addressing the human condition specifically, social beings are able to internalize the roles of others into a meta-schema that Mead made famous: *The Generalized Other*. Many books and articles written across different disciplines have elaborated upon, co-opted and attempted to deconstruct Mead's concept of the *generalized other*. Mead's concept anticipates or stands side by side with Piaget's (1932, 1972; or Vygotsky's beginning of social 'otherness thought', 1934), depending how one interprets history, emphasis on intelligence being predicated on the ability to take on the perspective of *the other*; tracing its

development of scheme from reflexes to circular reactions to egocentrism, and beyond, to formal operations.

'Theory of Mind' researchers and theorists (Premack, Woodruff 1978; Woodruff, Premack 1979; Dennett 1983; Whiten, Byrne 1988; Byrne, Whiten 1988; Dennett 1991; Byrne, Tomasello 1995; Whiten 1996 — as well as detractors — see Heyes 1993; 1998) must always pay tribute to Mead in some fashion or another, and the *generalized other*, by any other pseudonym or novel coinage, whether apes do it, rats do it, or human children after the age of four do it, establishes intelligence as that capacity to somehow internalize the thinking of *the other* for any number of social and personal uses from deceit to altruistic empathy. Speaking of altruism, and extending Piaget's and Mead's ideas into the realm of moral reasoning, Kohlberg (1981) seeks and is able to demonstrate with empirical confirmation to Piaget's (1932) and his original intuitions that the abilities in perspective-taking and higher social consciousness set the stage for higher rational ethical thought.

More recently, with the increased focus on Emotional Intelligence (Goleman 1995), the idea of the *generalized other* can be placed on a practical and even empirically testable continuum that even Mead might approve of, beginning with the total neglect of *the other* as being significant to one's own selfish survival, proceeding further in development to familiarity with someone, continuing perhaps into tolerance for someone, graduating into sympathy and finally having empathy for others. Even within our own species, the higher end of this ethical continuum, as the many mansions and umwelten of possibilities of relatedness, is not achieved universally or consistently as Kohlberg's later data show (Colby *et al.* 1987).

A more important reason for revisiting Mead's triple conception of *sociality*, *consciousness* and *communication*, in addition to paying tribute to his foundational ideas, is that in his thinking there is in a solid base and independent confirmation that a mind that evolves in rich social contexts is nicely suited to: (1) extending the range of relatedness to such a fine point where it becomes *the other*; (2) that this now social mind is obligated to communicate the meanings derived from perceiving itself and using the capacity to be *the other* embedded in ever changing umwelten; and (3) that this mind so embedded in a social (objectively external and/or internalized) realm and exposed to a myriad of interactive opportunities has the potential to grow consciousness so

as to integrate, no devour, *umwelten* that are truly extant to other less embedded organisms, as Piaget suggested (1972).³

2a. Consciousness and sociality

For Mead the journey of a mind on the way to acquiring consciousness ends up being a communicative and thus semiotic odyssey. He speaks of a first prerequisite of consciousness as an organism *selects* a new *umwelt* *at will* based on its own organismic needs and sensitivities and amalgamates this ability of selection with the new environment, resulting in further interaction possibilities in the newly forming *umwelt*. Of this process he writes:

[...] its first characteristic [the characteristics of a mind acquiring consciousness] is consciousness, that emergent which arises when the animal passes from the system in which it formerly existed to an environment that arises through the selectiveness of its own sensitivity, and thus to a new system within which parts of its own organism and its reactions to these parts become parts of its environment. (Mead 1932: 84)

The intimacy and degree of subjective participation in Mead's rendition of a functional circle marks him as a biosemiotic thinker of note⁴ when he underlies the importance of this embeddedness:

[...] the systems to which I have referred are in all cases interrelations between the organism and the world that reveal itself in an environment, determined by its relationship to the organism. Any essential change in the organism brings with it a corresponding change in the environment. (Mead 1932: 84)

The next step in minds acquiring consciousness is due both to sensorial and cognitive peculiarities that place the interpreter in a Peircian triad (Peirce 1916/1966) in a situation of *mental reflection*. In Mead's own words, "this next step is reached with the dominance of

³ But realistically speaking, the majority of social agents cannot pull this off, and humans, in our example, are more *ergodic* than *non-ergodic*, thus being limited to only finite sets of relatedness by their genotypic and phenotypic boundaries, and by their experiential and psychological experiences and limitations.

⁴ Or even mark him as an ecopsychologist like Kurt Lewin (1935; 1936; 1939; 1951) expressing a similar, non-topological description of *Life Space*.

the distance senses and the delayed responses to these".⁵ In contemporary terms, a 300 millisecond delay between processing a distal stimulus and its final cognitive recognition, plus additional computation time in higher order, intermodal associative cortex, in communicative animals, offers or enforces a reflective capacity that I believe Mead finds to be crucial for the emergence of consciousness.

The final step in the acquisition of consciousness occurs when, "the characters of the environment constitute the stuff out of which values and meanings later arise when these characters can be isolated though gestures in communication". Therefore, Mead links consciousness itself with valuative communicative processes. Another way to encapsulate this process, as I understand Mead, is to say that *consciousness* is a semiosis on a grander scale, of meaningful and mediated (through communicative exercises) existential responses with a sense of *historicity*.⁶ This final leap, according to Mead, opens the door for an appreciation of universals, a signature of evolved consciousness.

Furthermore, it is important to highlight the fact that Mead is perfectly aware of the distinction between consciousness and Self-consciousness, and I believe the final step he refers to in the acquisition of consciousness is really the possession of Self-consciousness. This is clear to me, when, for example, we read him in *Mind, Self, and Society* making this distinction:

It is the social process of influencing others in a social act and then taking the attitude of the others aroused by the stimulus, and then reacting in turn to this response, which constitutes a self. Our bodies are parts of our environment; and it is possible for the individual to experience and be conscious of his body, and of bodily sensations, without being conscious or aware of himself. (Mead 1934b: 171)

⁵ In concordance with Heinz Werner's (1934; 1963) developmental description and move from juvenile syncretic, sensorial, and affective (implying faster and unreasoned limbic processes) processes, to more mature mental states that are discrete, objective and language based. Also Ernest Schachtel's (1959) distinction between an earlier developmental experiential realm dominated by *autocentric* senses, or the intimate senses of touch, smell and taste, toward, with increased maturity, to an ascending dependency on *allocentric* or distal senses such as vision and hearing and the mediation of reality through language.

⁶ I am co-opting the term *historicity* from its other uses, in semiotics and biosemiotics. Within semiotics itself it has been used as a term used to move away from a decontextualized Saussurean (1916/1983) Synchronic analyses. See page eleven in this work for my own qualified biosemiotic meaning of *historicity*.

This interpretation and read of Mead may leave some biosemioticians with a blank stare and perhaps even disappointed. So, to the extent that Mead's *consciousness* is so dispatched and made to be the unique property of certain types of creatures who do valuatative communicative processes, it may rub the wrong way and upset biosemioticians and other students of consciousness who have described consciousness as ubiquitous in the animal kingdom (from the inorganic realm to the plant kingdom and beyond), present from the beginning in the origin of our universe, albeit in some minor quality form, or teleologically evolving toward a certain type of universal presence-consciousness, thus opening the door for moralizing or simply imagining the random adaptation of species as guided development toward a god-like state (Davis 1999).

But Mead "saves the day," in a manner of speaking, because he makes his concept of *sociality* the genesis and integral component of his biosemiotics, if we can begin to be comfortable describing his semiotics as such. Since *sociality* is, simply put, forced relatedness, or forced semiosis, which appears early in evolution, and is present at the lowest levels of organismic interaction⁷, he is admitting to the primacy of semiosis, from the beginning, while pointing out that we must be mindful of the obvious qualitative differences that arise when different types of creatures achieve different possibilities of relatedness with their respective *umwelten*. The highest degree of relatedness that humans understand and can empirically test in nature is the *sociality* he terms, *The Realm of Continued Emergence*. Only creatures like we who can meaningfully evaluate our actions in the face of a changing environment and ask ourselves, in our own minds, the question, "What are my acts in relation to a changing environment?" or "What could these acts mean in possible X or Y environments?", can achieve this sort of specialized consciousness.

Finally, and perhaps more importantly, Mead is naming and describing this particular set of ideas with the intention of determining what the real existential moment is for any creature. Does existence lie in the past? Does it lie ahead in the future? Mead's answer is nay, relatedness with an *umwelt* is always in the present, even though *historicity*, in the way of habits and learned responses, predisposes a

⁷ Mead specifically mentions a semiosis of hormonal functioning, "There is in the physiological system such a system of communication carried out by hormones." (*The Philosophy of The Present*, p. 83.)

certain biased attitude with respect to accommodating a new *umwelt*. As Arthur Murphy (1932) interprets Mead, "The present is the locus of reality". But humans, who supposedly live in *The Realm of Continued Emergence*, are ductile in their accommodability to novel situations and in their possibility/opportunity to derive, constantly, new meanings from most changing environments, and to re-apply them. Not only do we inhabit this singularity of the present, but also, according to Mead's own read and interpretation of relativity theory, we could inhabit several *umwelten* at the same time. In order to explain how this comes about he employs the functionality of *passing* as the mechanism allowing this multiple referentiality.

I will turn next to Mead's idea of *passing*, the mechanism through which an organism moves from *umwelt* to *umwelt* while preserving the integrity of crucial aspects of its *historicity*, and at the same time, adapting its *historicity* to new experiential realms.

3. Passing

It may be easier to summarize the interpretative and organizational function of *passing* using a simple organism and example. A simpler organism such as a cicada (or, e.g., Uexküll's example of relatedness in 'flowers and girls', see Uexküll 1992; 1926; 1982), or any other similar creature is forced to relate semiotically with a (finite) set of *umwelten* and could organize each new circumstance by means of *habits* (which I have replaced here with a new sense of *historicity* to include both learned behaviors and instinctual repertoires of responses, and conscious-voluntary and unconscious-involuntary responses — a probability value of the likely actions we expect to see displayed given the sum total, or the appropriate dispensing, of one or more of these factors), by somehow recognizing and reacting to a new *circumstance*, and finally by accommodating the new *umwelt* of experience.

Assuming that the cicada has a sense of the limits of its own body-shell, of self-enclosure or any sense of being an entity with a certain set of constant peculiarities and functions (it feeds, it flies, it fights, it mates), then it can adapt to the new forced semioses with *historicity*. *Historicity* itself facilitates the *passing* from *umwelt* to *umwelt* although *historicity* itself does not guarantee that a cicada (or any

other organism) will be able to accommodate a new situation in a manner that maximizes survival. If the cicada was a more complex organism, an organism with a mind, it might even be able to also *select* and *organize* the new *umwelt* so its *historicity* acquires new meaning in the novel circumstance. But alas, the mostly *ergodic* cicada is enslaved to play only limited sets of expected roles. *Passing*, according to Mead, from *umwelt* to *umwelt*, includes all of these functions and it allows an organism a higher probability of not only interpreting the new scenario appropriately, but also of deriving new meanings that can then be *transferable*, to use a behaviorist and cognitive concept, into new environments-*umwelten*-circumstances.

From previous sections then, it follows logically that conscious beings who possess multiple referentiality, due to their social expertise and the ability to simulate *the other* many times over within their own minds, are able to transmute *historicity* into practically anything they need to in order to manage the new circumstance. To them is bestowed the greatest prize of all: to privately, in their own minds, think up *umwelten ad infinitum*, or *ad nauseam* if you prefer, and relate to these even when these worlds do not materially exist. For example, imaginary *umwelten* could conceivably extend into complex dreaming life, particularly into a semiotics of *lucid dreaming*, when consciousness reappears and can be manipulated at will while exploring uncanny dreamscape semiosis (Conesa 2003; 2004).

For now, let us accept the idea that multiple referentiality, to some degree or another, is achievable by most members of a given species endowed with consciousness and that this is generally a good thing. This is a big assumption, but if true, then Mead asserts that we are now in the position to inhabit multiple frames of references at once and that only conscious organisms that exist in *The Realm of Continued Emergence* can do so.

That is, a human being, and only a human being, can imagine being a passenger inside an imaginary rocket ship traveling at the speed of light *and*, simultaneously, a stationary person who remains on the face of the earth watching the rocket rise and then disappear. The fact that we can inhabit both perspectives (*umwelten*) is shown by the fact that many individuals of our species, for example Einstein, are (were) able to imagine such a dual perspective or circumstance at the same time. Mead did not say this, but if he could, he would say that relativity theory can only be a product of a *conscious* mind, and that in

passing from one frame of reference to another, this mind is also able to maintain or retain so much *historicity* as to be able to make both realities part of their real present. Mead also uses examples more mundane than the one given above, including the meaning of a dollar to several individuals. He cites, for example, that even though the first two individuals may be seeing the value of a dollar in a restricted sense, and each from their own unique perspective, a third individual can incorporate both perspectives and synthesize, to boot, a novel perception that gives him the monetary or investment advantage. Suffice it to say, for the purposes of this examination, that maintaining multiple referentiality while *passing* from *umwelt* to *umwelt* confers upon the conscious organism a tremendous advantage and opens the door to unimaginable possibilities, that even though removed from the utility of the present, allows semiosis to overreach and, if lucky, make possible *umwelten* that previously did not exist. By the way, his position is also an argument against absolute *incommensurability*, within a conscious species' *passing* (Kuhn 1983; Feyerabend 1987), since no probable *umwelt* is truly extant from this sort of advanced consciousness. Despite Mead's convincing and interesting elaboration (realistically speaking, only a smaller number of individuals belonging to a conscious species might be able to experience full-blown multiple referentiality as in the case of Einstein's insight⁸) of the real experience of inhabiting several perceptual spaces, simultaneously, this idea does not explain *passing* itself, at least not without first determining what bridges are (can be) built between probable *umwelten* that renders null the idea of two truly *incommensurable* environments. In the next section, I will try to show how the *transferability* of these elements, as explained by Mead, is not sufficient to track the successful *passing* from *umwelt* to *umwelt* and that SMT already has a vocabulary that handles these *passings*. In short, *passing* as explained by Mead seems to be dependant mostly on whatever cognitive or general talents are available to an organism thus lessening the potentiality, in the electrical sense, of a sort of impossible existential relativism that would prohibit movement and adaptation to a novel *umwelt*.

⁸ One person's multireferential insight is all it takes. After the fact, an entire culture can benefit from this insight without a thorough understanding of this accomplishment or what it 'really' means.

4. The elemental currency of "passing": A pansemiosis or heuristics of matricial doings

The reader is referred to a more complete treatment of the original version of SMT (Conesa 1999), and to a relatively more recent and succinct version of the same ideas (Conesa 2001) that present the following and more basic existential, adaptational arguments in a thumbnail sketch. The following basic positions have been changed here to address the Mead discussion presented thus far. These propositions, if you like, are as follows:

(1) Living organisms (and other "things") are matrices⁹. Therefore, in living entities, Energy, Safety, and Possibility need and functions, and their feedback interactions, are *consubstantial* giving rise to the emergent dynamics of what I define as matricial activity, or a matrix as an integral entity.

(2) As matrices 'we' embody Energy, Safety and Possibility needs and the *umwelt* provides sensorially and perceptually comprehensible sets of *invariant* information that can then be turn into *affordances* (Gibson, 1979). *Affordances* can then be interpreted as providing these basic matricial needs. This is why SMT is a *biosemiotic theory*, because it takes into account that a seamless and pervasive existential complementary exists between the object, the sign, and the interpreter which provides the basic sustenance for all meanings. This existential complement and yoked-in triad permeates and predates all sign systems, and all sign transactions. The *historicity* of an organism, partly programmed by its own genome and partly learned, is fundamentally and existentially the *historicity* of Energy, Safety and Possibility needs however this *historicity* is played out in the diverse attempts to deal, and to eke out an existence.

(3) Organic (*maenadic*-animals and *ensilic*-plants matrices) matrices have evolved countless metabolic, physiological, behavioral, and mental adaptations to express and complement these *matricial* needs by first reacting, responding, identifying or labeling objects in any

⁹ In actuality, and biosemiotically speaking, anything could be a *matrix* as long as it meets the definitional requirements of even being perceived as one. The idea of God is therefore a matrix and so is currency.

environment that they encounter as resources to meet these needs. Thus, a biosemiotic structure might be derived from a description, understanding, and prediction of these interactions. I have argued that the topological mathematics of Kurt Lewin's (1936 and 1939) *Life Spaces* may be a computational first step to learn something about these interactions, if only Lewinian terms are replaced with matricial functionality and jargon.

(4) All human knowledge, in all areas of interest, is an attempt to describe, understand, and/or predict how these *matricial* interactions occur. *Incommensurability* across these fields exists only insofar as lower level, technical jargon is used to define (without interdisciplinary effort) their phenomena of interest, a continua of biosemiosis¹⁰.

(5) The summary of this quest and understanding agrees with Systems Theory somewhat in that life transactions are all ecological (systemic). However, there are limitations to Systems Theory addressed by SMT (Conesa 1999; 2001).

(6) To understand the 'system' is to have a science that predicts how the system might behave. This understanding must also be semiotic as others intuited, pointed out and corrected (Maturana, Varela, 1980; 1987). In this sense, a good 'life' theory, psychological, biological, economical, etc., describes significant *matricial* events that occur in a system and is able to make predictions about these.

(7) Ecological Ethics, or Ecoethics, is an emergent necessity and the backbone describing the manner and nature of these relationships/interactions insofar as development proceeds from one smaller and physiologically restrictive matrix, to a larger one, and yet to a larger one (zygote, womb, mother, family, school, community, nation, planet, etc.). The *passing* from simpler to increasingly complex umwelten, if it is to succeed, must include a see-through universal

¹⁰ By the way, I do believe that *incommensurability* is pervasive for less complex organisms with respect to more complex ones to the extent that mind is absent in the former. An insect, for example, cannot understand the concept or idea *humanness*; but an intelligent dog, for example, an organism with a fairly complex mind, can sympathize in many non-commensurable moments with its human partner.

biosemiotics rooted in more or less easy to interpret, or easy to learn signs that assists the 'becoming' of an organism during its ontogenesis. To this end, human organisms (and other species) invent "rules" of ecological engagement that allow them to maximize potential within reason, without destroying the delicate balance of these tenuous relations. Sometimes an organism ignores these ethical rules in order to maximize *matricial* procurements (to dysfunctionally, in the sense of ignoring the consequences to its ecological setting, monopolize) it does this at the developmental or *matricial* detriment of others and while causing injury to an ecosystem. Biosemiotics, in the end, has to deal with ethical questions, and Mead's *passing*, specifically, must include a notion of functional limits found in each *umwelt* lived.¹¹

(8) Life processes allow an almost infinite number of strategies for achieving organismic potential; but at the root of these endeavors are the *matricial beta elements: Safety, Energy, and Possibility*.

(9) Semiotic Matrix Theory specifies the way in which biosemiosis can be structured through an empirical program that tests the ecological validity of these interactions that then can be applied to any study that examines systems.

(10) Encapsulated physical bodies are 'simply' the phenotypic expression of these *matricial* forces encountering and surviving diverse environments. Moreover, both genomic and phenotypic adaptations and developments are servicing, through simple and complex feedback systems, the achievement of a *matricial homeostasis*. Being that all organic systems are being drafted, consciously or not, toward this end, *matricial integrity*, then the entire enterprise of merely surviving and/or meaningful existence is participating in a common ground of 'being'. If so, then surely a *biosemiosis* dominates from the bottom up and anything else we can explain or discover about semiosis is really a

¹¹ Joseph Chilton Pearce (1971 and 1977), first laid out the developmental sequence just mentioned, and proposed the ideas that are foundational to SMT. Even his idea and use of the term 'matrix', used in this developmental sense, makes a better case for this progression than I am making here. I encourage readers to revisit his thought provoking and controversial book, *Magical Child* (1977).

forced relatedness or a *forced semiosis* and *sociality* that it is always *matricial* at its core.

(11) The *historicity* of an organism, any system, however complex, colorful or idiosyncratic, makes an explicit or an implicit reference to *matricial* necessities. It is an existential situation, from the bottom up and in reverse, where a pervasive (and/or perverse if you wish) biosemiotic field is, in my opinion, inescapable. In its new formulation, and contrasted to Mead's ideas, I call it a *hermetic biosemiosis*.

If the above points can be accepted at face value, at least for the purposes of this aim, namely, to elucidate the problem¹² of *passing* from one frame of reference to another while maintaining a principal and primordial existential objective, then the following might make more sense. The cicada, an organism with limited 'mind' and thus with limited frames of references, as well as a human being, an organism who inhabits the multi-referential realm of continued emergence, in moving from one existential circumstance to another, must both maintain a common denominator and heuristic that transcends the 'many flavors' of speciation, the exuberant display of multiplicity of signs, and the many opportunities for passage from *umwelt* to *umwelt*. In addition to all transferable commodities that assist the *passage* from one frame of reference to another (including: instinctual responses; acquired cognitive skills; cultural and genetic adaptations; the grandiose 'self'; short-term or long-term learning; or any other bodily or mental propensities that one may wish to even remotely associate with my term transferable commodity) and give life, purpose, and meaning to their expression is an *ontological semiosis* that reads a universal *matricial* manual before commencing to select, organize and then get cozy in a new frame of reference. This thoroughly enveloping *ontosemiotic baseline*, at least a facilitator of *passing*, is even more crucial for organisms who are mentally ductile in multiple referentiality, because they have an even greater need for an ontological compass, given that some automaticity of responding can now be supplemented or taken over altogether by the 'little voice inside the head,' and given that the little voice may be sometimes wrong.

¹² I see it as and call it a problem, Mead may have not thought of it as a problem. His writings assume and are hopeful that the *generalized other* would be passport enough (pun intended) between *umwelten*.

When the 'little voice in the head' is wrong, along with the rest of the little voices inside the heads of the society from which individual Self-consciousness emerges, then we might be partaking of dysfunctional semiosis. As Erich Fromm (1955) said, "That millions of people share in the same forms of mental pathology does not make those people sane." The next section presents the position that deep ecological and green psychological movements put forth, namely the necessity of re-establishing an authentic and long neglected bio-semiosis, at the cultural level, absence which is the cause of individual unhappiness and illness, as well as a societal disintegration.

5. Mead, SMT, and ecological ethics

The apparent existential freedom of continued emergence also comes with a social and psychological price to pay (Fromm 1955) and a duty to ecological ethics (an ecological morality). That is, to deep ecologists (Naess 1973; Sheppard 1973; Naess 1979; Sheppard 1982; Devall, Sessions 1985) and green psychologists¹³ (Roszak 1979; 1992; Metzner 1971; 1999) who see BEING, and in particular healthy BEING, as predicated in the natural and specifically in the wild, such creative semiosis could turn out to be a dysfunctional semiosis, precisely because it may deviate and stray into purely fictional and aberrant semiosis (culturally driven or subjectively creative, both types could be delusional in the sense that Erich Fromm stated in an earlier passage) from an original *telluric* and biosemiotic ground (Sheppard 1973; 1982). As Paul Sheppard brilliantly demonstrated (an idea that continues to be debated), "the tender carnivore" has been domesticated by an agricultural and deviant text and semiosis and therefore has long ceased to be in harmony with ancient patterns and is no longer socially or mentally sound. But the above criticism is not new, and even before many were blaming *modernism* as another non-inclusive 'ism' that lacked this or that, or that was not addressing the needs of this or that group, a modernist voice and philosopher, George Santayana, recognized in a speech that was later to be printed, that

¹³ Peter Kropotkin's (1914) name must be added as a precursor to this list of ecopsychologists (Roszak 2001) for he contributed, to the budding concept of an 'ecosystem,' being dependent on mutual, interspecies aid.

something was wrong with European philosophy with respect to ecological ideas when he said:

A Californian whom I had recently the pleasure of meeting observed that if the philosophers had lived among your mountains [California mountains], their systems would have been different from what they are. Certainly very different from what those systems are which the European genteel tradition has handed down since Socrates; for these systems are egotistical; directly or indirectly they are anthropocentric, and inspired by the conceit notion that man, or human reason, or the human distinction between good and evil, is the center and pivot of the universe. That is what the mountains and the woods should make you at least ashamed to assert. (Devall 1985: 46)

It is not certain whether the "Californian" Santayana was referring to was none other than the Scott naturalist and founder of The Sierra Club, John Muir. But William Devall (1985) certainly thought that this modernist voice was the beginning of a new era when he writes, "[the speech at The University of California at Berkeley]...was a historical turning point in the development of the contemporary search for an alternative worldview and an environmental ethic that would not be subjectivist, anthropocentric, and essentially materialistic". Devall's statement is also an example of and recognition that contrary to stereotypical descriptions of a particular age, each epoch conveniently invents derogatory as well as admiring terms for other epochs while rewriting their own history, and in so doing, highlights or ignores *text* when this text is either beneficial or contradictory of their stated positions, respectively. Thus every epoch is more or less modern or more or less dark in comparison to another. Santayana's text speaks of a sentiment that was not really completely lost in European thought (Nash, 1982; Devall, Sessions 1985). After all, John Muir, a Scott, who migrated to North America, hiked and fell in love with this wilderness and pushed "American" politics and psyche from the romantic ideal of nature toward the observation of its intrinsic right to be sustained and thus protected.

Interestingly, both William Devall (1985) and Erich Fromm (1955) go further into history to bring back another voice, Spinoza's, who can validate their shared thesis that a particular collection of dysfunctional meme-texts can be admitted as normal by a given culture or at least tolerated to a certain degree. Erich Fromm (1955: 24) quotes a passage from Spinoza's *Ethics (IV)* that it is worth examining,

Many people are seized by one and the same affect with great consistency. All his senses are so strongly affected by one object that he believes this object to be present even when it is not. If this happens while the person is awake, the person is believed to be insane...But if the greedy person thinks only of money and possessions, the ambitious one only of fame, one does not think of them as being insane, but only as annoying; generally one has contempt for them. But factually greediness, ambition, and so forth are forms of insanity, although usually one does not think of them as illness. (Spinoza: 44)

I share the above passage to suggest that any predisposed or learned behavioral singularity that it is not ecologically edifying, a *fetish*, is a form of illness. There is at least a logical implication in Mead's yoking of 'self' with 'society' (Mead 1932), or the social, that allows the conclusion that the ethical clarification within the self of what is right or wrong (even sane or not in Fromm, 1955) emerges from the semiosis between Self and society:

Since society has endowed us with self-consciousness, we can enter personally into the largest undertakings which the intercourse of rational selves extends before us. And because we can live with ourselves as well as with others, we can criticize ourselves, and make our own values in which we are involved through those undertakings in which the community of all rational beings is engaged. (Mead: 90)

If so, it is equally probable that: *a 'self', originating within the social realm as it does, while intuiting, apprehending and utilizing its universal meme-text, is capable of realizing that his polis, the cultural semiotic world that gave origin to the 'little voice' inside his head, is thoroughly corrupted and so is the text inside his head.* This is the beginning of healing for the above-mentioned deep ecologists and green psychologists.

If we are creatures of *continued emergence* that can grasp universals, above and beyond the very social matrix that gave us the power to so do, then we can also fix the corrupted meme-text. In attempting to do so there is, first, a need to describe, biosemiotically, how this dysfunctional, industrialized or agricultural, text might be looping into nonsense or even illness, looping into perversion and narcissism, and moving faster and farther from a true concept of community, and intimation with each other as *umwelten* and with wild nature as the most authentic backdrop for these intimations. As hinted at earlier, any of these are dysfunctional social loops, or *fetishes*,

because they deny identification with a larger ecology hyper selecting, thus reducing, a larger potential field of biosemiosis. For example, who would argue with the thesis that mass, ravenous consumerism, an inclination toward the artificial, and a reduced ability to tolerate the inclemency's of bad weather make for a stronger self or a more factual biosemiosis?

Deep ecologists as well as green psychologists are awaiting a more earnest effort and dogged contribution from our lot. Without our concerted ensemble contribution dictionary entries such as the one I shared at the beginning of this text, "*Tarantula*: an insect whose bite is only cured by musick [sic]", in another form (such as the still prevalent bad habit of avoiding using the word 'animal' to designate humans) will continue as examples of *fetish*, or anthropocentric semiosis.

To conclude this section, it is fair to say that the biosemiotic intellectual paradigm, with the assistance of other ecological (deep and shallow) disciplines, if it chooses to lead in that direction, could actively be involved in these deep ecological discussions and build a more inclusive semiotics where biosemiosis is not limited to the sign-in-nature, but more broadly puts forward an authentic effort in examining the consequences of the absence of the *original sign* in the present human text. Even though there are already noteworthy successes of this kind of extended a more inclusive biology within biosemiotic writings (Emmeche, Hoffmeyer 2001; Kull 1998), the deep ecological sentiment in biosemiotics is not well covered. Also, a recent review of theories of emergence (life, consciousness, biosemiotics) did not list Mead as a reference. I only mention this because, at least to me, it seems important and even logically necessary to connect theories of emergence, biosemiosis with those of ecological ethics.

6. Discussion

Thus far, I have argued that in phylogenetic and ontogenetic forms of 'becoming', and while passing from umwelt to umwelt, matricial truth and aims are reiterated. Ecological ethics are also obligated if we agree with Joseph Chilton Pearce's developmental model (Pearce 1977). This fractal iteration of BEING grounded on matricial neces-

sities, or another *biopansemiosis*¹⁴ that could replace it, is falsifiable at face value, if we consider the following, as George Santayana (1955) would say, *brute facts*. As negative examples, if an existential biopansemiosis did not exist, of the sort described by SMT, then any sufficiently distinct frame of reference would be truly *incommensurable, thus intraversable and impassable, within (and without) the spaces of self and cultural semiosis*. *Passing* would be, if not impossible, extremely difficult, reducing the range of semiosis we observe in the life (and *historicity*) of this planet to indescribable and unthinkable senseless events. Logically, speciation would not be possible, assuming that we describe speciation semiotically, as *passing* from a vanishing set of existential accommodations to another emerging set of significantly different existential accommodations, in varying degrees of difference and success.

Moreover, if *passing* is also understood as intra-species accommodation, interpretation or deployment of instinctual behaviors, and some biosemiotic mechanism did not facilitate the functions, then every organism would go hungry and starve to death for no apparent reason. Copulation, as an example of primal forced relatedness or forced semiosis would be a bizarre undertaking, or would not take place at all. Equally, without a biosemiotic set of guidelines there would be no need for nests, burrows, or houses with thermostats and fences, or the distinction between enemy and friend. Bluntly put, there would be 'nothing' instead of 'being'.

To conclude, focusing on the sign, myopically; on human culture and semiosis, myopically; on the little sounds we make with moving lips, myopically; on the little sounds that birds make when they sing, myopically; on poetry, myopically; we risk missing a grander biosemiotic phenomenon: *everything does the same things except a little bit differently*.¹⁵

It is quite probable, as Mead intuited and defended, that only social organisms who also achieve multiple referentiality are in a position to

¹⁴ SMT traces the existential doings of organic matter and of life to inorganic, energetic beginnings. Thus, in this more inclusive sense, the terms *pansemiosis* or *biopansemiotic* are used.

¹⁵ As my grandmother Carmen Sevilla Perez from Cadiz told my Catalan mother, Montserrat Sevilla de Conesa, born in Paris, and my mother continually reminds us when we unjustly, stereotypically, compare the ways and customs of diverse peoples and countries: "En todas partes del mundo se comen habas", or "Everywhere, everyone eats [some sort of] beans." "Just a little bit differently," I add.

maintain so many points of view at once as to begin to apprehend universals. This capacity may sometimes be simply a wishful subjective projection rather than the discovery or intimation of an actual and bona fide universal or natural habit. Sometimes this capacity simply produces mental aberrations and illness. But sometimes this capacity pays off, substantially, and produces an explanation that incorporates extant frames of reference. However, depending on how extant the new frame of reference is, it may or may not be thoroughly incorporated into human culture as a semiosis of mental associations and meanings. Most people, I would venture, do not understand basic principles in physics, psychology, chemistry or biology even though the technologies and ideas that spun from these fields are routinely employed by all of us. This lack of in depth understanding does not mean that these fields are *incommensurable* from each other, or that the average person cannot grasp the essential insights found in all of these fields. But, practically speaking, the average person simply does not have the time to be so comprehensive or inclusive, or he/she simply chooses to specialize in one field at the exclusion of other fields.

Thus, an existential drive can be summed up by the following questions: Can I make a 'living' today? If so, then: What basic elements gathered from raw reality do I employ to even begin to make a 'living'? And, how many of these elements are, biosemiotically speaking, significantly foundational and enduring so that I can continue making a living tomorrow? If a given organism can achieve the Realm of Continued Emergence as an added bonus, then life may seem either more pleasant and interesting or twice as horrifying, depending on one's myopic frame of reference. But through happy dreams or through nightmares, one can be certain that *everything does the same things, except a little bit differently*. Sociality as forced relatedness, or forced semiosis, and, sociality as the driver and engine for semiosis, does so: it makes sure we tug the same ontology along, always matricial at its core.

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**Область продолжающего творчества: семиотика
Джорджа Герберта Мида и ее результаты в биосемиотике,
теории семиотической матрицы и экологической этике**

Данное исследование обращает внимание прежде всего на поворотные идеи Дж. Г. Мида о *социальности, сознании и коммуникации*. Мидовское понимание социальности как принудительного отношения или принудительного семиозиса, который появляется уже на раннем этапе эволюции и проявляется в простых системах, гарантирует ему место основоположника среди биосемиотиков. К идеям Мида принадлежит и описание мультиреференциальности, которая свойственна социальным организмам (это связано с его идеей *общенного другого*), позволяя сравнительно легко переходить из одного умельца в другой. Хотя широкое понимание Мидом семиозиса звучит убедительно и соответствует принципам современной семиотики (и биосемиотики), все же в нем отсутствует удовлетворительное объяснение того, каким образом организмы, обладающие сознанием, способны переходить на новые основания референции. В развиваемой автором "теории семиотической матрицы" пансемиозис описывает в качестве функции "перехода" фальсифицируемые экзистенциальные и когнитивные методы эвристики распознавания потребностей в энергии, забот о безопасности и благоприятной возможности. Не каждый семиозис сам по себе хорош, как хорош не каждый текст. Так как наш вид отходит от первобытного семиозиса и взаимозависимости, то историчность (пусть и изобретая послушно синтетический семиозис или капризные умельцы) сталкивается с последствиями экологической реальности и слишком антропоцентрического текста.

Jätkuva loomingu valdkond:

George Herbert Mead'i semiootika ja selle tulemid biosemiootikas, semiootilise maatriksi teoorias ja ökoloogilises eetikas

Käesolev uurimus George Herbert Mead'i semiootika teemal pöörab peatähelepanu ta pöördelistele ideedele *sotsiaalsusest, teadvusest, ja kommunikatsioonist*. Meadi arusaam *sotsiaalsusest* kui sunnitud suhestatusest, või sunnitud semioosist, mis ilmub evolutsioonis varakult ja avaldub lihtsais süsteemides, garanteerib talle rajaja koha biosemiootikute hulgas. Nende Meadi ideede hulka kuulub *multireferentsiaalsuse* kirjelda-

mine, mis on omane sotsiaalsetele organismidele (seotult ta *üldistatud teise* ideega), võimaldades *üleminekut* ühest omailmast teise suhteliselt kergelt. Kuigi Meadi avar semioosi mõiste on veenev ning vastavuses praegusaegse semiootikaga (ning biosemiootikaga), siiski puudub selles rahuldav seletus sellele, kuidas teadvusega organismid suudavad *üle minna* uutele võrdlusalustele. Autori poolt arendatav 'semiootilise maatriksi teooria' kirjeldab falsifitseeritavaid eksistentsiaalseid ja kognitiivseid heuristikuid, et eristada "ülemineku" funktsioone 'energeetilisteks eeldusteks', 'kindlustatuseks' ja 'võimaluseks'. Samuti, teistsugust tüüpi loovus, ökoetika, on biosemioosis peituv konstant. Mitte iga semioos pole hea, nagu pole hea mitte iga tekst. Kuna meie liik liigub eemale ürgsest biosemioosist ja vastastikusest seotusest, siis *ajaloolisus*, küll kuulekas leiutamaks sünteetilist semioosi või tujukaid omailmu, põrkub ökoloogilise reaalsuse ja üleliia antropotsentrilise teksti tagajärgedega.

The Fibonacci sequence and the nature of mathematical discovery: A semiotic perspective

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Abstract. This study looks at the relation between mathematical discovery and semiosis, focusing on the famous Fibonacci sequence. The serendipitous discovery of this sequence as the answer to a puzzle designed by Italian mathematician Leonardo Fibonacci to illustrate the efficiency of the decimal number system is one of those episodes in human history which show how serendipity, semiosis, and discovery are intertwined. As such, the sequence has significant implications for the study of creative semiosis, since it suggests that symbols are hardly arbitrary products of human reason, but rather unconscious probes of reality.

Introduction

One of the most famous mathematical discoveries of all time is the one that pertains to a sequence of integers connected by the following simple rule — for every three consecutive integers, the sum of the first two integers produces the third in the sequence, {1, 1, 2, 3, 5, 8, 13, ...}. So, for example, $3 = 1 + 2$, $5 = 2 + 3$, $8 = 3 + 5$, and so on. The sequence is known as the “Fibonacci Sequence” (henceforward FS). So much has been written on this sequence that it would be presumptuous to claim that anything new can be said about it that has not already been said. Indeed, mathematicians have been studying the FS ever since its discovery in 1202 by Italian mathematician Leonardo Fibonacci (1170–1240). However, lacking from the relevant literature is a semiotic consideration of the implications this sequence has for

understanding the nature of discovery. The purpose of the present paper is to do exactly that — to reflect upon the FS and its relation to mathematical discovery from a semiotic perspective.¹

Resorting to semiotically-based ideas (whether overtly or indirectly) in order to investigate mathematical features and facts is not new — indeed, over the last few decades it has become quite common to do so (e.g. Rotman 1988; Reed 1994; MacNamara 1996; Radford, Grenier 1996; Antenos-Conforti *et al.* 1997; English 1997; Lakoff, Nuñez 2000; Anderson *et al.* 2000). The mindset that guides this line of inquiry in general is the connection between symbols, mathematics, and discovery. It is, in my view, an important perspective because it leads to an insightful reformulation of the classic questions of mathematical philosophy that originated with the ancient Pythagoreans: What is mathematics? Why does it allow us to discover natural laws? As Arthur Koestler (1959: 34) so eloquently put it: “Nobody before the Pythagoreans had thought that mathematical relations held the secret of the universe. Twenty-five centuries later, Europe is still blessed and cursed with their heritage.” And as the great Neapolitan philosopher Giambattista Vico (1688–1744) argued throughout his life, such relations do not come about by an exercise of strict logical thinking, but rather through a creative form of understanding that he called the *fantasia* — a unique blend of imagination and reasoning (Bertland 2004).

The fact that the FS is the direct product of a clever puzzle constructed by Fibonacci to show how Hindu-Arabic numerals can be used efficiently, bears great relevance to the question at hand. Puzzles are as old as civilization. There has never been a period of time, nor has there ever been a culture, without some kind of puzzle tradition. Very few other kinds of artifacts have had the broad appeal that puzzles have. Throughout history, riddles, mazes, magic squares, geometrical puzzles, and the like have been used for pedagogical, recreational, and various other kinds of social functions. The “puzzle instinct,” as it can be called (Danesi 2002), continues to manifest itself in the widespread popularity today of modern puzzle artifacts, from crosswords to the Rubik’s Cube. It may even go back as far as 10,000 years BCE, as evidenced by several bones found in the Ishango Tribe that have marks on them representing numbers and which were

¹ A version of the present paper was presented at the meeting of the Semiotic Society of America in Ottawa on October 11, 2003.

probably used to carry out numerical games (Heinzelin 1962). But are puzzles just playful texts or objects, intended merely to train the mind or to entertain? Or are they products of something more fundamental in the human species? Do they reveal, in fact, something about a truly enigmatic interplay between *fantasia* and discovery in mathematics, given that many classic mathematical puzzles have led to subsequent discoveries in mathematics opening up new fields of inquiry?

One puzzle that stands out in this regard is Fibonacci's famous Rabbit Puzzle, which the medieval mathematician created primarily to illustrate the practicality of using the decimal number system to his fellow Italians (on this point see, for example, Ouaknin 2004: 133–140). As it turns out, no other puzzle has had as many implications for the study of mathematical pattern; and no other puzzle has had as many “reifications” in the study of nature. There is no evidence to suggest that Fibonacci himself was aware of the implications and applications that the solution to his puzzle would turn out to have. It was the French mathematician François Edouard Anatole Lucas (1842–1891) who noticed some of these in the nineteenth century. Since Lucas's observations, the amount of mathematical properties that the FS has been found to conceal and the number of reifications that it has been found to have in nature and human life have been absolutely astounding. The question that the FS begs is an obvious one: How could such a simple puzzle, designed originally to show the efficiency of decimal numerals over Roman ones, contain so many “secrets of the universe,” so to speak?

As Umberto Eco (1998) has cogently argued in regard to discovery in general, the crystallization of the FS from a simple puzzle is one of those episodes in human history which show how serendipity and discovery are intertwined. It is an episode with enormous implications for the study of creative semiosis, since it suggests that symbols are hardly arbitrary products of human reason, but rather unconscious probes of reality. Was this, in fact, the “secret” that got the Pythagoreans into trouble in the ancient world, leading to their systematic killing by those who may have feared what they knew? As is well known, Pythagoras (c. 582–500 BCE) and his followers taught that number was the essence of all things. They associated numbers with virtues, colors, and many other ideas. To study the relation between number and reality Pythagoras founded a school called the “Brotherhood” among the aristocrats of the city of Crotona. As history records,

the people of that city became suspicious of the Brotherhood — a suspicion that led eventually to an uprising and an extermination of its members.

Discovery in Mathematics

In his monumental history of semiotics, John Deely (2001) argues essentially that we can only understand the history of knowledge by mapping it against the development of sign theory. His discussion of the relation between signs and knowledge, especially as to how we attain it and how it is symbolized, is based on the premise that signs give shape to formless ideas, not in an arbitrary fashion, but in response to inferential processes that are tied to our experience of reality.

Knowledge systems vary throughout the world. But such variation is, upon closer scrutiny, superficial. Below the surface of these systems are sign creation processes that reflect universals in how reality is perceived. The problem is that we never get the “whole picture” at once. This is why special theories of the physical universe are possible and highly useful, but general ones are not. In other words, our knowledge systems can only give us partial glimpses of reality. What is important to note is that the elements that constitute these systems are hardly the products of firm reasoning processes; rather they seem to come to consciousness as if by magic. Discovery, in other words, cannot be forced by logical analysis. It simply *happens*. But it is not totally random, as the Fibonacci Rabbit Puzzle episode shows. It is probably tied to unconscious modes of inter-connecting experiences and their meanings. This is perhaps the reason why a sign (a word, text, formula, theory, puzzle, etc.) invented in one realm of representation leads, subsequently, to discovery in other realms. Signs are thus both encoders and guides of reality. St. Augustine appropriately characterized this aspect of human semiosis as a blending of our experience of natural signs (*signa naturalia*) with conventionalized knowledge (*signa data*). Another way to put it, using the ideas of the Tartu School, is to say that there is an interplay between our existence in the biosphere and our existence in the semiosphere (Lotman 1990). This interplay is what leads, arguably, to discoveries.

The word *serendipity*, incidentally, was coined by Horace Walpole in 1754, from the title of the Persian fairy tale *The Three Princes of Serendip*, whose heroes make many fortunate discoveries accidentally (Merton, Barber 2003). The tale goes somewhat as follows. Three princes from Ceylon were journeying in a strange land when they came upon a man looking for his lost camel. The princes had never seen the animal, but they asked the owner a series of seemingly pertinent questions: Was it missing a tooth? Was it blind in one eye? Was it lame? Was it laden with butter on one side and honey on the other? Was it being ridden by a pregnant woman? Incredibly, the answer to all their questions was yes. The owner instantly accused the princes of having stolen the animal since, clearly, they could not have had such precise knowledge otherwise. But the princes merely pointed out that they had observed the road, noticing that the grass on either side was uneven and this was most likely the result of the camel eating the grass. They had also noticed parts of the grass that were chewed unevenly, suggesting a gap in the animal's mouth. The uneven patterns of footprints indicated signs of awkward mounting and dismounting, which could be related to uneven weights on the camel. Given the society of the era, this suggested the possibility that the camel was ridden by a pregnant woman, creating a lack of equilibrium and thus an uneven pattern of footprints. Finally, in noticing differing accumulations of ants and flies they concluded that the camel was laden with butter and honey — the natural attractors of these insects. Their questions were, as it turns out, inferences based on astute observations, or to use Peircean terminology, “abductions” of a logico-inferential nature.

Ceylon's ancient name was Serendip, and it was Walpole who, after having read the tale, decided to introduce the word *serendipity* into the English language. The princes made their discovery of the facts of the matter as a result of what Walpole called “accidental sagacity.” Serendipity characterizes the history of discovery in mathematics and science — Wilhelm Conrad Roentgen (1845–1923) accidentally discovered X-rays by seeing their effects on photographic plates; Alexander Fleming (1881–1955) serendipitously discovered penicillin by noticing the effects of a mold on bacterial cultures; and the list could go on and on (e.g. Roberts 1989). Incidentally, Roentgen called his discovery “X-rays” because he simply didn't know what to call the rays, so he resorted to the traditional use of “X” as an

“unknown” in mathematics. The historical record suggests that discovery is hardly the product of a systematic search for truth, but rather a serendipitous consequence of using our *fantasia*. Perhaps the most famous of all serendipitous episodes in the history of science is Archimedes’ discovery of a law of hydrostatics (known as Archimedes’ Principle) as he was purportedly taking a bath. After visualizing the law in his mind through a flash of insight, he is said to have run out into the streets of Syracuse naked, crying “Eureka,” meaning “I have found it.” Since then, such flashes of insight have been called “Eureka moments.”

What is perhaps even more astounding is the fact that serendipity plays a role in reification — the manifestation of a form in knowledge domains other than the original one in which it was forged. A perfect example of this are the reifications of π (pi) = 3.14 (Beckmann 1971; Blatner 1997; Eymard *et al.* 2004; Posamentier 2004). Pi is the ratio that results when the circumference of a circle is divided by its diameter. Although discovered in the ancient world, the Greek letter π was first used in 1706 by English mathematician William Jones (1675–1749) and adopted by Swiss mathematician Leonhard Euler (1707–1783) in 1737. Serendipitously, π appears in a number of mathematical calculations and formulas, such as the one used to describe the motion of a pendulum or the vibration of a string. It also turns up in equations describing the DNA double helix, rainbows, ripples spreading from where a raindrop falls into water, all kinds of waves, navigation systems, and the list could go on and on. Does this mean that the circle form that produced π is implicit in these new domains? What is the connecting link between the circle form that produced the notion of π and other forms such as rainbows?

In a fascinating 1998 movie, titled *π : Faith in Chaos*, by American director Darren Aronofsky, a brilliant mathematician, Maximilian Cohen, teeters on the brink of insanity as he searches for an elusive numerical code hidden in π . For the previous ten years, Cohen was on the verge of his most important discovery, attempting to decode the numerical pattern beneath the ultimate system of ordered chaos — the stock market. As he verges on a solution, real chaos is swallowing the world in which he lives. Pursued by an aggressive Wall Street firm set on financial domination and a Kabbalah sect intent on unlocking the secrets hidden in their ancient holy texts, Cohen races to crack the

code, hoping to defy the madness that looms before him. Instead, he uncovers a secret for which everyone is willing to kill him.

As the movie's subtext implies, the stream of digits of π seems to challenge us to try to find a pattern within them. The greatest challenge to date, however, has been the race to simply compute π farther than before. The further it has been computed, the more old theories about patterns within are dispelled and new ones created. So far, π has been computed to over 51 billion digits. What is our attraction to this number? Is it perhaps the fact that a circle is probably the most perfect and simple form known to human beings? And why does π appear in statistics, biology, and in many other domains of knowledge? It simply keeps cropping up, reminding us that it is there, and defying us to understand why. Very much like the universe itself, the more technologically advanced we become and as our picture of π grows ever more sophisticated, the more its mysteries grow. There is a beauty to π that keeps our interest in it. One can argue, as does Beckman (1971), that π is one of those products of human effort that is a mirror of human history — it starts out in one domain of activity (geometry) and ends up in others and is probably everywhere (if we look for it).

Although the idea that signs are both reactions to experience and subsequent locators of new experiences is an extremely problematic one for many philosophers and mathematicians, it offers crucial insights in any attempt to approach (if not answer) one of the oldest questions in philosophy and mathematics: Is mathematics invented or discovered? Those supporting the view that mathematics as an invention or creation of the human mind include Augustus de Morgan, Janos Bolyai, David Hilbert, Albert Einstein, and George Pólya (Dewdney 1999). Those supporting the view that mathematics is the means by which we consciously discover truths are Archimedes, Isaac Newton, Leonhard Euler, and G. H. Hardy (Dewdney 1999). Semiotically, however, it can be argued that both perspectives are accurate. As the Pythagoreans believed, numbers do indeed seem to hold the key to the universe at the same time that they emanate from human perspectives of that same universe. The Pythagoreans lasted a long time, from about 500 BC until well into the Islamic era. Common wisdom holds that theirs was a pre-scientific system of belief, a close cousin of astrology and numerology, rendered obsolete by the rise of rationalist science in the late Renaissance that provided more effective

explanations of natural events. But science has now come virtually full circle, restoring mathematics to a throne not unlike that imagined by the ancient Pythagoreans. Whether we recognize it or not, the information age in which we live confronts us once again with the ancient mystery of why the universe is so mathematical: Does the cosmos make mathematics, or does mathematics make the cosmos?

Differences in numerical notation (Roman, decimal, etc.) are, of course, culture-based and invented; but the similarities captured by all such systems goes beyond culture. Numbers are thus both invented and discovered, giving them a unique status in the history of human ingenuity (Menninger 1969). The human mind creates numbers in the same sense that it creates colors. Yet the colors we perceive correspond to something real outside the mind. In this sense, we are discovering numbers all the time. Paradoxical as it may sound, only the possibility of being wrong will save mathematics from becoming a purely cultural exercise.

Mounting evidence in the neurosciences suggests that the rudiments of arithmetic are anchored in our genes, that infants are born with a capacity for recognizing and distinguishing among small numerical referents, etc. If such research is indeed correct, then the discovery of mathematical patterns is something we are programmed to do from birth. Although the structures of the cosmos certainly predate the human mind, they are not understood or even existent outside of human minds. The human brain, equipped by evolution, seems to be inclined to translate these structures into mathematics.

The Fibonacci sequence

When all is said and done, the question of where invention ends and discovery begins seems to defy a satisfactory answer. The case of Fibonacci's Rabbit Puzzle is a truly remarkable one in this regard, because it is, without question, a simple invention, and yet it contains within its solution so many discoveries that it truly boggles the mind to come up with a rational explanation as to why this is so.

The puzzle is found Fibonacci's *Liber Abaci*, published in 1202. Fibonacci designed his book as a practical introduction to the Hindu-Arabic number system, which he had learned to use during his extensive travels in the Middle East. His method of exposition was

based on the creation of puzzles that illustrated how easily the Hindu-Arabic system could be used to solve what would otherwise constitute intractable problems with the Roman numeral system. In the *Liber Abaci* he also introduced the word *cephirum* for “zero” as a *figura nihili* (“a sign of nothing”) in Latin. For historical accuracy it should be mentioned that the zero concept started out as *sunya* in sixth-eighth century Sanskrit, was then adapted as *sift* in ninth-century Arabic, introduced as *cephirum* through Fibonacci in thirteenth-century Latin (with variants *cifa*, *zefirum*, and *zephirum*), developing finally to *zero* in fourteenth-century Italian — a word adopted by English in the fifteenth century.

The puzzle is found in the third section of the *Liber Abaci*:

A certain man put a pair of rabbits, male and female, in a very large cage. How many pairs of rabbits can be produced in that cage in a year if every month each pair produces a new pair which, from the second month of its existence on, also is productive?

There is 1 pair of rabbits in the cage at the start. At the end of the first month, there is still only 1 pair, for the puzzle states that a pair is productive only “from the second month of its existence on.” It is during the second month that the original pair will produce its first offspring pair. Thus, at the end of the second month, a total of 2 pairs, the original one and its first offspring pair, are in the cage. Now, during the third month, only the original pair generates another new pair. The first offspring pair must wait a month before it becomes productive. So, at the end of the third month, there are 3 pairs in total in the cage — the initial pair, and the two offspring pairs that the original pair has thus far produced. If we keep tabs on the situation month by month, we can show the sequence of pairs that the cage successively contains as follows: 1, 1, 2, 3. The first digit represents the number of pairs in the cage at the start; the second, the number after one month; the third, the number after two months; and the fourth, the number after three months.

During the fourth month, the original pair produces yet another pair. At that point in time the first offspring pair produces its own offspring pair. The second pair produced by the original rabbits has not started producing yet. Therefore, during that month, a total of 2 newborn pairs of rabbits are added to the cage. Altogether, at the end of the month there are the previous 3 pairs plus the 2 newborn ones,

making a total of 5 pairs in the cage. This number can now be added to our sequence: 1, 1, 2, 3, 5. During the fifth month, the original pair produces yet another newborn pair; the first offspring pair (now fully productive) produces another pair of its own as well; and now the second offspring pair produces its own first pair. The other rabbit pairs in the cage have not started producing offspring yet. So, at the end of the fifth month, 3 newborn pairs have been added to the 5 pairs that were previously in the cage, making the total number of pairs in it: $5 + 3 = 8$. We can now add this number to our sequence: 1, 1, 2, 3, 5, 8. Continuing to reason in this way, it can be shown that after twelve months, there are 233 pairs in the cage. Now, the intriguing thing about this puzzle is the sequence of pairs itself, on a month-by-month basis:

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233

The salient characteristic of this sequence, as mentioned above, is that each number in it is the sum of the previous two: e.g. 2 (the third number) = $1 + 1$ (the sum of the previous two); 3 (the fourth number) = $1 + 2$ (the sum of the previous two); etc. This pattern can of course be extended ad infinitum, by applying the simple rule of continually adding the two previous numbers to generate the next:

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, ...

Little did Fibonacci know how significant his sequence would become. Over the years, the properties of the Fibonacci numbers have been extensively studied, resulting in a considerable literature. The basic pattern hidden in the FS was studied first by the French-born mathematician Albert Girard (1595?–1632?) in 1632. It is expressed with the formula: $F_n = F_{n-2} + F_{n-1}$ where F_n stands for any number in the sequence and F_{n-1} the number before it and F_{n-2} the second number before it. At about the same time, the astronomer Johannes Kepler (1571–1630) noticed that the FS converges to the *golden ratio*, whose value is .618... (Darling 2004: 116) — a finding confirmed in 1753 by the Scottish mathematician Robert Simson (1687–1768). As is well known, the ratio results from two divisions of a line such that the smaller is to the larger as the larger is to the sum of the two, a ratio of roughly three to five. If we take the stretch of numbers in the FS

starting with 5 and ending with 34, and take successive ratios they approach the golden ratio:

$$\begin{array}{rcl} 3/5 & = & .6 \\ 5/8 & = & .625 \\ 8/13 & = & .615 \\ 13/21 & = & .619 \\ 21/34 & = & .617 \end{array}$$

The golden ratio has been found to produce aesthetic effects and has itself been found to have an astounding number of reifications in nature (Livio 2002). This adds even more a sense of Pythagorean mystery to the FS: Why would there be a connection between a sequence of numbers produced by a puzzle about copulating rabbits and one of the most enigmatic ratios in the history of human civilization? The plot thickens, so to speak. In the nineteenth century the term *Fibonacci Sequence* was coined by the French mathematician Edouard Lucas, as mentioned, and mathematicians from many domains of inquiry began to discover myriads of numerical patterns hidden within in it (e.g. Ogilvy, Anderson 1966: 133–144; Stewart 2004: 87–93). Not only, but stretches of the sequence started cropping up in nature — in the spirals of sunflower heads, in pine cones, in the regular descent (genealogy) of the male bee, in the logarithmic (equiangular) spiral in snail shells, in the arrangement of leaf buds on a stem, in animal horns, in the botanical phenomenon known as phyllotaxis whereby the arrangement of the whorls on a pinecone or pineapple, in the petals on a sunflower, in the branches of some stems, and so on and so forth. In most flowers, for example, the number of petals is one of: 3, 5, 8, 13, 21, 34, 55, or 89 (lilies have 3 petals, buttercups 5, delphiniums 8, marigolds 13, asters 21, daisies 34 or 55 or 89). In sunflowers, the little florets that become seeds in the head of the sunflower are arranged in two sets of spirals: one winding in a clockwise direction, the other counterclockwise. The number in the clockwise is often 21, 34 and counterclockwise 34, 55, sometimes 55 and 89, and sometimes 89 and 144 in the spirals of sunflower heads, in pine cones (examples cited in Stewart 1995 and Devlin 2004).

The list of such reifications is truly startling — so much so that a journal, called *The Fibonacci Quarterly*, was established in 1963 to publish findings related to the FS. Why would the solution to a simple puzzle produce numbers that are interconnected with patterns in nature

and human life? There is, to the best of my knowledge, no definitive answer to this question. Maybe the puzzle instinct itself is at the root of such serendipities. As mathematician Ian Stewart puts it (2001: v), "simple puzzles could open up the hidden depths of the universe." As a "serendipitous sign" the FS seems to have led to an incredible discovery — namely that a simple recursive pattern constitutes the fabric of a large slice of nature. Devlin (2005: 105) sees the FS as essentially a descriptive statement — a model — of a growth process: "The Fibonacci sequence is one of a number of very simple mathematical models of growth processes that happens to fit a large variety of real-life growth processes." While this turns out to be true, what still remains perplexing is that Fibonacci hardly devised the FS to describe nature. He did not come up with it from studying plants. Rather, the FS is the outcome of a puzzle about rabbits.

Incidentally, Lucas came up with his own sequence of numbers, now called the *Lucas numbers*, which he started with 1 and 3:

1, 3, 4, 7, 11, 18, 29, 47, 76, 123, 199, ...

As in the case of the Fibonacci Sequence, any number in the Lucas Sequence is obtained by summing the previous two. As it turns out, the Lucas numbers also have surprising properties and reifications (Ball 2003). The question now becomes, does any recursive sequence produce serendipitous reifications? If so, what is reality? Were the Pythagoreans correct after all in saying that, fundamentally, there is continuity between the human mind and nature and that the language of this continuity is that of number?

As Devlin suggests, the predictive power of signs lies, arguably, in the fact that they are models of things (Sebeok, Danesi 2000). Model-making constitutes a truly astonishing evolutionary attainment, without which it would be virtually impossible for humans to carry out their daily life routines. I would like to suggest that numerical sequences, such as the Fibonacci one, are models of intrinsic pattern — whether the pattern is felt unconsciously or expressed overtly. In previous work, I have labeled such models *metaforms* (e.g. Danesi 2003; 2004), since they tend to result from creative associations (inferences, abductions, etc.) that are expressed as metaphors in language and as related symbols in nonverbal domains. Metaforms are common in scientific theory formulation. By making new connections and

relating concepts, scientists seek to give structure to the world of matter. Science involves things we cannot see, hear, touch, etc. — atoms, waves, gravitational forces, magnetic fields, etc. So, scientists use their imagination and their capacity to metaphorize in order to get a look, so to speak, at this hidden matter. Waves are said to *undulate* through empty space like water waves rippling through a still pond; atoms are conceived as little balls leaping from one quantum state to another; electrons are portrayed as traveling in circles around an atomic nucleus; and so on. This form of reasoning is extremely powerful. It is a product of innate feeling structures, as Langer (1948) called them, that result from our interactions with the world.

The following question can now be asked: Is the FS a metaform? If it is, then it suggests that metaforms are slices of truth, constituting powerful evidence that discovery lies in the ability of the human mind to visualize the universe as interacting with itself. The FS is a classic, albeit mind-boggling, exemplar of the *verum-factum* principle in philosophy. Although there are precedents for it, no one was able to discuss it as insightfully as Vico did. This principle can be explained as the ability of the human imagination to discover patterns in the world because the human mind already has such patterns built into it. As Bergin and Fisch (1984: xlv) have perceptively pointed out, in being makers of things, Vico believed that human beings were themselves made to do just that: “Men have themselves made this world of nations, but it was not without drafting, it was even without seeing the plan that they did just what the plan called for.” As Peirce similarly put it, the mind has “a natural bent in accordance with nature” (CP 6.478). This blending of mind and nature becomes perception, which Peirce called the “outward clash” of the physical world on the senses (see also Fann 1970; Eco, Sebeok 1983; Merrell, Quieroz 2005).

In effect, there are two parts to the human mind, expressed in most traditions of the world in various ways. The Greeks used the terms *mythos* and *logos*, with the former being the intuitive sense for pattern and the latter the ability to reflect upon it and give it a form. Form and content (the real world) are thus inextricable — products of two interacting parts of the brain. Signs give expression to this inextricability and, thus, invariably shed light on snippets of reality. The problem has always been devising an overall picture of that reality. Signs are metaforms leading to discovery not because they

were designed as “knowledge-productive” but because they are imaginative artifacts.

This interplay between mythos and logos would explain why the early histories of mathematics, magic, and puzzle-making overlap considerably. The ancient magicians, mathematicians, and puzzlists (mainly makers of riddles and anagrams, Danesi 2002) were concerned with basically the same thing — unraveling hidden patterns. Indeed, no distinction was made between *numeration* and *numerology*. Numerologists translated an individual’s name and birth date into numbers which, in turn, were believed to reveal the individual’s basic character and destiny. Numerology started with the Pythagoreans, who taught that all things were numbers, and that all relationships could be expressed numerically. In Hebrew the same symbols are used for digits as for letters, and the ancient art of *gematria*, or “divination,” claimed that the letters of any word or name found in sacred scripture could be interpreted as digits and rearranged to form a number that contained secret messages encoded in it. The earliest recorded use of *gematria* was by the Babylonian king Sargon II in the eighth century BC, who built the wall of the city of Khorsbad exactly 16,283 cubits long because this was the numerical value of his name.

A thick volume could be written about the many meanings ascribed to specific numbers across the world and across history. Take, for example, the number 7. It is found, for instance, in the Old Testament where, as part of God’s instructions to Moses for priests making a blood offering we find the following statement: “And the priest shall dip his finger in the blood, and sprinkle of the blood seven times before the Lord, before the veil of the sanctuary” (Leviticus 4:6). It is also noteworthy that God took six days to make the world and then rested on the seventh. The number 13, too, has a long history associated with mysticism. So widespread is the “fear of the number 13” that it has even been assigned a name: *triskaidekaphobia*. In Christianity, 13 is linked with the Last Supper of Jesus and his twelve disciples and the fact that the thirteenth person, Judas, betrayed Jesus. Other similarly “unlucky numbers” exist in different parts of the world. And across cultures, people tend to think of certain things such as dates, street addresses, or certain numbers as having great significance. Human beings seem to possess the basic notion that the world is itself a magical pattern of small numbers arranged in patterns.

It was only after the Renaissance that numerology was relegated to the status of a pseudoscience. Paradoxically, the Renaissance at first encouraged interest in the ancient magical arts and in their relation to philosophical inquiry. Intellectuals such as Italian philosopher Giovanni Pico della Mirandola (1463–1494) rediscovered the occult roots of classical philosophy, and protoscientists such as Swiss physician Philippus Aureolus Paracelsus (1493–1541) affirmed these practices, partly in defiance of medieval religiosity. Both the Roman Catholic Church and the new Protestantism, however, turned sharply against magic and the occult arts in the fifteenth and sixteenth centuries. Mathematics was subsequently completely liberated from the occult mysticism in which it was shrouded in the ancient world.

But the connection between mysticism and mathematics has hardly been lost. Solving puzzles, proving a difficult theorem, or observing a mysterious manifestation of Fibonacci numbers in nature continues to cast a “magical spell” over us. In fact, to this day, the boundaries between mathematics and magic are rarely clear-cut. Every mathematical idea is caught up in a system of references to other ideas, patterns, and designs that humans are inclined to dream up. And this imparts an aura of Pythagorean mysticism to that very system.

The production of metaforms suggests that we are “programmed” to discover things serendipitously, just as Vico claimed. In observing the facts of existence, we constantly stumble across hidden patterns. The FS brings this out perfectly. It emphasizes rather dramatically that the line between myth and logic is a very fine one indeed. In the original tale, from which the concept of serendipity is derived, the three princes made their deductions by noticing anomalies that suggested explanations. These spurred their insights. Maybe Fibonacci saw something in a rabbit pen that tickled his fancy and spurred his insight, leading to his puzzle, and to the hidden reifications that it contains.

Whatever the truth, Fibonacci’s Rabbit Puzzle continues to reverberate with implications in all kinds of knowledge domains. This paper has only skimmed the surface of these implications. A similar argument could be made for as whole host of mathematical metaforms, such as e , $e^{i\pi} + 1 = 0$, among many others (e.g. Maor 1994), which have turned out to have a wide variety of serendipitous applications. The number e was discovered by Leonhard Euler in 1727 as the limit of the expression $(1 + 1/n)^n$ as n becomes large without

bound. Its limiting value is approximately 2.7182818285. Unlike π , e has no simple geometric interpretation. Yet it forms the base of natural logarithms; it appears in the fundamental function for equations describing growth and many other processes of change; it surfaces serendipitously as well in the formulas for many curves; it crops up frequently in the theory of probability and in formulas for calculating compound interest; and the list could go on ad infinitum. Now, why Euler devised that formula in the first place is not clear. He certainly could not have known the kinds of ideas and applications it would have led to, since these came after its formulation. The number e is a perfect example of a metaform.

Euler is also responsible for the extraordinary equation, $e^{ix} + 1 = 0$, also written as $e^{ix} = -1$, in which i is the square root of -1 . In addition to its many practical applications — it has wide application, for instance, in understanding the motion of any type of wave, including light — this formula is unique in that it combines five fundamental numbers in mathematical discovery — 0, 1, π , i , and e . Now, it is clear that what distinguishes metaforms such as the FS and e from so-called “universal laws” in science is that they are not devised to reveal a deep principle about how the world is ordered; rather they issue forth from flights of fancy.

Concluding remarks

From the Pythagorean practice of giving sacrifice to the gods for mathematical discoveries to the seventeenth century practice on the part of the Japanese of giving *sangaku* (the Japanese word for “mathematical tablet”) to the spirits for discovering mathematical proofs, there seems to be a universal feeling across the world that discoveries reveal the world to us in bits and pieces. This is why the ancients thought that a causal connection existed between earthly matters and the stars. Those who could use numbers to calculate forthcoming events, such as the next planting season, garnered great power unto themselves, becoming wizards, mathematicians, and astronomers. The concept of metaforms provides a framework for understanding why discoveries are made. As products of our innate capacity to model the world, they are products of the most creative modeling system that

nature has thus far produced — the human mind (Cassirer 1944; Bonner 1980; Adam 2004).

But even the notion of metaform really does not penetrate the substance of the enigma at hand. Nor does it really answer the two questions enunciated above. Semiotics is a descriptive science, after all, not an explanatory one. So we are left with the same kinds of questions with which I started off this paper: Why does mathematics work as a model to explain the physical world? Why is the Pythagorean Theorem, for instance, real, explaining a whole range of phenomena? This is a true mystery. As Jacob Bronowski has aptly put it:

To this day, the theorem of Pythagoras remains the most important single theorem in the whole of mathematics. That seems a bold and extraordinary thing to say, yet it is not extravagant; because what Pythagoras established is a fundamental characterization of the space in which we move, and it is the first time that it is translated into numbers. And the exact fit of the numbers describes the exact laws that bind the universe. If space had a different symmetry the theorem would not be true. (Bronowski 1973: 168)

And as Clawson (1999: 284) has suggested, mathematics might even explain the laws of unknown universes: “Certain mathematical truths are the same beyond this particular universe and work for all potential universes.”

But again: Why should this be so? Why does there seem to be continuity between mind matter and physical matter? Is it possible to discover the larger pattern from which the fabric of metaforms of reality have been cut to produce a “broader picture” of the universe? It is, after all, this desire to see the broader picture that the reifications of the FS stimulate in us. But it is an elusive picture, and we seem destined never to get a total look at it, just tantalizing serendipitous glimpses of it here and there. All that can be said is the Pythagorean view that numbers and symbols were mirrors of nature is not just rhetorical flourish. As Ghyka (1997), Schneider (1994), Adam (2004), and many others have abundantly illustrated mathematical principles are mysterious because they manifest themselves serendipitously in flowers, shells, crystals, plants, and the human body, as well as in the symbolic language of folk sayings, fairy tales, myths, religions, art forms, and architecture. But why this is so remains one of the greatest puzzles of all times.

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Последовательность чисел Фибоначчи и сущность математического открытия

В статье рассматривается связь между математическим открытием и знаковым процессом на примере последовательности чисел Фибоначчи. Случайное открытие этой последовательности как ответ на задачу, сформулированную знаменитым итальянским математиком Леонардо Фибоначчи для иллюстрации эффективности десятичной системы, является одним из тех случаев в истории человечества, где явственно сплетаются случай, семиозис и открытие. Последовательность Фибоначчи позволяет изучить созидующий семиозис и дает понять, что символы не являются арбитрными продуктами человеческого сознания, а подсознательными “зондами” реальности.

Fibonacci rida ja matemaatilise avastuse loomus: Semiootiline vaade

Artikkel vaatleb suhet matemaatilise avastuse ja märgiprotsessi vahel, kuulsa Fibonacci rea näitel. Selle rea juhuslik avastamine kui vastus itaalia matemaatiku Leonardo Fibonacci poolt sõnastatud ülesandele illustreerida kümnendsüsteemi efektiivsust, on üks neid juhtumeid inimajaloos, mis näitab, kuidas juhus, semioos ja avastus on põimunud. Sellisena on Fibonacci rida oluliste tulemitena loova semioosi uurimiseks, kuivõrd ta viitab, et sümbolid pole inimhõistuse arbitraarsed produktid, vaid alateadvuslikud reaalsuse sondid.

**The semiotics of sexuality:
The choice becomes the association of habits
becomes the desire becomes the need**

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Abstract. Pragmatism is the idea that we attribute meaning to things that matter to us. Ultimately, the things that matter are intercepted by our bodies — our eyes, ears, nose, hands, feet, skin — right down to our sex differences. Our bodies are the tools with which we interface with the world — the cultural world. Sex differences provide major insights into how the body impacts on experience and thus, personality and ultimately culture's gender roles. In my earlier paper, I discuss what Peirce identified as fundamental aspects of cognition — habits and associative learning — and I place them in the context of Heidegger's Dasein. In this current paper, I develop on these ideas in order to apply them to understand gender roles. From the inextricable connection between habits, associative learning and Dasein, we can infer the following: (1) Gender roles are habits; (2) Gender roles are chosen; (3) Men and women "like" the roles to which they have been assigned (this is a fundamental expression of Dasein). That is to say — the choice becomes the association of habits becomes the desire becomes the need. Hence arise the needs by which gender roles are identified.

1.0. Introduction

Ludwig Wittgenstein had famously observed that even if a lion could speak, we would never be able to understand it. A semiotician would justifiably ponder whether such a creature could still be considered to be a lion.

At one time or another, most of us have probably toyed with the notion of meeting an alien who could speak our language. What insights would such a being impart? Would we be able to understand

him or her? Such naïve fantasies generally fail to demonstrate any awareness of the simple truth that even two humans from different cultures often fail to understand one another — and so how could any human possibly hope to understand an alien?

The unspoken assumption of any naïve dreamer is, of course, that an alien is “like me”, in that there is an “objective” world “out there” that has only one “correct” way of being interpreted, a way that one would expect to be shared by all other “intelligent” organisms. The SETI program itself is predicated on this unspoken assumption, with little thought being given to the possible reasons why advanced civilizations may not *want* to communicate with us. This problem has its origins in the reductionism (determinism¹) that has dominated most of modern science. Accordingly, a deterministic perspective invariably assumes that an autistic or schizophrenic or homosexual person, for example, has a “problem” in need of treatment (instead of choices to be reconciled), because they do not share our “correct” interpretation of the world.

In this light, can we expect a mere mortal to gain any insights from a brief encounter with an alien? Probably not. Indeed, humans often fail to understand each other, even when they come from within the same culture, share the same work environment and are of the same gender. They don’t get to realize that all they ever have are assumptions, not truths.

The vast majority of us aren’t even aware that in the course of our daily lives, we are interacting with aliens more incomprehensible to us than any conceptualization that we might entertain as to what an alien is supposed to be. We don’t realize that our opposite sex inhabits a world that is entirely different to our own.

¹ I prefer to use the word “determinism” (in the sense of “genetic determinism”) in preference to “reductionism” to describe narrow, “linear” thinking. Ultimately, good, competent synthesis is a form of reduction to fundamental principles (as per “the law of association of habits”), which is quite different to “linear” and “deterministic” thinking.

2.0. Back to basics

In my paper (2001) titled “The law of association of habits”, I explore Peirce’s “Law of association of ideas”, in order to derive some general principles of cognition. Now, in this paper, I apply these general principles in order to explore the nature of human sexuality.

2.1. The desire to be

In my previous paper (2001) I introduce the notion of “the desire to be”. The closest analogue to this concept is Heidegger’s (1978) Dasein. Both the desire to be (in the context that I use it) and Dasein are concerned with being and they are essentially the same thing². However the interpretation introduced in my previous paper (2001), is a slightly different slant on the most commonly accepted interpretation of Dasein particularly as it relates to desire. In this context, the desire to be is *the* central aspect of Dasein. An organism’s every desire is a manifestation of its desire to be. Being is the desire to be. Suspended within its ecology, an organism makes choices and those choices have to be consistent with what that organism is. Choice implies motivation. An organism “likes” being what it is, and its Dasein motivates it to make those choices that are consistent with its condition.

Dasein is the assumption I apply to infer and predict a great many things about behavior. Essentially, Dasein tells us that the circumstances within which an organism finds itself become part of that organism’s context (world view — “Umwelt”) that it “desires”. When it adapts in order to accommodate the circumstances within which it finds itself, it makes choices from its ecology. Its complicity is a statement that it “likes” its interpretation of the world.

As far as humans are concerned, we can now infer, from our understanding of Dasein, that men and women “like” the roles to which they have been assigned. And we need no further proof than their complicity.

² Heidegger also refers to the desire to be, but in an entirely different context, as but one aspect of Dasein.

2.2. The law of association of habits

We also know, from Peirce's (1966) Great Law of Association of Ideas, that gender roles are habitual and associative:

There is a law in this succession of ideas. We may roughly say it is the law of habit. It is the great "Law of the Association of Ideas", — the one law of all psychical action. (CP 7.388)

By incorporating the semiotic view of habit, association and logic, we can better begin to understand how the gender that habituates the sustaining of the known (e.g., nurturing) is going to have different pre-dispositions and responsibilities to the gender that habituates exploring the unknown (e.g., finding solutions to problems).

In Dasein and the law of association of habits, we have a basic framework from which to infer and predict the logics by which humans interpret their worlds as men and women (and from which we might extrapolate to infer some things about the logics of non-human organisms).

2.3. The basic model

Let us integrate the above points, within the context of the law of association of habits, to arrive at a synthesis for modeling human sexuality:

- (1) Gender roles are habits, ipso facto;
- (2) Gender roles are chosen, ipso facto;
- (3) Men and women "like" the gender roles to which they have been assigned.

Also from my paper (2001), we will recall the important relationship that exists between the tools at our disposal (our bodies) and the choices we make. We recall Mark Twain's famous aphorism:

A man whose only tool is a hammer will perceive the world in terms of nails.

Because this paper is about human sexuality, we will need to interpret the significance of this aphorism with respect to gender roles:

A human whose only tool is a man's body will perceive the world in terms that are different to a human whose only tool is a woman's body.

This presents us with a theory that unifies the associative/habitual aspects of cognition with physiology — the inextricable connection between mind and body. This fundamental set of principles will enable us to understand how the psychological differences between men and women emerge within Culture. Within the context of the mind-body unity, our fundamental model can be summarized succinctly:

The choice becomes the association of habits becomes the desire becomes the need.

And within the context of autopoiesis theory, self-referencing is related to the bi-directional nature of cognitive processes. That is, there is not just one direction of cause and effect. The above principle can be expressed in reverse order:

The need is the desire is the habituation of associations that predisposes us to the types of choices we make.

3.0. It's all about choice

Our basic model provides us with the foundations for understanding the importance of choice. Human and non-human organisms change with the choices they make. Our brains self-organize in order to accommodate and make sense of our experiences.

3.1. Choices for courses

Children raised by wolves. John McCrone (1993) observes that the behavior of feral children has much in common with the behavior of the wild animals that raised them — for example, their lack of memory and self awareness. Even the voices of people are, like background noises such as the rumbling of distant traffic, without meaning to them. The genetic-deterministic position is likely to account for their extraordinary behavior in terms of brain damage, perhaps from the stress of survival. But what if this assumption is

wrong? Feral children make choices from the options presented to them by their animal environments. Are feral children, in a very real sense, animals? Do their brains (and bodies) self-organize — in response to the choices they make — in order to accommodate a way of perceiving their worlds that is real and legitimate, as wild animals do all the time?

Domestic animals. We know that a twist to the phenomenon of feral children is perfectly common. We domesticate animals all the time. They lose their feral natures to become “civilized”, insofar as their bodies allow them to. A domesticated cat behaves very differently to a feral one. The genetic-deterministic position is likely to account for the domestication of animals in terms of the expression of genes. The semiotic position accounts for domestication in the context of the choices that the pet is presented with, within its domestic environment.

Career choice. Choice of career is more than a lifestyle choice. It is a personality choice. Artists are different to accountants, who are different to physicists who are different to musicians and architects, plumbers and chefs. The choices we make shape what we become.

Gender roles. Gender roles are choices. A human whose only tool is a man’s body will perceive the world in the competitive terms that only a man can understand. A human whose only tool is a woman’s body will perceive the world in the gatekeeper terms that only a woman can understand.

3.2. Gender roles, initial conditions and matriarchal power

An important aspect of matriarchal power is based on the female role across almost all cultures as primary nurturer. The importance of the role of the primary nurturer can be appreciated from the perspective of “initial conditions” — the hothouse in which an infant’s initial choices are first made.

In my paper (2001) I explore the metaphor that compares a brain of neurons to a city of people. The infant’s brain, like a city, self-organizes into its functional specializations, as it makes choices from the options that are presented to it.

The “initial conditions” of a living system play a crucial role in the developmental trajectory that emerges over time. An infant’s brain is a living system that is similarly subject to “initial conditions”. Maternal influence and guidance provides an important “initial condition” impacting on the development of personality.

The first choices that an infant makes are influenced first and foremost by the primary nurturer. More often than not, that primary nurturer will be the female of the species. In most cultures, Mother is the primary nurturer. Mother provides the greatest influence upon the initial conditions to which a child is subjected — the initial conditions that have the greatest influence on how a young, malleable brain develops in the formative years.

And children grow up to become men and women.

In some rare instances, however, the “initial conditions” to which an infant is subjected might be provided by a wild animal — perhaps a wolf. Infants forced to make choices from this kind of maternal “initial condition” develop personalities that are distinctly feral. They never quite outgrow their beastly origins.

4.0. Gender roles

4.1. Initial conditions

Cultural logics are inextricably bound up with the bodies of men and women. Our physiologies are different in such a way that they provide complementarity in the logics that comprise culture. That is, culture culminates in a mutually agreeable division of labor between men and women, and the initial conditions for that division are provided by physiological sex differences. Woman is sexy and desirable. Man is sexy and desires. Desire and desirable are logically complementary. So far, so good.

But sexy in men is not the same as sexy in women. In fact, sexy in men describes something altogether different — something related to experience, courage, wisdom, savoir-faire. Sexy in women, on the other hand, alludes to vulnerability (the vulnerability of the known), nurturing, innocence and their relationship to the forbidden.

Of course it should be noted that the emphasis here is on western cultures, and for the purpose of simplifying our analysis, precludes

those possibilities that might bear no resemblance to what we have come to know. It is beyond the scope of this paper to discuss the success or otherwise of the past half-century of liberalism and feminism to change this model³.

To clear up this anomaly with the definition of “sexy”, simple observation will enable us to determine basic facts that we should regard as a given. Here is a pair of phenomena that are so pervasive and self-evident in our modern, western cultures that they need no further introduction:

- (1) Irrespective of how uninspiring a woman might be from the perspective of her character or “intelligence”, if she looks sexy, she will always be receiving overtures from men;
- (2) Irrespective of how handsome, sexy or successful a man might be, irrespective of the extent to which women might strive to encourage him, to set the scene, to make themselves available, or to make things easy for him, if he does not initiate, he does not win any hearts.

4.2. Predictable roles

There's the old joke that in order to impress a woman, a man has to woo her, empathize with her, buy her flowers, make her laugh, entertain her, be her lover, be her friend, and the list goes on. Whereas all a woman has to do to impress a man is turn up naked with a beer. Joke as we might, there is a fundamental truth in this, at least in English-speaking cultures.

We should stress that this more sexist approach is a distinctly western phenomenon that is especially characteristic of the English-speaking world, where a more extreme form of sexism invariably accompanies a more extreme form of materialism (as a product of the Industrial Revolution). It is observed that in European and Asian cultures, for example, considerably more is expected of women by men, and it is common for women to express a subtler form of

³ In passing, however, some of us may have observed that old adage — “the more things change, the more they stay the same”. Have we not noticed how what started out as a genuine movement to establish independence and basic rights for women has begun to transform itself into a modern form of chivalry/sexism that rivals what went before?

“initiating” (in response to which the man “counter-initiates” — the woman’s cue is interpreted as an invitation to initiate).

The two very different gender dynamics provide a kind of cultural “initial condition” that, as in chaos theory, set the foundations for divergent gender roles (memetic/semiotic attractors).

The cultural “initial condition” is related to the mind-body “initial condition” where, for example, the relatively spontaneous erections in men predispose them to initiating, in contrast to the evolving contexts that shape women’s desires.

These very different gender perspectives provide the basis for interactions between men and women that are the expression of a very simple law of evolution. Darwin held that any ecology has to consist of producers of variety and filters of variety. Thus, the human ecology (culture) has men as its producers of variety and women as its filters of variety. What is more, these different roles are not merely “activities” that one can choose arbitrarily at will, but rather, they are manifestations of personality, habit and choice, and are inextricably interconnected with how reality is perceived.

As can be seen in these two dynamics (i.e., producing and filtering variety), women’s power is the power of veto. Women are the gatekeepers of cultural norms, and they wield enormous influence in determining which elements of the unknown make it into the cultural known. As the filters of variety, women are predisposed to rejecting those aspects of appearance, behavior, belief, attitude, etc. that depart too far from what they regard as acceptably normal. As the producers of variety, however, men provide the stereotypes that are passed or vetoed by the female gatekeepers. Femininity seeks continuity and conformity, and nurturing, diplomacy and manipulation are consistent with such a priority. Masculinity seeks variety and novelty, and discovery, innovation and competition are the priorities of men.

We now have a basis on which to infer how the responsibilities of men and women emerge:

- (1) The gender that has permission from Culture to be provided for, is the gender that prioritizes the known. The cultural known is Woman’s primal “responsibility”, and she senses what her obligations are with respect to networking, nurturing, culture and tradition. The choices that Woman makes, with her power of veto, provide a window to her soul. It is a sign of what she is;

- (2) The gender that provides is the gender that must compete for survival. The cultural unknown is Man's primal "responsibility", and he senses what his obligations are with respect to surviving, protecting, competition and pushing the boundaries. The choices that Man makes, when he must compete at the interface between being and not being, determine what he becomes.

4.3. Sex roles and Culture

The sex act itself has very different consequences for men and women, especially with regard to procreation, and so in itself provides the logical basis for the differing responsibilities of men and women.

To summarize from the perspective of chaos theory, sex roles as defined by the body can be interpreted as providing the initial conditions for the gender roles that precipitate throughout a culture. And gender roles provide the mechanism by which cultural habits are modulated — with masculinity being the agent of change, and femininity providing the resistance to change. That is, the priority of Woman is the cultural known, while that of Man is the interface between the cultural known and the unknown.

5.0. The cultural known versus the unknown

5.1. Culture as a collective learning machine

Howard Bloom (2000) identified five essential elements of a "collective learning machine" (in the case that we are interested in, human culture):

- (1) conformity enforcers;
- (2) diversity generators;
- (3) inner judges;
- (4) resource shifters;
- (5) intergroup tournaments.

The first three elements are of particular interest in our analysis. The remaining two (resource shifters and intergroup tournaments) describe dynamics within a living system that I regard more as inevitable by-

products of the fundamental principles that we've introduced (as per the law of association of habits).

5.2. Conformity enforcers and diversity generators

As far as gender roles are concerned, we are interested in conformity enforcers and diversity generators — that is, the female and the male roles respectively. Indeed, I would suggest that these first two of Bloom's elements are central to understanding gender roles, because they establish the two principle logical states of consciousness — the duality that makes cultures sustainable.

The feminine role, sustaining the known, is "static" because it is resistant to change. The masculine role, exploring at the interface between the cultural known and the unknown, is "dynamic", because it is concerned with survival, evolution and change. We might obtain a better understanding by imagining what existence would be like in the absence of one side of the equation:

- (a) Without masculinity, the static in femininity would collapse into the void. Singularity going backwards, retreating from the ether — not a Big Bang, but a whimpering fizzle.
- (b) Without femininity, the dynamic in masculinity would explode outwards to create chaos and disintegration.

That is, female and male, as filters of variety and producers of variety, are indispensable manifestations of being. Neither can exist without the other.

5.3. Inner judges

Bloom (2000: 43) describes inner judges as "biological built-ins which continually take our measure, rewarding us when our contribution seems to be of value and punishing us when our guesswork proves unwelcome or way off the mark".

Bloom's concept is important, because it coincides perfectly with what I call "the desire to be". While Bloom attributes inner judging to mechanisms based in mainstream interpretations of biology, though, I attribute inner judging to the semiotic dynamics of choice-making, that incorporate values (e.g., desires and fears) as the primal source.

We are now in a position to explore in more detail, the mindset of the conformity enforcers.

6.0. Matriarchal authority and relational aggression

6.1. Matriarchal Oppressors — enforcing conformity and the cultural known

To provide some basic insights as to how women sustain the known, let us take a look at recent research on the nature of aggression in school children, and how it differs between boys and girls.

Lagerspetz, Bjorqvist and Peltonen (1988) showed that girls are much more likely than boys to use indirect (nonverbal, behavioral/relational) forms of aggression against their peers.

Crick and Grotpeter (1995) introduce the idea that inflicting harm on others is done according to a shared understanding among peers of the things that matter, and that these issues of importance are different for boys and girls. For boys, the things that matter are “themes of instrumentality and physical dominance”, and the strategy of physical and verbal aggression is consistent within such a context.

For girls, the things that matter most are relational issues during social interaction (e.g., establishing close, intimate connections with others), and Crick and Grotpeter (1995) discuss how girls’ strategies are consistent with these different priorities. Hence, girls’ attempts at harming others are more likely to be directed at relational themes, such as damaging or manipulating peer relationships, ostracizing others, spreading rumors, etc.

In a similar vein, Lagerspetz, Bjorqvist and Peltonen (1988) note that “the social structure of peer groups was found to be tighter among girls, making it easier for them to exploit relationships and harm their victims by indirect, manipulative aggression”.

Consistent with the study of Lagerspetz, Bjorqvist and Peltonen (1988), the study by Crick and Grotpeter arrived at the following conclusions:

- (1) Results provide evidence for the existence of relational aggression as a category that is separate and distinct from overt aggression;

- (2) Girls were significantly more relationally aggressive than were boys.

There are two other aspects of relational aggression are worth commenting on:

- (1) Bjorqvist (1994) notes that indirect methods employed by girls are “socially sophisticated strategies of aggression whereby the perpetrator can inflict harm on a target without being identified”.
- (2) Crick (1995) shows that girls are more distressed by relational aggression than boys.

These gender differences in aggression are, more generally, part and parcel of gender differences in behavior. That is, how girls aggress has to be consistent with the greater whole that is the feminine psyche. Within this basic framework, we can explore the manner in which women oppress women, and we can infer a few things.

Whilst the known is often associated with “tolerance”, it should be emphasized that such tolerance is strictly conditional, for it will not tolerate dissent. For the truth is that, for all their bonhomie, women the assumers are the enforcers of proper behavior. As sustainers of the known, women are calculating observers, always taking notes. As clingers to the known, women sum people up on their ability to conform to the known, and ruthlessly defend and assert what they believe the known should be. Femininity is the oppressive force of conformity. Women inhabit a world of shoulds and should-nots. The logic by which women oppress is based in assuming — in particular, assuming the known to be a given that is not to be challenged. You don’t challenge the known — you negotiate with it, you comply with it, and you manipulate it to suit your own ends. Hence the role of “relational” aggression among girls.

Women are trapped in their world of assumptions. Rosalind Wiseman applies the compelling metaphor of a life-raft to shed light on the importance of peer pressure, and the dilemma that school-girls find themselves trapped in:

Once in the life raft she may ask herself, how did I get here? Why did I go? But when she looks around, sees that the ship [parents] is impossibly far away, the waves are too big, and there are a limited number of supplies, she quickly realizes that her survival depends on bonding with the other girls in that life raft. But your daughter isn’t stupid. This realization is quickly followed by another one. She’s trapped. (Wiseman 2002: 38)

It rarely occurs to girls to leap out of the life raft and swim, or to push others off, or to assert their own rules. As Wiseman observes, it is particularly important to girls to be accepted by their peers — “There really is no choice. You stay, hope things get better, and try to survive until you’re rescued. To girls, the life raft of the clique can truly feel like a matter of life and death”.

Rescued by who? Boys? Marriage, perhaps?

This life raft metaphor sheds light on another interesting aspect of the female gender — fear. Rachel Simmons (2002) writes that girls are terrified of solitude, and her book explores the ways that they maintain the status quo, for fear of exclusion. That is to say, the compulsion to sustain the known is based in fear, and it impacts on other dimensions of femininity, such as fear of sex. But we’ll come to that later.

Precisely as with Howard Bloom’s (1995: 58) portrayal of amoeba complying during times of adversity to build themselves into a plant-like form (we will discuss this in more detail below), so too, women’s fear of the unknown provides a sense of shared adversity that drives them to the conformity required to sustain the known.

Feminine oppression is relentless, and it oppresses both genders — especially women. Do we not now understand why women often look to men as saviors? What is it that a woman might want to be saved from? Is it not... other women? The liberation a woman might seek from an oppressive, repetitive and demanding known is the liberation she seeks from women. For the truth is that women oppress women. Women as mothers, women as girl-friends and women as role-models create the norms against which women compare themselves and each other, judge each other, and exclude those women that dare to be different.

Women are predisposed to relying on rules. Rules provide women with some measure of control over their lives. Rules for the known are an inevitable reaction to fear of the unknown. Rules and knowing them are the key to women’s survival within the life raft of culture. Hence the well-known guide for women, “The Rules”, by Ellen Fein and Sherrie Schneider (1995).

Throughout her book, Simmons writes about some of the ways that girls employ rules in order to police the behaviour of girls. For example:

There are rules, and the girl who thinks she's all that⁴ breaks them. They are the rules of femininity: girls must be modest, self-abnegating, and demure; girls must be nice and put others before themselves; girls get power by who likes them, who approves, who they know, but not by their own hand. Break these rules, and 'all that' looms on the horizon. (Simmons 2002: 115)

6.2. Masculine and feminine as different logical realms

Men inhabit the interface between the cultural known and the unknown.

When I describe the primary characteristic of femininity as sustaining the cultural known, I'm saying that women feel the constraints of culture much more strongly and they are much more committed to its ways. It goes beyond a matter of degree, because men, living at the interface between the cultural known and unknown, are provided with this something "extra" that makes their worlds very different.

An integral part of this relationship that men have with the unknown is that men are expendable. This expendability pits man against man in competition for survival. Men find themselves in more of a "do or die" situation than women, particularly in cultures that do not provide a welfare safety net for their unemployed, disabled or destitute. Women, on the other hand, while competing with other women, do so in full compliance with the cultural rules. Theirs is not a competition for survival, but for popularity. In their competition for popularity, they must assume that the opinions of other women matter, and so they must assume the known to be a given. They compete for their position on the totem pole, and in this competition, it never occurs to them to burn the totem pole.

Burning of the totem pole is the role that belongs to men. It is men who challenge the status quo, introducing new definitions and new ways of doing things.

Thus, male and female gender roles constitute different logic states, different logical understandings of the way the world is. As Simmons (2002: 126) writes, "American culture is built on dual pillars of independence and competition, values that run directly counter to the passionate intimacy, care and friendship between girls". That is,

⁴ "All that" is girl-speak for confidence, independence, assertiveness.

the visible, masculine priorities of the "independence and competition" we see is runs counter to the subtle, hidden, relational priorities of Woman that grants her the power of veto.

The clash in logics between male and female create a tension that is difficult to reconcile. Indeed, there is no reconciliation, for that is why male and female exist, and why Man and Woman inhabit such different worlds. Simmons understands something of this logical contradiction:

When competition and desire cannot be enacted in healthy ways and when girls are expected to give priority to care and relationship, resentment, confusion and retribution follow shortly behind.

[...] Our culture stigmatizes assertive, professional women, casting them as cold, frigid bitches doomed to failure in their personal lives. I want to emphasize how this particular stereotype communicates to girls their worst fear: that to become assertive in any way will terminate their relationships and disqualify them from the primary social currency in their lives, tenderness and nurturing. (Simmons 2002: 127)

Here, Simmons uses the word "culture", though she does understand that this is girls (and women) doing it to girls and women — "Girlhood's stigma against competition and desire can never allow girls a healthy outlet for their feelings or the kind of straightforward truth-telling to which every human being is entitled".

The implication throughout Simmons' book is that "Patriarchy" is somehow responsible for forcing women to implement relational aggression as a strategy (this is a bias that crops up frequently in other works on relational aggression). This is consistent with the feminist philosophy that disempowers women, and it stands in direct contrast to our semiotic perspective. Our semiotic interpretation provides a sound, theoretical base that *empowers* women, and makes them formidable agents in realizing Culture's essence.

Throughout her book, Simmons paints a picture of Woman's world where the priority for tenderness and nurturing must necessarily be accompanied by distrust, jealousy and envy and where manipulation, gossip and exclusion are the *modus operandi* of Woman. This is a world that is logically consistent with the priority to sustain the cultural known. Woman's world is one of hidden agendas and unspoken resentments. "Silence is deeply woven into the fabric of the female experience", writes Simmons (2002: 3), "...During times of conflict, girls will turn on one another with a language and justice only they

can understand. Behind a façade of female intimacy lies a terrain traveled in secret, marked with anguish, and nourished by silence”.

Woman's world is necessarily secret because expressions of individuality can threaten the existence of the cultural known. Female behaviour that “sustains the known” is the cultural “glue”, without which there can be no cultural unity, and no single cultural identity. Where men often group-bond within the context of a single unity of purpose in order to achieve a pragmatic outcome, women bond within the context of a single unity of (cultural) being, beyond which existence is unimaginable. Hence, Simmons writes that, “As we have seen, girls experience isolation as especially terrifying. Since girls earn social capital by their relationships with others, isolation cuts to the core of their identities. For most girls there is little more painful than to stand alone at recess or lunch”.

Woman's fear is legitimate. Woman's pain is legitimate. Men's expendability is a demonstration that the unknown is a dangerous place. So even though women are exempt from having to confront the dynamism of the unknown, they are right to still fear it — indeed, they should fear it all the more, because they never get to embrace it. Women are right to feel the terror of exclusion and solitude.

Human females bond by sharing intimacies and secrets — interpersonal transactions that have the effect of enforcing conformity and unity. Parallels with these dynamics exist in the animal kingdom. I am reminded of a David Attenborough documentary on a colony meerkats. This was a viciously matriarchal colony. The intimate bonding between all the female meerkats within this colony was captured in a scene of a matriarchal group embrace so tight that they coalesced into a loving, hugging, cohesive clump of faces with eyes staring out. But not the *entire* colony — one of the females was excluded. She was hounded and marginalized by the entire group. Viciously picked on and pushed to the margins, her very survival was at stake.

Unlike meerkats, human girls would not be caught treating an “odd girl out” in this overt manner, primarily because it is not what “nice” girls do (“niceness” is a measure of popularity, which is the yardstick of relational success). They would prefer, instead, to strangle her soul so that no-one might see the blood on their hands. The analogy is complete. The meerkat expelled, brutalized and left trembling in the fetal position at the margins of the colony is the same as the “odd girl

out", devoid of self-esteem, not knowing where to turn, not knowing who might save her.

Within meerkat culture, females tend to stay within their colonies, whereas males can roam to new territory. If a male is accepted by a female within the new colony, he can call the new colony home. The female meerkat that is hounded to the margins, on the other hand, has no such freedom. The female condition, in being "safe" and "provided for" within the meerkat matriarchy, is hell when excluded by the matriarchy. The terror in the eyes of the victimized female meerkat is the same terror of solitude that is Woman's.

What a compelling metaphor that Meerkat Matriarchy provides for Girl World as painted by Simmons and Wiseman. Some of the case studies of exclusion and "clique expulsion" that Simmons relates are analogous to what happened to the excluded, terror-struck meerkat. For example, Simmons relates the story of Erin, who began at a new school as a confident and effusive girl who easily made friends, only to suffer an unrelenting "clique expulsion" that saw her becoming withdrawn and suicidal. Her transgression? Confidence. What the other girls defined as "all that". It was other *girls*, not boys, who utterly destroyed her self-esteem.

Where the meerkat females cling to one another in tight, physical embrace, "girls cling tightly to one another to know, as one told me, 'that we're not crazy'", writes Simmons (2002: 101).

This then, explains something of the role of Woman and her trials and tribulations. Sustaining the known and its accompanying fear of the unknown pull inwards, to predispose Culture to the static, brutal conformity of a beehive. Masculinity provides the key to Culture's liberation from stultifying, beehive conformity. Men are more often the *liberators* of women, not their oppressors.

We can now understand something of the instinct that has, throughout history, compelled men to "save" women. It is the subconscious awareness — a "sense" that men often have — that a woman cast adrift is exposed to a terrifying world. Within marriage, a woman need never again concern herself with clique expulsion. Not only does marriage provide her with the status of normality, but it provides a life-raft should she ever experience a falling-out with her peer group. Marriage liberates a woman from the be-all and end-all that the clique has played throughout her life.

And we obtain a clearer sense of the nature of human sexuality, and how the two sexes interact with one another. Femininity gets its thrill from luring and teasing at the fringes of an urgent, throbbing and dangerous masculine unknown. Within the shadows that define the contours of the feminine psyche, a woman is drawn to the mysterious, unpredictable masculinity that can protect her or destroy her.

A woman's fear of sex is inextricably connected with the thrill of the forbidden, of transgressing the rules of the cultural known. Woman's fear of sex and her fear of breaking the cultural taboos are the reasons that most cultures default to the predisposition of Man as the pursuer, Woman as the pursued. This pair of dynamics provides the basis for Woman's power of veto.

6.3. The power of veto, sexual selection and violence

In biological terms, Woman's power of veto is expressed in terms of sexual selection. Bloom observes:

[...] women are violent. In fact, females are as much a part of the apparatus that triggers male violence as the men themselves. Nobel Prize-winning ethologist Konrad Lorenz described a common behavior in several species of ducks. The female runs out to the edge of her husband's territory and tries to provoke another duck, then runs back to her male, stands next to him, and looks behind her at the enraged rival in the hope that her mate will jump into the fray. Many are the human females who have tried to stir up a similar fight. (Bloom 1995: 33)

Bloom continues, "Women encourage killers. They do it by falling in love with warriors and heroes. Men know it and respond with enthusiasm". Men perpetrate violent acts knowing full well "how the damsels back home would admire their bravery".

So let us not be swayed by the "invisibility" and silence of the female role, which is an expression of their power of veto. For all the terrible things that men have done throughout history, we see that men's deeds were also the dirty-work of women, who have always been too comfortable in the security provided by men, to be bothered to do it themselves.

In biological terms, the power of veto is expressed in terms of sexual selection. Bloom observes:

The females of a species develop a craving for a certain kind of guy, and all the males compete to live up to the female ideal. Lady peacocks adore hunks with towering blue tails, so peacock gentlemen sport foppish plumes. Lady bowerbirds swoon over bachelors with an architectural flair, so bowerbird males turn sticks and scraps into the Taj Mahal. And what have human females gone for in nearly every society and time? 'Courage' and 'bravery'. In short, violence. (Bloom 1995: 33)

6.4. Gender roles among animals

The relationship between the known and the unknown can be observed in non-humans. For example in David Attenborough's documentary "Echo of the Elephants", a female elephant in oestrus plays coy, running away from the advances of Dionysus, a magnificent beast to whom other male elephants respectfully defer. Dionysus had briefly emerged from the jungle's unknown, to enter into the world of the matriarch-dominated tribe, before returning again as mysteriously as he had arrived. Apart from these occasional encounters, the male elephant is a solitary brute spending most of his time wandering the jungle alone. The females, on the other hand, travel together in a close-knit group, under the leadership and protection of a matriarch.

And the black-widow spider (female), in many respects seems to have evolved behavior that, in the context of the known and the unknown, is more male. And the supposed male black-widow, behaving more as a female in human terms, surrenders its very life to the thrill of being taken in the dangerous act of procreation.

And if, as feminists (such as Germaine Greer) mock, a traditional woman's role is nothing more than that of "life-support system for a womb", then perhaps they might spare a thought for the poor male anglerfish, who finds ultimate fulfillment in life as nothing more than a "homing device for testicles". For once a tiny male locates a roaming female and attaches himself to her, he (along with several other males) is provided for for the rest of his life, through nourishment provided from the giant host's body. Thus, without ever having to fend for himself again, he atrophies to the point where only his testicles remain as viable organs. In being set up for life with an endless supply of nourishment, he has fulfilled his objective in sustaining his known world. And with her many parasitic, non-communicative

partners, the female becomes, for all intents and purposes, a kind of hermaphrodite.

With these examples, we see that the male and female “roles” (whatever they are) can be reversed when we define things in terms of the known and the unknown. Is it more correct to think of the physiologically male black-widow spider and anglerfish as psychologically female?

While we are on the topic of gender roles in animals, recent discoveries in neuroscience — for example, Douglas Fields, R. (2004) — suggest that there are two poles of behaviour, analogous to sex roles, in the brain. Neurons seem to play the more active role, while glial cells seem to play the more mediatory, “facilitative” and nurturing role (sustaining the known).

6.5. Fear of sex

The females of such species of animals as elephants, badgers, meerkats, dogs and cats... and humans, all appear to experience elements of both fear and excitement in sex. So do some male creatures such as black-widow spiders. Some female animals, such as bonobos, throw caution to the wind and eagerly submit to it in the course of social rituals.

6.6. The role of fear

Sustaining the known is associated with fear. Fear of the unknown. Fear predisposes to unity and cooperation. Courage predisposes to freedom and individualism. Bloom writes:

Superorganisms exist even on the very lowest rungs of the evolutionary ladder. Slime mold are seemingly independent amoeba, microscopic living blobs who race about on the moist surface of a decaying tree or rotting leaf cheerfully oblivious to each other when times are good. They feast gaily for days on bacteria and other delicacies, attending to nothing but their own selfish appetites. But when the food runs out, famine descends upon the slime mold world. Suddenly the formerly flippant amoeba lose their sense of boisterous individualism. They rush toward each other as if in a panic, sticking together for all they're worth.

Gradually, the clump of huddled microbeasts grows to something you can see quite clearly with the naked eye. It looks like a slimy plant. And that plant — a tightly-packed mass of former freedom-lovers — executes an emergency public works project. Like half-time marchers forming a pattern, some of the amoeba line up to form a stalk that pokes itself high into the passing currents of air. Then the creatures at the head cooperate to manufacture spores. And those seeds of life drift off into the breeze.

If the spores land on a heap of rotting grass or slab of decomposing bark, they quickly multiply, filling the slippery refuge with a horde of newly-born amoeba. Like their parents, the little things race off to the far corners of their new home in a cheerful hunt for dinner. They never stop to think that they may be part of a community whose corporate life is as critical as their own. They are unaware that someday they, like their parents, will have to cluster with their fellows in a desperate cooperative measure on which the future of their children will depend. (Bloom 1995: 58)

Clearly, amoebae are courageous, daring individuals when times are good, racing off to the far reaches of their immediate environment, exploring and feasting. When times are bad, they congregate into colonies of conforming, well-behaved individuals who cannot afford to rock the boat, because their survival depends on it.

This has its parallels with what humans do. But with a twist. While for amoebae, there exists a sharp delineation between good times and bad which predisposes them to individualism or group conformity, in humans, the cultural dynamics are based primarily on the delineation between the known and the unknown, with predispositions to one or the other based in gender roles.

Woman's power of veto defends against whatever might threaten the order that makes cultural unity possible. And so "fear" is an inextricable aspect of the female condition. Fear of novelty, fear of change, fear of sex, fear of losing control and fear of losing her place on the life raft.

Fear of sex (e.g., sex as forbidden) has an important part to play in women's enjoyment of sex in all its dimensions, in the thrill, the intimacy, the rituals and the fashions. Even though healthy women regard sex as enjoyable and necessary, men must still pay, in one form or another, because women have to be enticed beyond their fear that constrains them. Indeed, men paying for sex can itself constitute a part of the thrill.

What is there to fear about sex? Do animals fear sex? On occasion, it would appear that elephants certainly do — refer to my preceding

discussion about the female elephant playing coy and running away from the male elephant. Might this not suggest fear on the part of the female?

In another documentary by David Attenborough on meerkats, similar dynamics were evident. Meerkats comprise a tight-knit colony (mob) of five to thirty or forty members, headed by one alpha male and one alpha female. In small colonies, only the alpha female is allowed to mate with the alpha male. In larger colonies, subordinate females tend to initially repel approaches by males. Female meerkats are usually philopatric (tending to remain within the one territory), while males often leave the mob to join another. During Attenborough's documentary, one such male had approached the territorial boundary of another mob of meerkats, and it was interesting to observe the female, who was behaving secretively — she seemed to be indecisive about whether or not she should take up this illicit affair.

And there is our example of the redback spider. Is the male spider aware of the risk it is taking? Is there something masochistic in its behaviour? Does it derive an ultimate thrill from the fear of submitting to the female that is somehow analogous to submission by women to men?

Not all animals appear to have "issues" with sex (on the surface). Bonobo monkeys for example. And female seals seem to be indifferent to mating with the dominant male, though since nobody's asked them, perhaps this is unfair. But among those animals where sexual "issues" are evident, such issues do seem to involve some kind of dynamic with fear and, perhaps, even some component of the forbidden. Which raises interesting questions about human notions of morality.

In having observed these parallels with the animal kingdom, we might now infer that resistance by female humans, implying fear, is part of something primal associated with being. We must surely ask ourselves, what is there to be afraid of?

6.7. The cultural known — why it is so important

So what's the big deal with this known that men must contend with, and that women are reluctant to let go of?

Before modern liberalism, the “known” in which a woman felt secure revolved around the parents that raised her. Furthermore, her parents never taught her to be independent and self-sufficient — not because they were selfish and thoughtless, but because independence and self-sufficiency requires a logical mindset that is contrary to the priorities of motherhood.

With the advent of sexual freedom, however, men have to contend with a new Woman’s known... the ever-present boyfriend/partner. In today’s loose morality of sexual freedom, women tend to transition across relationships rather than risk solitude for any length of time, and so they need an incentive to be lured away from an established and secure known. What women interpret as love on their part can often be nothing other than need motivated by fear — specifically, fear of solitude. Better the devil you know than the devil you don’t know. An established provider who has demonstrated his willingness to stick around is better than any untested temptations that might present themselves. Thus in today’s climate, women’s relationships can often be based less in love or moral obligation than in fear of solitude, manifesting most commonly in peer pressure. Where before, parents were the anchor that provided their daughter with the basis for resisting change, today it is the ever-present boyfriend whose commitment she wears as a badge to assert her normality.

Yet other truths remain unmistakably in their original form. When a woman turns to a man to be saved by him, there is something in her nature as Woman that has legitimate reason to fear that which has her turn to him for protection. When she plays infuriatingly coy she’s not always pretending. She really does not want him to intrude into her current status quo and she does fear the change that he is threatening to bring to her life. When she says “no” she really might mean “no”... except that another part of her might mean “yes” — the part that wants change and wants him, but she fears surrender and losing control. If it is true that Man fears commitment, then it is equally true that Woman fears falling in love. Both are the same types of fear expressed from the perspective of the pursuer versus the pursued.

Of course there is nothing new in these observations in and of themselves. They have been observed and discussed since *Homo sapiens* first started etching on cave walls. What is new is our theoretical framework based in semiotics, shedding light on the powerful predispositions based in the mind-body relationship. These

differences between men and women are neither coded in the genes (“Nature”) nor are they arbitrarily socialized (“Nurture”). These differences subscribe to some entirely different, basic and universal laws common to every living organism.

And so in spite of all our muddling around with the Nature/Nurture debate, the more things change, the more they stay the same. Women continue to prioritize the cultural known. They continue to resist and men continue to initiate. Women continue to be asked out and men continue to pick up the tab. Women continue to be provided for and men continue to pay.

Sexual freedom is not freedom at all, because we must all still contend with a cultural known that remains the principle domain of Woman. Moreover, sexual “freedom” has simply presented us with new constraints, limitations and yardsticks by which we judge each other. For example, while divorce has lost much of the stigma that existed before feminism, it has established new standards to force us to keep up with the Joneses. Whatever we make of divorce today, the simple fact is that divorced men have at least “arrived”. They have gone through a rite of passage that has confirmed their transition into manhood. Their complicity — the chumphood that characterizes Modern Manhood — has almost become mandatory as a rite of passage.

Before feminism and the accompanying sexual freedom, parents provided a source of comfort and guidance for their children. Today, as Judith Harris (1998) attests, peer pressure reigns supreme over parental influence. For the truth is that peer pressure provides an oppressive zeitgeist with shoulds and should-nots that are often more puritanical and stultifying than anything dreamt up during the Victorian era.

6.8. Conferencing for consensus

As we’ve observed, Men and women are to Culture what neurons and glial cells are to Mind. And just as we are now beginning to realize the crucial facilitative and networking roles that glial cells play in the emergence of Mind, so too, we need to realize the crucial facilitative and networking roles that women play in the emergence of Culture.

As we’ve established, women are, first and foremost, the assumers of cultural norms, while men derive their understanding of reality

through making choices at the interface between the cultural known and the unknown.

The choices that men make are visible and the consequences are immediate and self-evident. Often, it is a potentially dangerous world where the choices that men make can kill them right where they stand (certainly in what Warren Farrell (1994) describes as the “death” professions, such as mining, construction, rescue, war, etc.).

Women, on the other hand, derive their understanding of reality through making choices from within the cultural known. They conference, network, gossip, discuss, agonize, working themselves into a lather to construct edifices that owe their existence to consensus. Feminism is a product of just such a process. And the original feminists have recruited the agents of Woman’s bidding (i.e., men) in order to actualize the feminist reality by way of changing the various structures (e.g., political), in order to make real that which began as bubble and froth in the minds of a handful of women in conference.

Women *must* be seen to uphold the cultural known. Thus the methodology of Woman is stealth — flying beneath the radar in order to avoid detection. This is why manipulation, gossip, exclusion and all those other things that we’ve identified as relational aggression are so important to women. So successful is Woman’s methodology that the success of feminism itself can be attributed to it.

It is important to realize that conferencing for consensus is not a trivial role. It is the very glue that binds Culture together into a shared knowing, in exactly the same way that glial cells bind the brain together into a single consciousness.

Gossip is an important aspect of “conferencing for consensus”. Chesler (2001: 154) writes, “Thus gossip reinforces traditional morality, solidifies group identity, excludes ‘outsiders’, and serves as a warning that one may become the focus of gossip if one behaves anti-normatively. Gossip reinforces patriarchal ethnic and class solidarity”.

Chesler describes the way that women monitor the behaviour of women through gossip, and refers to the work of anthropologists Ilisa M. Glazer and Wahiba Abu Ras (on the relationship between “honor” killings and gossip), quoting their conclusion that: “Women’s gossip creates the climate in which the [honor killing] of a young woman is inevitable” (Chesler 2001: 161).

Gossip is one manifestation of a particular type of personality trait that is logically consistent with “sustaining the known” and con-

formity. Envy is another manifestation of that trait. Envy — you want what everyone else has. Women's magazines appeal to women's proclivity for gossip and envy. Women's magazines intrude into the personal lives of celebrities, building them up or tearing them down. They feed women's passions for knowing who's going out with whom, who's doing what to whom, who's wearing what, who's been caught without wearing makeup and a whole lot more. They provide fashion tips and advice on relationship and sex issues, thus tapping into the priority that women place on observing the shoulds and should-nots of proper social conduct. Women's magazines provide an important means by which women conference for consensus.

So important is conferencing for consensus to women that even the men they choose are a product of it.

6.9. Relational aggression and the men that women choose

Women choose the types of men that they would like their sons to be. In this simple aphorism, we can obtain some sense of how far the tentacles of Woman's power can reach. Women as the nurturers of little boys and the choosers of men possess power far more extensive than is suggested in the myth of disempowerment preferred by feminists. Much of this power is based in relational aggression — enforcement of the norms by which women judge women and the choices they make in men.

Wiseman points out that girls' behaviors in peer groups are so completely proscribed that they define even their choice of boyfriends. They turn to their cliques not only to define the "right" boys, but also to decide on relationship issues, such as whether or not a boyfriend should be dropped.

Wiseman asked boys what they wanted to know about girls. Interestingly, she observes that the "right" boys are often assholes (her choice of word):

Why do girls like assholes [boys often ask]? Girls' reason: Because he's hot and they can be really cool when they're alone. My [Wiseman's] reason: The asshole fits in the "Act Like a Man" box. He's the Misunderstood Guy who looks like he has things under control. Girls find it especially attractive if the asshole shows them his sensitive side and only they can understand him. (Wiseman 2002: 186)

In these sorts of examples, we see an interesting pattern unfold. Not only do girls oppress girls in the norms that are embodied in their shoulds and should-nots, but they also identify the norms by which boys are judged, the norms that become women's preferences.

From Wiseman's work, we see that girls (and women) play an important role in actively *nominating* the male stereotypes that other girls (and women) should choose. If popularity is so important for girls within girls' cliques, then it follows that popularity is also the yardstick with which girls assess boys. Popular girls identify the popular boys whom other girls should be seen with, if a girl is to have any hope of competing on girls' totem poles. Why do girls choose bad-boys? Now we know the answer.

Many a man has experienced that peculiar tendency in women to be especially attracted to them if they were "spoken for" (married or in an established relationship). The tendency has been for men to dismiss this increase in female interest as a function of their increased self-confidence that makes them shine in the presence of their partner. In part at least, maybe that's true. But a more compelling factor, in light of our discussion, is that women rely on the opinions of other women to define values, and a man that is spoken for must surely have something going for him. It sounds too simple and obvious. This perspective sheds light on the mysterious choices of many women throughout history, on their proclivity to choose married or attached men, and on their willingness to play second fiddle within polygamous relationships and harems. What is it that can make a married man attractive to many women? The fact that he's married, in and of itself, is oftentimes a sufficient enough condition. More generally, though, marriage is also a marker for success, and a successful man within a relationship will understandably be especially marketable.

All these observations have serious implications for feminism. The sexists and abusers that feminists complain about are the bad-boys and philanderers of women's own choosing.

Women learn from other women (namely, their peers — but also, their mothers... and the fathers that their mothers choose) what the "right" types of men are. While we are in the spirit of thinking systemically, let us take this a step further. Women choose the types of men that they would like their sons to be. Can we now see the wider, systemic implications? Woman's role is important not only in

the types of men that are chosen in the here and now, but also in the types of men that make it into the next generation.

6.10. Summarizing the implications of relational aggression

- (1) Women, not men, are responsible for women's low self-esteem;
- (2) Success in men is based on competition and control. Success in women is based on connectedness and popularity, and this provides the basis for the relational aggression that manifests itself as peer pressure among women;
- (3) Relational aggression plays an important role in how women impact on the types of men that are chosen to become cultural stereotypes.

6.11. To conclude

Thus far, we've gone through the theory, to understand gender roles in terms of two types of habitual ways of looking at the world. That is, the known (femininity) and the unknown (masculinity). The "known" is a cultural attractor that predisposes to conformity, while the "unknown" is a cultural attractor that predisposes to dynamism and variety. It makes good, common sense. There are many more "types" of men than there are "types" of women. The bell curve probability distribution for men's behaviour is very much wider than that of women, and this is reflected in intelligence, crime and other behaviour/psychological characteristics.

Let us explore in further detail, what it is to "feel" the female type of knowing.

7.0. Getting inside the minds of women

7.1. The need to infer

This brings us to contentious, uncharted territory where the only mode of analysis available to us is inference, based on what we know about Dasein and the law of association of habits. Why must we rely on

inference? Couldn't we simply ask women about their experiences? Weininger provides an idea of what we are up against. He begins his chapter "Male and Female Sexuality":

'Woman does not betray her secret' (Kant). 'From a woman you can learn nothing of women' (Nietzsche).

By psychology, as a whole, we generally understand the psychology of the psychologists, and these are exclusively men! Never since human history began have we heard of a female psychology! None the less the psychology of woman constitutes a chapter as important with regard to general psychology as that of the child. And inasmuch as the psychology of man has always been written with unconscious but definite reference to man, general psychology has become simply the psychology of men, and the problem of the psychology of the sexes will be raised as soon as the existence of a separate psychology of women has been realised. Kant said that in anthropology the peculiarities of the female were more a study for the philosopher than those of the male, and it may be that the psychology of the sexes will disappear in a psychology of the female.

None the less the psychology of women will have to be written by men. It is easy to suggest that such an attempt is foredoomed to failure, inasmuch as the conclusions must be drawn from an alien sex and cannot be verified by introspection. Granted the possibility that woman could describe herself with sufficient exactness, it by no means follows that she would be interested in the sides of her character that would interest us. Moreover, even if she could and would explore herself fully, it is doubtful if she could bring herself to talk about herself. I shall show that these three improbabilities spring from the same source in the nature of woman. (Weininger 1906: 85-86)

Any man who has sincerely questioned women directly or indirectly, in order to understand how they think, will realize the futility of such a task. As women speaking from a perspective that has women's reality as a reference point, they can never present their answers from any other perspective that might otherwise bring their answers into sharp relief. What makes it even more difficult is that women don't understand women. They live in a world of assumptions, much more so than men, and what they know about other women they are more likely to have learned by following and imitating, rather than challenging or questioning.

7.2. Sex and character — Otto Weininger as semiotician

What is this “science of character”, to which Otto Weininger refers as “characterology”, if not semiotics?

[...] Is there in a man a single and simple existence, and, if so, in what relation does it stand to the complex psychical phenomena? Has man, indeed, a soul? It is easy to understand why there has never been a science of character. The object of such a science, the character itself, is problematical. The problem of all metaphysics and theories of knowledge, the fundamental problem of psychology, is also the problem of characterology. At the least, characterology will have to take into account the theory of knowledge itself with regard to its postulates, claims, and objects, and will have to attempt to obtain information as to all the differences in the nature of men. (Weininger 1906: 81)

7.3. The need for a female psychology

Otto Weininger (1906) had begun a fascinating and important (urgent) foray into the relationship between sex and psychology. Importantly, as he had identified, what we knew back then within the field of psychology was actually male psychology. Sadly, to this day, the situation has not been satisfactorily resolved. The field of psychology remains essentially from a male perspective. If we think that today the field of psychology has become more female, it is only because feminism has compelled women to become more male (women can do anything that a man can do) and the subsequent androgenization of society has resulted only in a perpetuation of the male perspective. We remain without insight into the nature of psychology and its relation to sex.

However, it is worth noting that recent books that have come onto the market on relational aggression (e.g. Chesler 2003; Simmons 2002; Wiseman 2002) are beginning to probe the inner workings of the female mind, to the extent that it might herald the very female perspective that is needed.

Weininger proposed that women think in “henids”. According to his definition, a henid is an aspect of psychical data, perhaps best described in the context of “feelings” or emotions, before it becomes a fully fleshed out idea. While Weininger’s definition of henid is not as precise as it could be, it nonetheless points to key differences in the ways in which men and women think.

According to the law of association of habits, however, thoughts are habit-associations, and women's henids must conform to this semiotic perspective. A more precise definition, therefore, is that henids are thought processes (habit-associations) that are more contextual than men's thought processes — assimilating many cues (associations) to arrive at a "feeling" or sense as to what is going on, before understanding the specifics. Men's thought processes, on the other hand, must apprehend and commit to facts with some element of immediacy and urgency, for example, in order to compete with an opponent or construct bridges that work. Accordingly, the contexts for men's thought processes are based on the practical application of facts at hand, while the contexts for women's thought processes are more "big picture". What men gain in their apprehension and application of specifics they lose in the big picture, and what women gain in their apprehension of the context of things, they lose in practical application.

Weininger described henids as follows:

Now what is the relation between the investigation I have been making and the psychology of the sexes? What is the distinction between the male and the female (and to reach this has been the object of my digression) in the process of clarification?

Here is my answer:

The male has the same psychical data as the female, but in a more articulated form; where she thinks more or less in henids, he thinks in more or less clear and detailed presentations in which the elements are distinct from the tones of feeling. With the woman, thinking and feeling are identical, for man they are in opposition. The woman has many of her mental experiences as henids, whilst in man these have passed through a process of clarification. Woman is sentimental, and knows emotion but not mental excitement.

[...] It is certainly the case that whilst we are still near the henid stage we know much more certainly what a thing is not than what it is. Instinctive experience depends on henids. Naturally that condition implies uncertainty and indecision in judgment. Judgment comes towards the end of the process of clarification; the act of judgment is in itself a departure from the henid stage.

The most decisive proof for the correctness of the view that attributes henids to woman and differentiated thoughts to man, and that sees in this a fundamental sexual distinction, lies in the fact that wherever a new judgment is to be made, (not merely something already settled to be put into proverbial form) it is always the case that the female expects from man the clarification of her data, the interpretation of her henids. It is almost a tertiary sexual character of the male, and certainly it acts on the female as such, that she expects from him the interpretation and illumination of her thoughts. It is from

this reason that so many girls say that they could only marry, or, at least, only love a man who was cleverer than themselves; that they would be repelled by a man who said that all they thought was right, and did not know better than they did. In short, the woman makes it a criterion of manliness that the man should be superior to herself mentally, that she should be influenced and dominated by the man; and this in itself is enough to ridicule all ideas of sexual equality.

The male lives consciously, the female lives unconsciously. This is certainly the necessary conclusion for the extreme cases. The woman receives her consciousness from the man; the function to bring into consciousness what was outside it is a sexual function of the typical man with regard to the typical woman, and is a necessary part of his ideal completeness [...]. (Weininger 1906: 100–102)

These are important ideas and within them, is the seed of an important realization. However, whilst Weininger is referenced throughout this paper, we need to qualify his notion of henids. That is, thinking in henids is not to be considered inferior to the more analytical, deductive reasoning that we are more likely to attribute to men. To begin with, thinking in terms of henids has more in common with lateral/systemic thinking — leaving things undefined until a more complete context emerges, and upon which a different kind of important and informed decision can be made.

Weininger's reference to henids is related to the choices that men and women make. The gender that is provided for will have different thought processes to the gender that provides (as a natural expression of the law of association of habits). Therefore it is only to be expected that the gender that does the providing will be able to conceptualize things more analytically, while the gender that is provided for will be exempt from the *requirement* to do so. The promise of motherhood grants women that privilege, because it provides them with an escape hatch that liberates them from the unconditional requirement to provide for and support anyone. That is, if women are more inclined to think in henids, it is because they can, not because henids constitute an integral aspect of the female condition that is supposedly set in the concrete of the genetic blueprint.

7.4. Cultural constraints on thought

We are all constrained by the options provided to us from our cultures, and our desires that are shaped by these options. Whether male or female, we cannot go beyond those options, because our culture will exclude us and deny us the things (jobs, friends) that are essential to our survival. Whether male or female, complicity is essential, or we will die. But complicity comes in two forms — male and female. The gender that is provided for has different priorities, different ways of thinking. The gender that provides must apprehend more uncertainty and risk.

Yet, insofar as male and female constitute very different ways of thinking, we should regard them as different manifestations of the one entity — Culture. Inevitably, male and female have a shared cultural logic about the way things are. And so men and women must remain both divided in their sexual natures and united in their cultural assumptions.

We might now begin to see something of the basis for Weininger's henid theory. Women are predisposed to desiring lifestyle choices (from Culture) that predispose them to thinking in terms of henids.

8.0. Defining and assuming

So far, we've covered the more self-evident and immediately visible aspects of how men and women differ in their thinking. But there is a deeper aspect that we need to look at, in order to account for why men are more likely to commit to an idea or cause, while women are less likely to.

Thinking in terms of henids is related to assuming and imitating. Women play a particularly important role in maintaining cultural memes (and hence, cultural values and traditions).

The main difference between the psychologies of men and women might be best explored in the context of defining versus assuming.

Assuming does not define anew, but rather, asserts the definitions that have been made, without necessarily possessing a comprehension of the manner in which the definitions were derived.

As men are thrust into having to deal with the unknown, they must learn to confront and apprehend problems they encounter. They must strive to understand the issues that impact on their survival, and they must define problems and their solutions. Women, whose priorities

are based in sustaining the known, do not experience the same level of compulsion to have to deal with such demands.

Men are more likely to understand, to some level, the workings of stereo systems, computers and technology. Women are much less likely to do so, and they are more content to regard the technologies they use as black boxes, the inner workings of which are irrelevant to their world view.

Even if a man is not "technologically aware", he will nonetheless possess a way of looking at black boxes "rationally", in the sense that implicit in his mind is a rational explanation for their inner workings. For women, the inner workings of black boxes remain mysteries that can be safely disregarded as irrelevant to their own priorities. For women, black boxes are a "given" that can be safely taken for granted — just as, for them, cultural reality is taken as a "given", not to be questioned or challenged.

With rationality comes confidence, for the truths that are learnt by doing, questioning and confronting, will be more inviolable than the truths that are learnt by assuming. Women, however, as sustainers of the known, are precluded from exploring the possibilities that might otherwise provide a fertile ground for confidence to grow. Content to be provided for, they cannot possibly get to discover the full range of their potentials, and what they sometimes might feign as confidence is quintessentially a brittle, fragile arrogance — and every bit subject to the whims from outside influences. It is a woman's prerogative to change her mind

Ultimately, when women enter politics, run businesses or fix stereo systems, they do so as assumers, not as problem solvers. Women can and do, for example, run businesses every bit as competently as men. But, consistent with their role as sustainers of the known, they will be most successful in established, stable businesses focusing on relationships, rather than dynamic, risky businesses characterized by individualistic leadership. Sustaining networks, procedures and protocols are most amenable to the ways of women.

In the context of the relationship between the known and the unknown, we can now understand why women are more likely to be interested in astrology, history and the arts (not "art" as creation but "arts" as appreciation *of* creation), while men are more likely to be interested in cars, philosophy and science.

8.1. The motivation to define or to assume

What woman, inundated with offers to be taken care of, whether by parents, or men, or government (today, we have government-as-provider), would shun all possibilities in the pursuit of elusive and ill-defined higher ideals?

Men have no such luxury. They are forced into situations of competition and confrontation, and defining for men is a matter of survival. Whilst Government provides also for men, such as the unemployed, such a lifestyle is generally not a sought out option. Unlike unemployable women on social security benefits, unemployable men, without any cause to believe in or purpose to inspire them, are not even remotely viable propositions for marriage.

Women assume because they can. Men define because they must. Women think as women because they can. Men think as men because they have no choice.

How then, might a woman obtain the motivation to live the logics of defining? How difficult would it be for a woman to completely abandon any suggestion that she can, one way or another, rely on men? Would not a heroine along the lines of Joan of Arc, no matter how courageous and determined she might be, experience a world of vastly different options to that of men? Should we not admire such a heroine all the more for having chosen the difficult path, in the face of all the privileges that are her birthright that she has chosen to reject?

For a woman to deliberately choose the more difficult path and throw away all her feminine privileges would seem to be extraordinarily foolhardy. Yet if she is to move in any way towards the disciplined rationality of men, then that is precisely her only option. The ever present, culturally sanctioned logic permitting women to be stay-at-home mothers liberates women fully from commitments to ideas, goals and careers as matters of life and death. Women have more freedom to pick and choose and in this light, it is almost impossible for a woman to take on the world in a can-do spirit of determination and courage.

For this freedom to pick and choose, women pay a price. The options that make life so easy for them become the needs by which they define their values. If a woman considers herself bored by her womanly privileges and being taken care of, we can predict with certainty her experience of the terror of solitude and the collapse of

her world, were she suddenly deprived of the privilege of being provided for that she had become accustomed to.

The relationship between the unknown and the known, in terms of the defined and the assumed, is reflected in the manner in which a hero might emerge from a culture. Traditionally, the hero will not seek to accommodate women's desires but rather, assert new standards.

And so in the context of modern feminism, women are constantly changing their definitions as to how they want their men to be, constantly perplexing the men that try to meet their demands. And yet the truth is that women don't know what they want, and men are wasting their time in trying to accommodate their demands. With today's feminism and the subsequent tendency to role reversal, neither men nor women understand that it is not the woman's priority to define nor the man's priority to accommodate.

8.2. Women's ways of knowing

Here are a couple of famous quotes by Anaïs Nin that capture the essence of feminine logic, in the context of the tension that exists between the known and the unknown.⁵

And the day came when the risk to remain tight in the bud was more painful than the risk it took to blossom.

And, from *The Diaries of Anaïs Nin*:

Throw your dreams into space like a kite, and you do not know what it will bring back, a new life, a new friend, a new love, a new country.

Do these quotes not embody the essence of the psychology of women? Do they not invite women, simply, to "turn up"? Don't they suggest that it is a woman's prerogative to rely on men? For a woman, there is no slaying of dragons, no overcoming of an adversary, no victory in the face of great odds. She simply has to be there. While this demands its own form of courage (after all, a woman can give birth to a bad

⁵ I was unable to locate the original published sources of these quotations by Anaïs Nin.

choice), the contraceptive pill has freed modern women from such immediate responsibilities.

Whilst Nin's aphorisms might also be applicable to men in some contexts, they are inconsistent with the dominant masculine paradigm. It is not stereotypically masculine thinking to cling to the known for fear of the unknown. Nor is it stereotypically masculine thinking to surrender with abandon in the hope of being saved or stumbling upon good fortune.

And this brings us to the sexuality of men, and how it most perfectly complements the sexuality of women. For if, as Anaïs Nin insists, the longing to be violated is a secret, erotic need in a woman, so too, it should be understood that the urge to violate is a not-so-secret compulsion that must be curbed in men.

8.3. The phenomenology of the known and the unknown

Assuming and defining are related to the cultural known and unknown. Here we deal with being, before any condition of being is defined. What I am alluding to here is a resolution of the conflict between nothingness and being. The natural state of "being" is, of course, not being... and this is reflected in the remark, commonly made by philosophers and scientists alike, "why must there exist anything at all?" Surely the most basic state of existence, is non-existence, and so why should all this complexity emerge at all? Is not the simplest, least energetic, most stable existence an empty universe, a black void, non-existence? We shan't venture into the phenomenology of quantum physics. However, it is important to consider what phenomenology might imply for gender roles.

The moment that a state of being is defined, a state of non-being is also defined. A state of being must contend with the events that threaten it. But a condition of stability, on its own, will drift towards stagnation and collapse as it seeks the easiest, least energetic path (that's why the male anglerfish's ultimate tendency, as discussed earlier, is to become a pair of testicles). The only way that a state of being can evolve to anything more complex, is to factor into its existence the dynamics of change. But here, we have a dilemma, for the dynamics of change are logically inconsistent with the dynamics of sameness and stability. Human and animal existence resolves the

dilemma through gender roles. Any state of being must desire to be, and the state of being that emerges will need to be consistent with the ecology within which it finds itself. Thus, the gender that has it so easy will automatically be predisposed to one type of logic based in sustaining the known, while the gender that has it so hard will be predisposed to logics based in exploring the unknown. And within their shared ecologies, male and female co-exist with their logically contradictory predispositions.

Clearly, what this implies is a process view of life and being. And so what we have come to is a phenomenological account of gender roles expressed in the context of being and non-being, where gender roles can be understood from the following perspective:

- (1) Masculinity, on its own, leads to chaos and disintegration;
- (2) Femininity, on its own, leads to stagnation and collapse.

Thus we have the mechanism by which cultural habits are modulated — with masculinity being the agent of change, and femininity providing the resistance to change.

8.4. Psychology as Men's Psychology

Our preceding analysis suggests a new kind of psychology that factors in both male and female. This contrasts with the psychology that has dominated the mainstream.

As Weininger (1906) pointed out, frequently men pioneer a field such as psychology, in the belief that they have hit on general, human principles that apply to both men and women. But typically, the reality is that they've developed a male perspective that is ignorant of the very different ways of women. Freudian psychology is essentially a male psychology framed from a male perspective.

In a similar vein, Nietzsche believed in a fundamental ordering principle of the universe, which he called the "will to power". But this is imprecise. His "will to power" is actually, a will to masculine power. In his psychology, there is no place for the feminine law. His idea of the whole universe as a battleground of contending wills and the fight for supremacy visible in every manifestation of life, is preeminently the masculine side of being. Nietzsche failed to recognize the feminine side as a valid logical reality. For ultimately,

the will to power must contend with the will for continuity. The will for more of the same acts in direct contradiction to the will for change.

Of course, the dominance of men's perspectives in psychology and science has nothing to do with the oppression of women by men, and everything to do with women's disinterest in analytical pursuits. That women are not adequately accounted for in the exploration of perspectives has everything to do with women being content to leave the exploration of the unknown to men.

9.0. Woman's secret

From Nietzsche (*Thus spoke Zarathustra*), "On little old and young women":

"Then the little old woman answered me: 'Many fine things has Zarathustra said, especially for those who are young enough for them. It is strange: Zarathustra knows women little, and yet he is right about them. Is this because nothing is impossible with woman? And now, as a token of gratitude, accept a little truth. After all, I am old enough for it. Wrap it up and hold your hand over its mouth: else it will cry overloudly, this little truth.'"

"Then I said: 'Woman, give me your little truth.'"

And thus spoke the little old woman:

"'You are going to women? Do not forget the whip!'"

Thus spoke Zarathustra. (Nietzsche 1954: 67)

9.1. The provider

An important distinction between the sexuality of men and that of women is that men desire, women long to be desired. Women do not find men attractive, so much as they find *themselves* attractive, within the contexts provided by successful, powerful men. That's why women use cosmetics and men do not. That's why women dress to lure, while men dress to work. Popular women at the top of the food chain prefer rich men, successful men, assertive men. Less demanding women will be content with men who are reliable, "safe" providers, who are "financially secure". Some of the men that women choose will happen to be ugly, with all the charisma of a bag of cement. Some of them will happen to be handsome, with the ability to charm birds out of trees. Some of these men will happen to be geriatrics (but rich).

Some of them might even appear to have nothing going for them whatsoever. But the one thing that all these men have in common is that they conform to women's priorities to be provided for, to be desired.

A good provider is motivated and passionate. He desires, and he desires to win. A good provider is a successful provider. Men's lives are prescribed within the context of success and their provider role — both by women and by men.

A woman is unlikely to pay for sex because being desired is central to her sexuality. A woman paying for sex does not make sense because it is an affirmation that she is not desirable. *Being desired* is the source of her arousal. A woman paying for sex stands in direct contradiction to the feminine desirability that demands payment. It cannot be any other way. Being paid for sex is the only monetary transaction that is capable of arousing a woman, whether or not she is a gold-digger, for there can be no stronger message that a man finds her attractive. And feeling sexy, vulnerable and attractive is a woman's thrill.

Which pretty well casts Man's role as provider in stone. Being a provider is as integral to manhood as having testicles. It is the unspoken "given" that defines Man's purpose. If, at one level, women's choices can appear to be arbitrary or indiscriminate, at another level they are very specific. If a man does not, in some way, conform to the promise of his destiny as provider, he does not get air-time.

(For the sake of simplicity, we confine our discussion here to Western cultures characterized by dominant materialism — where we will find that sexism and materialism go hand-in-hand. On the other hand, men's and women's motivations can become considerably more varied in more urbane societies characterized by respect for historical tradition, such as we might expect in some European countries, for example — but further discussion is beyond the scope of this article).

Man's provider role generates the variety — the "types" of men — from which women choose, the types of men that become the cultural norms.

Because women can never understand men, the provider criterion provides a ready-reckoner that enables women to identify men who are "normal" and "reliable". Ultimately, a good provider can be assumed to be reasonably "well-behaved", because his livelihood will depend on it.

The priority of men is success. Success in what a man does, defines his identity. It is a measure of his ability to take on whatever the unknown dishes out. It defines his character. But success, on its own, provides no guarantee of a woman's love. It must be success that is immediately tangible and recognizable. Artists and poets, successful as they often are in apprehending the unknown and bringing its secrets to light, fair much better with women once they have been identified as conspicuous successes — or even better, once they become celebrities.

Conspicuous success is a real crowd-pleaser, and irrespective of whether a man is a corporate executive, published author, criminal thug or just a humble leader of a pack, there will be no shortage of women willing to submit themselves to his charms.

9.2. The provided for

Woman's priority of sustaining the known implies the need for safety, and it prioritizes security. But it must also contend with its opposites and its excesses. With logic being what it is, security is one half of Woman's duality, where the other half is vulnerability. Thus the longing to be desired must invariably accompany the longing to be violated. Where a man might be more inclined to get his adrenaline rush jumping out of an aircraft with a parachute, a woman might be more inclined to get hers from putting herself in sexually risky situations — the thrill of feeling vulnerable and attractive at the same time. This sheds light on the rape fantasies of many women. It is also consistent with the observation that some women delight in their part in the sex industry (contrary to popular feminist dogma). In her narcissistic self-indulgence in her own beauty a woman sustains the known, and her thrill of being violated portends its destruction.

Dasein tells us that there is something that women "like" about their condition. There is something they "like" about dressing to be undressed. There is something they "like" about falling out of a backless, strapless, dress slit up to the hips to reveal long legs and a plunging neckline to emphasize full breasts. There is something they "like" about being beautiful and vulnerable and about surrendering to the thrill of the forbidden. There is something they "like" about being constrained in high-heeled shoes and concealed under make-up. There

is something they “like” about being chained with jewelry around their necks and wrists and on their skin and about feeling like a valuable possession. By realizing the connection between mind and body, we know that there is something that women “like” about submission, being led, being taken, and being provided for. There is something that women “like” about intimacy and touch and breast-feeding their infants.

We know these things because we understand Dasein. Women dress to emphasize female vulnerability. Women dress to be undressed.

Feminists can often provide interesting perspectives on the longing to be violated. Published author and feminist Catharine MacKinnon observes:

I think that sexual desire in women, at least in this culture, is socially constructed as that by which we come to want our own self-annihilation. That is, our subordination is eroticized in and as female; in fact, we get off on it to a degree, if nowhere near as much as men do. This is our stake in this system that is not in our interest, our stake in this system that is killing us. (MacKinnon 1987: 54)

Alysabeth’s feminist stripper site⁶ sheds further light on the experiences of women — though consistent with what we’ve already discussed, it is difficult to extract the deeper truths, and we still need to resort to inference. Nonetheless, we can obtain a sense of her experiences, for example, where she writes, “It’s scary the first time you take off all of your clothes in front of a roomful of people. I imagine it’s a little like skydiving (and am absolutely unwilling to find out for sure), with the adrenaline and the exhilaration”.

It is clear that Alysabeth and the other strippers that she has included on her website, all enjoy their work. Moreover, Alysabeth describes a threshold that needs to be crossed. She remembers being warned by other dancers that “this was not to be entered into lightly or unadvisedly, that I was about to change my life”. She describes an entry into a new kind of world that changes her. “I crossed the line. I realized that I loved it.”

This brings us to an interesting and important question. What is it that happens to a person when they make such a transition? Is there something important that is changed forever, once someone makes a

⁶ Alysabeth’s stripper site — <http://www.alysabeth.com/> — as on 27 January, 2001

choice and enters a new doorway? Alysabeth tells us that, "They were right. It did change my life".

Is there something to *fear* in such a transformation?

Revisiting everything that we've explored on the topics of desire, choice, habit and association... has something "happened" to Alysabeth that is perhaps not as benign as our secular cultures would like to believe?

Alysabeth is obviously delighted and relieved that she had not turned into a 6-legged, 4-eyed monster, and she was unable to identify any disincentive to continue. But has she transformed into something different, on that day that she walked through the doorway into the forbidden?

I am reminded of a young woman who used to work as a prostitute. She had explained to me that she had reached a point during her brief "career" where the only times she climaxed were when clients were particularly abusive and vulgar. Her feminine beauty and vulnerability juxtaposed against obese, sweaty, and gross masculine ugliness — what manner of Dasein is this? What starker example of violation, in its most primal essence, can I provide? What state of being does her desire to be allude to? The most civilized and well-presented among her clients left her cold. To most men this would seem inconceivable — how could a man possibly be aroused by the sight of an ugly woman? And in this, we see that men and women really do inhabit vastly different worlds. Does it really make sense to infer that an attractive woman, who can have anyone she desires, can be aroused by ugly, vulgar men — the uglier the better? Yes, it can. This is explicable by understanding female sexuality from the perspective of the longing to be violated. Violation taken to its limits exposes a woman to a strange, surreal condition that disengages her from the real world. Vulnerable and exposed, she experiences life at the limits. The very outrage of a beautiful woman choosing and being violated by a vulgar boor has its own kind of thrill. The risk that her parents might find out, what her friends might think, all these things come together in a context that heightens the surreal elements of her experience. Such thrills are not always without consequence, for the self-loathing, the neuroses and the mood-swings often characteristic of some of these women is logically consistent with the contexts that they have chosen to enter into.

We know that women who have been sexually abused, or women who have experienced the sex industry, are often “drawn” to further violation long after they have left their experience behind. A secret longing often compels them to covertly indulge in more of the same — even though they might be able to recognize it as violation and even though they might want out. Where did *this* come from?

We might now better understand Alysabeth, when she describes her experience in terms of exhilaration not unlike that which might be had skydiving. The expression of female sexuality, like skydiving, is accompanied with inherent risks that add to the thrill. Entered into without caution, there exists the possibility of real and long-term psychological harm. More importantly, her desires will change in order to accommodate her choices, and it is in this that the greatest psychological harm is done. As she attests on her website, Alysabeth has come to enjoy all the other contexts that accompany her dancing — the glamour, the camaraderie, the lit-up stage, the dark corners, the smoky atmosphere — she has immersed herself into her contexts and all this is a manifestation of her Dasein, her desire to be. Alysabeth *likes* her Umwelt. It will continue to draw her in. Should this be such a problem?

For how many more years can a stripper continue dancing? Perhaps the man she is currently with loves her for what she is. Then again, maybe his life contexts, as a man who dates women who get paid on these terms preclude her from his life’s agenda. Or maybe she doesn’t need a man. Does it matter? Does she care? Dasein. The contexts she revels in today won’t always be so kind to her in the future:

The choice becomes the association of habits becomes the desire becomes the need.

Can a sex-worker believe in a life hereafter? If so, how might she think that the contexts she immerses herself in today will manifest themselves in her hereafter? Whether or not she believes in any such thing, perhaps *we* need to be concerned. How do the options we permit today, impact on what our cultures become tomorrow? What is the connection between the debauchery of today and the criminality of tomorrow? If not criminality — then how might the debauchery of today relate to the prudishness, the uptightness and the hangups that might manifest themselves anew to extricate this virus from the

cultural body? How might the power of an authoritarian tyrant tomorrow relate to today's permissiveness that corrodes the will to stand up for one's rights? More generally — how is the present semiotically and logically connected with the future? With what sort of cultural dynamics is the longing to be violated logically consistent?

Prior to modern feminism, it has commonly been accepted that many "traditional" women wanted to be "dominated". But this wanting to be dominated suggests a comparatively innocent, innocuous desire assumed by genetic determinists to be genetically programmed into women to select for successful, virile men. And to further confuse matters, feminists reacting to what they've perceived as a patriarchal conspiracy, have simplistically blamed "traditional" men for indoctrinating women into submissiveness. Both interpretations are wrong and a more sophisticated analysis is required.

Domination was something that characterized successful men. Successful men (and by implication, dominating men) were respected by both men and women alike. It was a cultural "tradition" — an expectation by men and women — that a woman should be financially dependent upon a successful provider. A successful man (and therefore a dominating one) was sought out by an image-conscious woman. From a semiotic perspective, a woman's desire for a successful man was a desire for a dominating one and therefore, an act of complicity in which she expected to be dominated.

A woman's desire to be dominated is not part of a brain module designed to select for superior men but rather, her desire to be dominated manifests in her sexuality as the longing to be violated in a more materialistic form. At its core is the urge to submit to and be consumed by forces beyond one's control, to be swept away to become part of something new.

So let's distill this wanting to be dominated to its essence, and call it for what it really is — the longing to be violated. And in this context, we realize that it does not always select for superior men.

Of course, most women do not, in reality, want to be violated. And among any that might, if they could understand what is meant by "violation", they would probably deny it. Most often, the longing to be violated remains just that — a longing hopefully confined to the realm of fantasy, and not to be actualized in real life. But it is a longing that establishes predispositions to the types of choices that are made. The risk of violation constitutes part of the logic by which a woman

experiences her feminine beauty. To define what is beautiful is to define what is not beautiful. If "innocence" is the essence of feminine beauty, then the destruction of innocence is violation.

The primary responsibility of innocence is to sustain the known — for ultimately, the desire to be and to continue being is the most elemental desire. Only the experienced might seek to do away with themselves, to try to find a way out of being. Sustaining the known is accompanied with the risk of its destruction. And accompanying that risk is a thrill, not unlike jumping out of an aircraft with a parachute. Femininity and feeling sexy, beautiful and vulnerable accompanies as part of its logic, an awareness of the risk of violation that every woman must, subconsciously at least, sense. This awareness comes from within. The fear that is often associated with femininity is neither neurotic, nor can it be blamed entirely on men. A woman's fearfulness is a part of the thrill by which the known interacts with the unknown. The interaction carries with it real risks, and her fear is justified. Thus, while men are often violators, such aggression does not magically appear in a vacuum, but constitutes a part of the shared cultural logic that women also indulge in.

The longing to be violated sheds light on the choices that some women make. For surely, does not the longing to be violated require... a violator?

A woman's longing to be violated requires a formidable, dynamic force if it is to be awakened. Neither chivalrous men who are well-behaved, nor sensitive dishwashers too afraid to try, will ever rouse the beast that sleeps within her. No woman can long to be violated by just *anyone*. The dumbing down of men that is required to accommodate the demands of political correctness is the last thing that women really long for. Sensitive dishwashers have no part to play in women's rape fantasies — though as predictable, safe providers who make minimal demands, they can make excellent marriage partners;

The longing to be violated, in the subtle context of the logics by which beauty and innocence are defined, is a woman's secret that she keeps not only from men and other women, but also from herself. To conceal her desires, she will practice deceit and self-deceit. Sustaining the known is her responsibility, and she must be seen to uphold standards. Yet her exposure and her vulnerability, the tension between her beauty and the danger that surrounds her, reflected in the clothes she wears, is her private thrill. And the secrecy is itself a part of the

thrill, because it is a reminder of her responsibility as mother and sustainer of the known. There can be no greater forbidden than the desire that must be kept secret, no greater thrill than to submit to the longing for forbidden fruit.

From our foregoing semiotic analysis coupled with wider observation, it might be inferred that for many women, the longing to be violated is not realized until it is "awakened" in them through circumstance (for example, through marriage or introduction to sex work). But once awakened, a woman must keep her secret well hidden, for she will know that most women will not only not understand, but they will actively deny this side of their nature that is hidden from them. Quite apart from the fact that she won't even know how to put it into words, for that which is secret is that which fails to make it into language.

And so there exists a powerful conspiracy of silence among women where a host of contradictory interpretations, from wanton debauchery to prudish conservatism, has everyone — men and women — trying to guess what women really want. But the one real truth — Woman's secret longing to be violated — remains obscured by all the chatter and noise.

9.3. The longing to be violated and the power of veto

Female is the gender predisposed to experiencing first-hand the consequences of violation. Therefore Woman is predisposed to the realization, at least at some primal level, that her choices have consequences. Woman is predisposed, at one level, to being able to control her sex drive, because she perceives her choice to be between being accepted into the future or cast into oblivion. And control of her libido is logically consistent with the fear of losing control. This is why Woman's power is the power of veto. She needs to be sold. She needs to be swayed, wooed and convinced that her choice is the right one. If, at one level, Woman is predisposed to making a moral decision or an immoral one, at another level, she is not predisposed to analyzing that decision. She is not predisposed to understanding her options, because reality is far too complex. The cultural known simplifies reality. Making assumptions about the way the world is is the only way to cope with all this complexity. This is why women are the assumers of the cultural known. This is why they think in "henids".

And so Woman is faced with two important dimensions to her existence that are often contradictory:

- (1) An intimate connection with the consequences of violation;
- (2) The cultural known.

When culture becomes immoral, Woman turns to peer pressure to define how she is to behave. Peer pressure can blind her to the consequences of violation. If, from one perspective, violation can be perceived to cast her into oblivion, from another perspective, not being accepted by her peers can be perceived with an even greater urgency. The consequences of sexual “freedom” — within the context of its inextricable connection with peer pressure — can be disastrous. Within this logical realm, women’s choices can seem utterly incomprehensible to men.

By contrast, men are removed from the immediate consequences of violation. Men are more concerned with the immediacy of survival and utilizing the options that are presented to them, whether or not those options conform to the cultural norms. It is women that enjoy the power of veto — they set the limits of sexual morality. And it is men that operate within those bounds, testing the limits and learning what they can get away with.

9.4. The writings of Anaïs Nin

In her Diary, Nin wrote, “to be violated is perhaps a need in a woman, a secret erotic need”. Her stories focus on man as possessor and woman as possessed, of man as violator and woman as violated. Whilst these are themes common to “mainstream” pornography, what makes Nin’s work particularly important is that they are presented from a woman’s perspective, and in an entirely different language. More importantly — and in contrast to pornography for mainstream consumption — they shed light on the motivations of women.

Conventional pornography (assumedly written from man’s perspective) presents sexuality largely in adolescent terms. We imagine that a typical consumer of pornography, today, probably spent the high points of his childhood pulling wings off flies. Blind to the more formidable dynamics of sexuality — for example, that which exists between the sanctioned and the forbidden, the known and the unknown — the sex drive is reduced to nothing more than an itch,

with relief provided only in orgasm. Similarly, it is common to portray women as being devoid of any sex drive — the truth behind this over-generalization being that women can be so materialistic that they rarely get to discover their “dark” sides. Such women typically possess a kind of sterile innocence, with their lives being dominated by an agenda that finds its greatest fulfillment in being provided for. And herein lies the unity of culturally shared logic. Bored women and desperate men are an inevitable outcome of the mutually consistent logic that must accompany today’s sexual “freedom” (obsession). We have the paradox of women-as-sexuality leading non-sexual lives. Their sexualities are every bit as consuming as men’s, yet it is men, consumed by their itch, who must pay for sex.

But Nin’s writings provide a more authentic depiction of sexuality. Not only do they make sense in terms of the mind-body unity (men’s and women’s bodies as tools) that I introduced in my paper (2001), but they capture the essence of that interface between the known and the unknown, between the fear and danger and the tension that lie at the core of primal sexuality. For example, in “The woman on the dunes”, Nin (1979) has the heroin of the story relate to her lover, an account of sex with an anonymous stranger during an execution:

Her eyes remained fixed on the man who was mounting the scaffold, and with each beat of her heart the penis gained headway. It had traversed the skirt and parted the slit in her panties. How warm and firm and hard it was against her flesh. The condemned man stood on the scaffold now and the noose was put around his neck. The pain of watching him was so great that it made this touch of flesh a relief, a human, warm, consoling thing. It seemed to her then that this penis quivering between her buttocks was something wonderful to hold on to, life, life to hold while death was passing...

Without saying a word, the Russian bowed his head in the noose. Her body trembled. The penis advanced between the soft folds of her buttocks, pushed its way inexorably into her flesh.

She was palpitating with fear, and it was like the palpitation of desire. As the condemned man was flung into space and death, the penis gave a great leap inside of her, gushing out its warm life.

The crowd crushed the man against her. She almost ceased breathing, and as her fear became pleasure, wild pleasure at feeling life while a man was dying, she fainted. (Nin 1979: 18–19)

In “A model”, Nin (1979) provides an abundance of insights. She eloquently explores that boundary between the sanctioned known and

the forbidden unknown — and provides interesting perspectives on how intruding strangers can penetrate that boundary and into women's lives.

But the overwhelming theme emerging from Nin's writings is her belief that a woman can only obtain proper sexual fulfillment with a man who overpowers her. Accordingly, a woman might resist a man's advances. She might even scream and hit out, in her efforts to escape. But Nin's typical romantic adventure has the woman being overpowered — and along the way, she discovers her secret that she actually enjoyed the experience.

A woman does not seek out experiences, because she does not have to. Rather, she has them happen to her, and in this way, she discovers what she desires. That is her role as sustainer of the known. A woman will not seek out to be violated, but in the right contexts, can actually enjoy it when it happens to her. Exploring the unknown (seeking out violation) is not her territory. To men who habituate working and competing for anything of value, this sounds unbelievably easy... and indeed, it is. But as discussed above, such freedoms are also chains, for the habit of being provided for is logically consistent with the habit of dependency. In a very real sense, it is because women have it so easy that they have it so hard. And in these contexts, we can begin to make inferences about women's logic, to help us understand all the complexities of women's behavior. We can now begin to understand the contexts in which a woman might secretly enjoy being raped.

Nin (1979) begins "Hilda and Rango":

Hilda was a beautiful Parisian model who fell deeply in love with an American writer, whose work was so violent and sensual that it attracted women to him immediately. (Nin 1979: 101)

But her writer lover was not the virile stud his writings seemed to suggest:

They lived together for several years, deeply attached to each other. She became accustomed to his sexual rhythm. He lay back waiting and enjoying himself. She learned to be active, bold, but she suffered, because she was by nature extraordinarily feminine. Deep down she had the belief that woman could easily control her desire, but that man could not, that it was even harmful for him to try. She felt that woman was meant to respond to man's desire. She had always dreamed of having a man who would force her will, rule her sexually, lead. (Nin 1979: 102)

Then one night at a party, Hilda met a Mexican painter (Rango), who was almost always drunk:

But the sight of her gave him a profound shock. He pulled himself up from his faltering, tottering posture and faced her as if he were a big lion facing a tamer. Something about her made him stand still and try to become sober again, to rise from the fog and fumes in which he lived continuously. Something about her face made him stand ashamed of his unkempt clothes, the paint under his nails, the uncombed black hair. She, on the other hand, was struck by this image of a demon, the demon she had imagined to exist behind the work of the American writer.

He was huge, restless, destructive and loved no one, was attached to nothing, a tramp and an adventurer. (Nin 1979: 102–103)

At one stage in her encounter with Rango, Hilda transgressed a sacred taboo by initiating sex but was harshly rebuffed with the charge that she “made the gesture of a whore”. Hilda regarded the passive, gentle, unmanly behavior of her previous, long-time lover (the writer) as the source of her problem:

A deep shame, a sense of great injury overwhelmed her. The woman in her that had suffered from being forced to act as she did with other lover, the woman who had been made to betray her real [feminine] nature so often that it had become a habit, this woman wept now, uncontrollably [...] (Nin 1979: 105)

and

She dropped exhausted on her bed and fell asleep weeping, not only for the loss of Rango but for the loss of that part of herself she had deformed, changed for the love of a man. (Nin 1979: 105–106)

Hilda regarded her proactive, initiating nature as a perversion of her true, feminine form. She felt that Rango was withholding sex as a consequence. Writes Nin:

Had he understood that it was involuntary, not truly in her? (Nin 1979: 107)

Hilda had numerous encounters with Rango, but without having had their relationship consummated:

Over and over again she lay passive, showing no desire, no impatience, which exacerbated her sensibilities. It was as if she had taken new drugs that made the entire body more alive to caresses, to a touch, to the very air. She felt her dress on her skin like a hand. It seemed to her that everything was touching her like a hand, teasing her breasts, her thighs continuously. She had discovered a new realm, a realm of suspense and watchfulness, of erotic wakefulness such as she had never known. (Nin 1979: 107–108)

And after Hilda rediscovered her true, feminine nature, she was rewarded:

One day when she was walking with him, she lost the heel of one shoe. He had to carry her. That night he took her, in the candlelight. He was like a demon crouching over her, his hair wild, his charcoal-black eyes burning into hers, his strong penis pounding into her, into the woman whose submission he first demanded, submission to his desire, his hour. (Nin 1979: 108)

In romance, the man is obliged to initiate, to lead and ultimately to take, with the woman following in submission. This is an expectation not only of men but also of women. In rape, the successful rapist takes. He demands submission and gets it. And if the contexts are right — that is, if the rapist is “sexy” (successful, confident) — there can be, for many a woman, perhaps no greater thrill.

In Hinz (1975: 45), Nin was asked the question, “Do you still believe that “to be violated is perhaps a need in woman, a secret erotic need,” as you wrote in *Diary II*?” Nin replied:

This may be part of the primitive programming of woman, which psychology has analyzed in various ways: one, as a test of the man’s strength; the other as a way of eluding the burden of sexual guilt. If someone with a will stronger than hers “rapes” a woman, she is not responsible for the sexual act. These dreams may disappear when woman is freed of guilt for her sexual desires. Hinz (1975: 45)

9.5. Feminine sexual perversion

Predictably, within the context of today’s pop psychology, Nin’s perspective is often interpreted as indicative of some sort of pathology. Her incestuous relationship with her father has often been cited as the source of her problems with sexuality. Conceivably, this relationship may have set her on the path that she had taken. But was

the manner in which she adapted to her relationship with her father, "wrong"? That is to say, was hers an "incorrect", "perverted" interpretation of reality? Or was her interpretation, in fact, the essence of feminine sexuality precipitated by a dangerous unknown, as provided by the erratic, irresponsible behavior of her father?

Thus we come to a very important point about female sexuality. For women, it is "discovered". Sex is an essentially passive activity that happens *to* them. At its core, at the very essence of female sexuality is the longing to be violated. Violation is an essential feature of the sex act, and provides the basis for intimacy in a loving relationship — there are many women who do not want to be violated by "just" *anyone*. And with all the implications that are possible with the longing to be violated, many women do not get to "discover" their sexuality. For all their sexual activity, many women can remain sexless and barren, consumed solely by the priority to be materially provided for.

Thus we can infer that Anaïs Nin's sexuality was not a perversion. That is to say, it was not a diversion *away* from femininity but rather, a *primal expression* of it. Her sexuality was an essential manifestation of the feminine longing to be violated. And while her writings reflect a sensuality and honesty that might be healthier than the sterile conformity of many of her more materialistic sisters, we should be mindful of the implications of being violated. For how does violation impact on a person's psyche? How does female sexuality impact on cultural evolution? For does not sexual "freedom" imply the emergence of violators? Is there a healthier way in which female and male sexuality might be expressed, beyond the extremes provided by yesterday's conservatism and today's liberalism?

9.6. The relationship between promiscuity and criminality

We are now in a better position to consider what might be wrong with sexual "freedom".

Women's priority to sustain the known implies assuming rather than understanding. The simple truth is that women do not understand women. They are even less likely to understand men. Assuming bears no relationship to understanding. In fact, their failure to understand men provides the key to what they experience as an exciting fear of the

dangerous, unpredictable unknown that belongs to men. Their failure to understand men is what can make the unknown so exciting to them (beyond the banal pretensions of modern liberalism). And it would seem to suggest a connection between promiscuity and the types of men that are chosen. The gender enjoying the culturally sanctioned privilege of being provided for is the gender least likely to understand the choices that are being made. For women, sexual freedom might be wonderful and empowering, but in terms of evolution, it is problematic because the choices they make will be confined to a particular spectrum of male stereotypes. Moreover, women learn what men are supposed to be like from the types of men to whom they give air time — which in the modern climate of liberal social values, happens to be the types of men that are more likely to intrude without sensitivity to cues. The type of man most likely to initiate, in the modern context of sexual “freedom”, is the type least likely to respect personal space. The type of man most likely to initiate is the type most likely to get in women’s faces and ipso facto, the law of averages suggests that he will be selected. Such a man will understand only the law that guarantees his success with women: No initiate, no sex.

Bad-boys get in women’s faces. In a sexually permissive society, women give them air-time. And so it is clear that, from the perspective of the numbers game, bad-boys will get lucky. “No initiate no pussy” is the simple, universal and natural law that states that if you’re not in it, you can’t win it. As Sanchez (aka Greg Entner of Bangbus Videos⁷ fame) illuminates on his website, in his list of FAQs:

Q: How are you guys able to pick up girls off the street and fuck them?

A: Because we ask them.⁸

Sexual “freedom” invariably implies sexual randomness and the lowering of standards. It appeals to the fears of women (especially fear of solitude) and the baser instincts of men.

Weininger (1906) wrote on the implications of female promiscuity taken to its limits. He explored the connection between prostitution

⁷ I am not going to promote their website — I will, however, refer to it as a part of my analysis.

⁸ Irrespective of the extent to which “reality porn” is staged (choreographed), this dynamic is consistent with the reality of modern youth culture as suggested in Ariel Levy’s book, *Female Chauvinist Pigs*.

and criminality (he used the word “prostitute” in a general sense, to identify women that are promiscuous or of “loose” morals). The following excerpt summarizes his perspective:

Very deep-seated differences are linked with what I have been describing. The mother-woman craves for respectability in the man, not because she grasps its value as an idea, but because it is the supporter of the life of the world. She herself works, and is not idle like the prostitute; she is filled with care for the future, and so requires from the man a corresponding practical responsibility, and will not seduce him to pleasure. The prostitute, on the other hand, is most attracted by a careless, idle, dissipated man. A man that has lost self-restraint repels the mother-woman, is attractive to the prostitute. There are women who are dissatisfied with a son that is idle at school; there are others who encourage him. The diligent boy pleases the mother-woman, the idle and careless boy wins approval from the prostitute type. This distinction reaches high up amongst the respectable classes of society, but a salient example of it is seen in the fact that the “bullies” loved by women of the streets are usually criminals. The *souteneur* is always a criminal, a thief, a fraudulent person, or sometimes even a murderer.

I am almost on the point of saying that, however little woman is to be regarded as immoral (she is only non-moral), prostitution stands in some deep relation with crime, whilst motherhood is equally bound with the opposite tendency. We must avoid regarding the prostitute as the female analogue of the criminal; women, as I have already pointed out, are not criminals; they are too low in the moral scale for that designation. None the less, there is a constant connection between the prostitute type and crime. The great courtesan is comparable with that great criminal, the conqueror, and readily enters into actual relations with him; the petty courtesan entertains the thief and the pickpocket. The mother type is in fact the guardian of the life of the world, the prostitute type is its enemy. But just as the mother is in harmony, not with the soul but with the body, so the prostitute is no diabolic destroyer of the idea, but only a corrupter of empirical phenomena. Physical life and physical death, both of which are in intimate connection with the sexual act, are displayed by the woman in her two capacities of mother and prostitute. (Weininger 1906: 233–234)

Another way of interpreting this problem with sexual freedom is the relationship between innocence and power.

When a man feels the urge to violate, what is it that he wants to take?

Innocence.

When a woman longs to be violated, what is it that she longs to submit herself to?

Power.

In a sexually permissive society, intruding initiators indulge themselves in the fantasy of innocence violated, and submitting exhibitionists indulge themselves in the fantasy of power violating. A culture so predisposed entertains the false, exaggerated illusions of women as virtuous, sweet innocents and of men as immoral, brutish thugs. If taken to its logical conclusion, unrestrained permissiveness turns women into imbeciles and men into criminals. And in keeping with the dualistic nature of logic, women become harder, more cynical and bored, while men become softer, more docile and desperate. The dynamics between innocence and power — whether exaggerated or subdued, real or imagined, sanctioned or denied — lie at the heart of every sex act and for this reason, there is no such thing as trivial sex, no such thing as sex without consequence.

9.7. The perspectives of other established works

We have covered a lot of ground from a semiotic perspective. Before closing off our analysis, let us briefly examine how these ideas relate to the work of other more academically conventional writers, such as Seymour Fisher, William Masters & Virginia Johnson and Alfred Kinsey.

Fisher (1973: 53) suggests something of the mind-body unity (the relevance of the body-as-tool in shaping personality) when he refers to "body-image parameters". He refers to a sizeable scientific literature (Fisher, Cleveland 1968; Fisher 1970; Shontz 1969) demonstrating that body attitudes do affect behaviour:

Clear evidence has accumulated that persons vary in the ways in which they integrate and interpret their body experiences and that, in turn, these adaptations affect their personality style.

Expressing these ideas in Academese in this way denies the reader the sort of clarity that would otherwise be made possible from a semiotic perspective. However, within the context of the fundamental semiotic principles that were introduced at the start of our paper, we can nonetheless confirm that we share common ground with Fisher's analysis. Referring to writers such as Fried (1960) and Masters and Johnson (1966), Fisher notes the importance of the involvement of the

whole body in sexual experience — for example, breathing perspiration, vocalization, as well as changes in sensory acuity, throbbing of body parts, temperature changes, muscle tensions, etc. He observes that:

[...] A number of writers converge in emphasizing that fear of intrusive body penetration and of losing body boundaries is a prime cause of disturbed response to sexual stimulation. They suggest, each with his own phraseology, that a woman's conviction that her body is too "open", insufficiently protected, and incapable of resisting invasion can make her interpret sexual sensory experiences, with their accompanying expectations of being entered by the penis, as destructive.... It is the threat to the fundamental boundary that is confronted in sexual interaction that is said to be so disturbing to many women. (Fisher 1973: 53)

In other words, fear plays some important, inextricable part in Woman's experience of sexuality.

Fisher (1973) discusses the notion that the excitement that builds up during sexual arousal is often associated with a woman's sense that she is losing control. From our semiotic perspective, this continues to fit with Woman's logical world. The sustainer of the known, consolidating her known world "in here", is likely to fear the loss of control that is implied in submission and abandonment. And indeed, Fisher does make the connection between fear and loss of control, citing psychoanalytic observers who have reported from their patients that fear of loss of control and madness is associated with orgasmic arousal. Fisher observes:

Although the foreboding implications of "losing control" have been pointed to by some, others (for example, Fried 1960) consider that the sensation of potential loss of control is for many women a piquant enrichment of the sexual arousal experience. It is the opening of self to a sense of undisciplined excitement that presumably makes sexual interaction especially enjoyable. Paradoxically, some (Feldman 1951) even suggest that fear which is set off by sexual arousal may itself further energize, rather than inhibit, the arousal process. A variety of examples are cited by Feldman of instances in which orgasm seemed to be produced by fear and anticipation of danger. It is explicitly assumed that fear can be "sexually exciting". (Fisher 1973: 59)

Fisher includes excerpts from interviews he's had with women on their descriptions of their experiences of sexual arousal (Fisher 1973: 203–209). As we read through these excerpts, we might be reminded

of Otto Weininger's thesis that Woman is sexuality (contrasting with Weininger's notion that Man's sexuality is functionally separate to his identity). On the sorts of fantasies that women had during intercourse, Fisher reported that more than 75 percent of the women indicated that they had at least one fantasy or image that recurred occasionally (but not infrequently). Of these, "about 40 percent involved scenes in which the woman was having a sexual contact or interchange with someone other than her husband". And of these, "more than half of the instances revolved about themes in which the woman perceived herself as being raped, sexually humiliated, or somehow sexually wicked". These included fantasies relating to bondage, brutal rape and humiliation, with masochistic and exhibitionistic elements strongly represented. Thus we observe, as a rough, back-of-hand guesstimate, that at least about 15% of Fisher's respondents admitted to having fantasies of rape, humiliation and violation.

Let's follow this through in another part of the book (Fisher 1973: 89), where Fisher refers to a study by Barclay and Harber (1965). Here, a male experimenter frustrated and angered male and female subjects, and then analyzed their reactions to test for the role of anger in sexual imagery. It was found that the experimentally induced anger resulted in increased sexual imagery for males and females. Importantly, as Barclay and Harber (1965) observe, "Women responded to aggressive arousal by a male with an increase in sexual imagery, not a reduction of it [...]. Thus, from the female's point of view, aggression is an important aspect of a male's sexual appeal".

The researchers were able to detect that anger increased the sexual imagery in *both men and women*. However, were the researchers able to discern the *content* of their respective imageries? From the genetic-determinist perspective, we might expect that the reactions of men and women were "equivalent" in logic and content. However, from a semiotic perspective, we would expect the male and female reactions to be *complementary*. That is, both sexes will react with an increase in sexual imagery, but women will do so with a *feminine* logic (for example, from the perspective of being desired or being violated) that bears no resemblance to the men's (desiring/violating).

Elaborating on the implications of anger in arousing women sexually, Fisher refers to further studies exploring a variety of themes (e.g., death material was said by female subjects to be sexually stimulating). He infers that "a rather esoteric range of stimuli has

psychosexual meaning to women". In at least two studies, Fisher notes, "an extreme group of women has been found to be more sexually aroused by 'psychosexual' stimuli than any of the male subjects".

Fisher (1973: 393-394) raises an extremely important point with respect to the work of Kinsey *et al.* (1953) and Masters and Johnson (1966), who limit their analyses to women's experiences of orgasm. Fisher alludes to the need to address female sexuality from a more contextual perspective that embraces the entire experience of sex. It is understandable that writers grounded in what amounts to a Male Psychology, will tend to write about female sexuality from a male perspective that attributes greatest meaning to the build-up and release in orgasm. If many of Fisher's subjects recount experiencing orgasm, what do they *really* mean? Can a self-reported orgasm by a woman resemble in any way a man's orgasm? Does it make sense at all to discuss female sexuality in these terms? Is it more true to say that gender roles exist *because of* the fundamental subjectivity of existence that can never breach the confines of the mind-body unity? That is, are male and female experiences destined to remain forever unfathomable from the perspective of the opposite sex?

How do those of us who do not inhabit female bodies plumb these inner depths of women's sexual experiences? If Weininger is correct in his view that Woman *is* sexuality, is this also what we might infer from Fisher's observation of the breadth of stimuli to which women attribute psychosexual meaning?

10.0. Conclusion

Throughout this paper, we have provided a theoretical basis for understanding the differences in the psychologies of men and women:

- (1) We have applied Peirce's Great "Law of Association of Habits" to understand that gender roles are habitual and associative — and thus, inextricably related to choice. Men and women make choices from their ecologies (cultures) and in their complicity, choose the gender roles they habituate. These gender-specific habits become the cultural norms that are the expectations of how we should be;

- (2) From Heidegger's Dasein, we know that men and women "like" the roles to which they have been assigned, and we need no further proof than their complicity. Dasein — the desire to be — ensures every person's complicity and thus, their culture's survival across the generations;
- (3) Men and women inhabit different logical realms (the known versus the unknown) that can be best understood by regarding men's and women's bodies as tools, designed specifically to deal with their specialized realms.

With this theoretical foundation, we have been able to infer how the opposite sex experiences their worlds. But the implications are far wider than this humble conclusion would seem to suggest. To begin with, we are applying Peirce's *general* theories of cognition (for example, in the field of biosemiotics), that might be more broadly extended beyond the opposite sex, to infer how other organisms might interpret their worlds. And in doing so, we are opening up a Pandora's box of interpretations. Where Copernicus showed us that our planet was not the center of the universe, semiotics would show us that the human condition is not that special, sanctified, purified and homogenized center of existence that we have deluded ourselves into believing. We are going to have to climb down from our pedestals, for we are truly one with the beasts.

Indeed, if we were to probe deeper, we might find that the whole basis upon which we judge character and human worth is more than suspect. For if one half of the population is judged in terms of courage and the other half in terms of the opposite to courage (which is innocence), does this not throw into disrepute everything that we have come to know about the human condition? For how has it come to pass, that a man with a woman's personality should be deemed a loser, and a woman with a man's personality should be deemed repulsive? Can't we just as easily deem all men to be repulsive, for without women, would not the vast majority of men have dubious toilet manners, and be without any motive for politeness and diplomacy? And can't we just as easily deem all women to be losers, for without men, would not the vast majority of women be scavenging from bins and sleeping on pavements in dark alley-ways? Whilst the vast majority of destitutes are men, the vast majority of women are exempt from this status only because it is culturally sanctioned that they be

provided for — a woman need only marry a politician, lawyer or doctor to be afforded the same high social status as that of her partner. Yet, a man with the same character traits as a kept woman would be treated only with contempt.

In our semiotic exploration of the psychological differences between men and women, what should become clear is the subjective nature of existence. Our bodies provide the interface between our thoughts and the outside world, and there is no way of circumventing this subjectivity — as surely as there is no way of circumventing the physical laws of motion or the law of conservation of energy. We remain trapped in our bodies. Inasmuch as this article represents about as good a job as can possibly be done in *inferring* how women experience their worlds, there remains that chasm that can never be crossed. Human men and women must remain forever logically distinct, as a fundamental law of reality. I must *become* Woman, completely and absolutely, in order to truly understand her innermost thoughts. I must forget all my prior experiences and I must forget that I ever was a man, in order to truly understand the feminine condition, in all its subjectivity and vulnerability. And in this, I will lose forever, the ability to achieve what I have done in this article.

We remain aliens to each other's worlds, but forever united in our subjectivity and the law of association of habits. And in understanding this much, perhaps we might feel a closer bond of understanding with an alien, should we ever chance upon a visitation from outer space.

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Семиотика сексуальности: выбор становится привычкой, желанием, потребностью

Прагматизм означает, что мы придаем значение тем вещам, которые для нас существенны. Самым существенным является все, что связано с нашим телом: глаза, уши, нос, руки-ноги, кожа, — вплоть до наших половых различий. Наши тела — это средства, которые соединяют нас с миром, с пространством культуры. Половые различия позволяют бросить взгляд на то, как тело вбирает в себя опыт, создает свою “идентичность” и приобретает гендерные роли культуры. В своей ранней работе я рассматривал привычки и ассоциативное обучение (именно их Пирс считает фундаментальными свойствами познания) в контексте *Dasein* Хайдеггера. В настоящей работе я развиваю эти идеи с целью их применения в понимании гендерных ролей. Из неразрывной связи между привычкой, ассоциативным обучением и *Dasein* мы можем вывести, что 1) гендерные роли являются привычкой, 2) гендерные роли являются выбором, 3) женщинам и мужчинам нравятся те роли, на которые они определены (это фундаментальное проявление *Dasein*). Таким образом, выбор становится привычкой, затем желанием и наконец потребностью. Так возникают потребности, по которым идентифицируют гендерные роли.

Soolisuse semiootika: Valikust saab harjumusseos, saab soov, saab vajadus

Pragmatism on vaade, mille kohaselt me omistame tähendusi neile asjadele, mis on meile olulised. Kõige olulisemad on asjad, mis on suletud me kehasse — silmad, kõrvad, nina, käed, jalad, nahk — kuni me sooise-äradeni. Me kehad on vahendid mis ühendavad meid maailmaga — kultuuriilmaga. Sooiseärad võimaldavad heita pilku, kuidas keha vastab kogemusele, isiksusele ja lõpuks kultuuri soorollidele. Oma varasemas töös uurisin harjumusi ja assotsiatiivset õppimist (neid peab Peirce tunnetuse fundamentaalseiks omadusteks), Heideggeri ‘olemasolemise’ kontekstis. Käesolevas töös arendan ja rakendan seda vaadet soorollidele. Lahutamatus seosest harjumuste, assotsiatiivse õppimise ja olemasolemise vahel saame tuletada, et (1) soorollid on harjumused; (2) soorollid on valitud; (3) meeste ja naistele “meeldivad” need rollid millesse nad on määratud (see on olemasolemise fundamentaalne avaldumine). Seega — valikust saab harjumuste seos, saab soov, saab vajadus. Nii tekivad vajadused, mille järgi soorolle identifitseeritakse.

Perceptographic code in visual culture¹

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Abstract. Visual culture can be considered from semiotic point of view as a system of visual codes. Several of them have natural roots. So the perceptual code is formed already on biological level mediating translation of sensory data into perceptual images of the spatial world. The means of natural perceptual code are transformed in culture, where they are involved in communication by depictions. The depiction on the flat performs the function of a "perceptogram", which, on one hand, is an external record of an internal perceptual image or an idea, and, on the other hand, serves as a program for a spectator's visual perception. The means of this "perceptography" form an artificial code, which is, on the contrary to the perceptual code, communicative, deliberately used and transformed in various ways at different periods of time in diverse kinds of practical and artistic activity. Not all perceptograms become pieces of art, but all history of pictorial arts can be considered as a process of development and mastering with the different versions of this perceptographic code. The changes of this code in visual culture are connected with the intrinsic development of "vision forms" as well with invention of external means of communication.

1. Visual culture and perceptual code

Human, unlike other animals, can not only receive optical data, but also deliberately produce them, creating depictions. The ability to produce and reproduce depictions is conditioned, besides natural system of eyesight, by culturally elaborated skills, and it depends on both

¹ This paper is based on the report presented at VIII Congress of IASS in Lyon, France (2004). Its draft has been published in *Amsterdam International Electronic Journal for Cultural Narratology* (<http://cf.hum.uva.nl/narratology/tchertov.htm>).

external technical means known in definite culture and internal ways of operating visual images. There is a connection between technical and psychical means of treating optical data, in particular, some internal "forms of vision" depend on external "forms of communication" of visual messages, which are at disposal of interacting subjects.

A system of technical and mental means, worked out historically for creating, transmission and receiving of optical information and cultivated by an individual or a collective, can be defined as *visual culture* of these subjects. Like any other culture, the visual one can be considered from semiotic point of view — as a system of both particular *visual codes* intended mostly for spatial channel of information connection, and optically presented *texts*, created and interpreted by these codes.

The visual codes include sign and signal systems with diverse psychological and semiotic mechanisms and to different extent depend on natural and cultural factors. The visual culture not only develops a number of artificially created sign systems, but also transforms several codes, which have natural routes and are formed on biological level as means of adaptation to the changes of surroundings.

It is possible to consider the *perceptual code* as one of these natural index-signal systems, regulating translation of optical data from visual field into a perceptive image of things unfolding in visible world (using the terms suggested in Gibson 1950: Ch. III). By means of this code, a mosaic of light and dark spots, which is formed on the sensory level, transforms on the perceptual level into stereometric picture of spatial situation.

These two levels of vision differ from each other by their structural qualities. The structure of visual field is correlated with the body scheme by relations "left-right", "high-low", "centre-periphery", etc. These relations form a stabile "framework" of visual field — in contrast to its unstable "filling" with changeable configurations of light and colour spots. Unlike this sensory level, the level of "visible world" contains the perceptive images of spatial forms, presented as opposed to the body of the seeing subject and separated from each other by "empty" inter-objective space. These images have a quality of constancy — being independent of unimportant variations of distance, visual angle, lighting, colour tints and other features of the

perceived object, which remains an invariant of variable conditions of seeing and "filling" of visual field.

Both sensory and perceptual (in the narrow sense) levels of vision are not reflected in common perception. The last is the perception in the broad sense, which includes as an obligatory component one more level of vision, connected with recognition of objects of the visible world as representatives of some class or cognitive category (as it is treated, for example in Bruner 1973: 7ff.). These categories are invariants already in relation to variations of object forms and their perceptive images, which can be identified with the same visual scheme. On this "apperceptual" level of vision these objects are identified by a subject as something or somebody meaningful — as a useful tool, as a civil servant, etc.

The perception of the "pure world of volumetric forms" and even more the reception of the "pure world of light and colour spots" are abstractions from the "world of meaningful objects". They are not typical for everyday vision and need a skill of "analytical introspection", getting by special education and being always incomplete. In the "natural" process of seeing transits from sensory to the perceptual and then — to the apperceptual levels of vision occur unconsciously and are the parts of the whole cognitive action. But in theoretical analysis these levels must be distinguished, — as well as the visual codes serving for the translation and transformation of optical data between them. There are, particularly, the *codes of recognition*, which mediate the processes of visual categorization of recognizable things and as semiotic systems are very different from the perceptual code.

Unlike them the perceptual code mediates the transit from the field of light and colour spots grasped on sensory level to the world of volumetric forms and their spatial relations developing in a perceptive image of visible space. In its system the difference between these two levels of vision reveals as the difference between the *plane of expression* and the *plane of contents*: the first is formed by relations between the parts of visual field with different light and colour qualities, and the second is constructed as a result of their unconscious interpretation on perceptual level as images of some external objects.

2. Perceptography as a communicative version of the perceptual code

This naturally formed perceptual code is converted by human activity in its cultural versions, which can mediate not only the subject-object information connections but also inter-subject communication as well. Cultural modifications of the perceptual code give the possibility of creating and perceiving *depictions* as such artificial means of objects representation and communication between subjects, which stimulate visual perception of things absent in front of the spectator. The elements and structures of natural perceptual code are transformed in creating of depictions as communicative means. They are reflected and exteriorized, taken out and replaced by some visible substitutes. Psychical means of seeing are substituted by some physical elements, which are visible themselves. These visible spots and lines are created as if they were a projection on a plane of heterogeneous structure of colour feelings formed (or as if they were formed) in a visual field of a painter. Unlike volumetric sculpture, painted surface does not directly fix a constant perceptive image of objects independent of the point of view, the lightness, etc., but definite conditions of their appearance and a particular spots configuration in visual field. In a similar way the constant "regular field" forming as a rule a rectangular frame of depiction (see Schapiro 1994) becomes a "projection" of this visual field itself with its stable structure of relations "top-bottom", "left-right", "centre-periphery", etc. (cf. an idea of "organs projection", enveloped in Kapp 1877).

The "picture plane" is interpreted usually not as this projection of internal visual feelings from subject's mind onto an external surface, but as the projection of depicted spatial objects onto a plane (see, in particular Sedgwick 1980: 38–40). However, these objects can be received only because the flat of depiction serves as artificially created optical stimulus of their perception, and reproduces rather their "form of expression" on subject, than a "form of being" (according to Hildebrand's distinction of "Ausdrucksform" and "Daseinsform" — see Hildebrand 1988: 133, 212).

A picture is treated at least since the Renaissance Age (by Alberti, Leonardo, etc.) as a "transparent surface", — not as a wall or a board, but as a window, which is looked through, and even lat. *perspectiva* was translated by Dürer as "seeing through" ("Durchsehen") — (see

Panofsky 1998: 664, 716–717). In a perspective depiction configuration of spots and lines on a pictorial surface functions not as a “distant”, but as a “proximal” stimulus. They perform the function of sensory data that are not independent elements of the depicted picture, like colour feelings in visual field usually are not independent objects drawing attention. Both of them are something looked *through* in the acts of perception of the depicted world, but not something looked *at*. If the look is directed not through but at the pictorial surface itself, the picture “returns” in a row of other things coexisting with it in common space. Thereby, the picture can be perceived both - as a single object of perception and as a means of perception of something else. Therefore the picture on the flat surface is a “paradoxical” object with “double space”: it can be perceived, but can show something other instead of itself; it exists in the real space, but can open for sight another space filled with objects, which are absent in reality in front of the spectator (cf. Gibson 1979: Ch. 15; Gregory 1970: Ch. 2; Hartmann 1953: 98–99). These two spaces are co-related, correspondingly, as plane of expression and plane of contents in the sign constructions, and they are connected with each other even more, then two sides of a paper sheet, from famous comparison of bilateral signs suggested by F. de Saussure: they belong to one the same side only in different ways perceived.

From semiotic point of view a configuration of spots and lines stimulating perception of absent objects can be considered not as a single sign, but as a set of “sense-distinctive” relations forming together a visual-spatial text of particular kind. The word *text* originates from lat. *textus* as well as the word *textile* that allows to see its relationship to texture of a woven Gobelin and even of a painted canvas. However, neither natural texture nor created strokes themselves form the visual text of such type, but the relations of lines and colours, which are connected functionally with the processes of picture perception. Such visual-spatial text functions as a “*perceptogram*”, which, on one hand is an external record of perception or “internal drawing” formed in artist’s mind, and on the other hand, is a program guiding the visual perception of a beholder. Correspondingly, it acts expressively regarding to the creator and impressively in relation to the spectator, and only by this condition it performs also a representative function relating perceptive image each of them to an

external referent (cf. "Organon Modell" of semiotic functions suggested in Bühler 1934: 28).

As a spatial text of a particular type, the perceptogram has a space, which is "divided" into both the *depicting* and *depicted* ones. They form in the perceptographic text, correspondingly, the "plane of expression" constructed by a surface covered with some colour or black-and-white spots, and the "plane of contents", where they are interpreted as a space of depicted objects. This double space of the picture supposes its double vision by "reading" as a text: its plane of expression is accepted on the sensory level of the "visual field", whereas the plane of contents is built on the perceptual level of the "visible world". So the developing of the plane of contents not on conceptual, but on the perceptual level is the other main peculiarity of perceptographic text.

Like any other text, the perceptogram can be replicated as far as its semiotic means are reproducible. These means are heterogeneous and belong to different types. There are certainly some structures in the pictures, which reveal an iconicity regarding to represented objects — rather the iconicity of their quantitative relations (proportionality of linear sets, colour relationships, etc.), than of their "qualities" fixed by words (a "green" grass can be painted without a green paint only by precisely selected set of colour relations — as, especially, Camille Corot and Impressionists have shown). However, the painted surface as well as its meaningful parts cannot be reduced to "iconic signs" of depicted objects and often have few common with them in physical or geometrical qualities. Qualification of a picture as an "iconic sign" is based, as a rule, on the recognition of the depicted objects and on the establishing of their common features. In this case an iconicity of the picture can be not more, than that of the visual scheme used for the categorization of recognizable objects. Peircean concept of iconic sign allows to consider depictions as the means of representation and communication and thereby fix their semiotic functions. But it is not enough for distinction of various ways of depictions and their structural differentiation. If, for example, diverse photos, pictures, sculptures or roentgenograms of the same statesman are in equal way his "iconic signs", this concept does not give much to differentiation of these types of depictions and to explanation of their influence the beholder. Moreover, application of this concept does not explain some specific features of graphic (creating on a flat) depictions. The

picture — treated in the broad sense, as a surface, which is covered with some spots and which shows something other except itself (cf. Gibson 1979: Ch. 15; Gibson 1980: xi), — cannot in principle be limited with such “iconic signs”. Indeed, according to definition, the last represents their denotatum due to similarity or likeness with it, whereas the flat depiction, on the contrary, must be unlike the depicted volumetric object in order to look like it. Particularly, the rules of linear perspective prescribe deviation from geometric identity (congruence) between configuration of lines on the depicting plane and the depicted form of its spatial original. These rules demand, for example, to depict parallel lines as converged in a point, square — as an irregular quadrangle, circle — as an oval, etc. Influence of depictions on subject’s perception becomes in these cases more important than their identity with a depicted object. The approach to the depiction as to an iconic sign does not clear these “deformations”, because they belong to semiotic means of other types. In regard to represented object these means are indexes, which differ from it, but allow subject, who “reads” them as a visual text, to grasp its form and spatial situation, whereas regarding to this subject they are signals stimulating, more or less forced, defined perceptive actions — construction in his mind a perceptive image of the depicted world. Thereby the perceptogram allows to represent something as if it would be presented to a subject, and it is possible due to the ability to create optical conditions of its perception, and to stimulate appearance of its spatial image in the mind of subject, rather than by similarity to something depicted.

Despite the index-signal means of such perceptography are derivative from perceptual code, they can be distinguished as an autonomous group and considered as a special *perceptographic code*. As an external artificial modification of the perceptual code it mediates not intra-subjective processes of cognition, but inter-subjective processes of communication. Its semiotic means differ from the means of the naturally formed and unconsciously used perceptual code, because they are selected as results of reflection of some sensory structures in processes of inter-subjective communication by depictions, and then transmitted in a cultural tradition.

For communication by means of depictions some features of individual images have to be translated into external means understandable for other subjects. Although lines and spots painted on the

flat surface are based on the structure of the naturally formed sensory pattern, their selection is connected with culturally accepted norms and ways of depiction. These norms can prescribe to use, for example, definite "alphabet" of colours and several geometrical figures or more complex schemes as means of visual analysis.

This is the reason of such great difference between the ability of seeing a depicted in a depiction, and the reversal ability to translate percept into a depiction on a plane. The former can be based on natural system of perceptual code and is available in early childhood, whereas the skill of graphic depiction needs mastering of worked out culturally means of perceptography, and it requires long years of learning. It is an education rather of the eye and the mind than of the hand — the development of an ability to analyse visible form and select some linear and colour relations, which direct the formation of definite perceptive image. In other words learning to draw and getting a skill to create depictions is mastering index-signal means of perceptography.

The difference of this mastering between the creator and spectator does not mean that the last preserves a vision independent on any cultural influence. All people obtain in culture some ways of vision and interpretation, but these ways can be determinate by practical purposes and not connected with the depicting activity. However the qualified perception of depictions, created by different means of perceptography, demands to develop an ability to "read" them on the "visual language" used for their creation. But even without mastering the perceptographic code the spectator can as a rule see something depicted on a figurative picture using only "natural" perceptual code and the codes of recognition, whereas the creator of the depiction cannot in principle do without any means of perceptography.

Unlike naturally appeared perceptual code, the semiotic system of perceptographic code depends on definite visual culture much more. The means of perceptography are elaborated in different historical periods, different kinds of art or in various forms of everyday life, and they are coordinated with diverse cultural norms and ways of vision. Thereby diverse cultural versions of perceptographic code appear: in one case the role of main representative means is performed by linear contours, in other cases — by colour spots, etc. It is notable, that Heinrich Wölfflin, introducing the distinction between linear and painting "forms of vision" or "forms of representation"

("Anschauungsformen" or "Darstellungsformen"), spoke about them as about "different languages" affording to express everything by their own means (see Wölfflin 1956: 22). Each of these "forms of vision" can be considered semiotically as a special way of creating and "reading" of visual image determined by the visual culture, particularly — as a special set of perceptographic means, used in this culture for constructing perceptive images of depicted objects.

At the same time dependence of these perceptographic means on culturally determined choice does not turn them into the fully conventional signs (as it was supposed by Goodman 1968). This turning occurs only if the conventional interpretation fully displaces the perceptual one, as it is performed, for example, in ideographic or phonetic writing. But in case of perceptography its means preserve some iconic features and are motivated by possibilities of the natural perceptual code. The visual culture only picks out within its framework some favorable elements and structures and develops by creators and spectators an ability to be limited by these means for building the perceptive image of the depicted object.

3. Specific features of perceptographic code

As a semiotic system the perceptographic code has specific features, which reveal themselves especially in comparison with the verbal language system. So, the *syntax* of perceptograms has the essential structural differences from sign constructions, like verbal texts. If the last ones are built as linearly ordered chains of discrete signs in irreversible succession, in case of perceptography the meaningful space cannot in principle be limited by the one-dimensional order of elements, and is always two-dimensional. Unlike the space of written text, the space of a perceptogram is reversible, because supposes in different dimensions both "direct" and "return" movements of the "reading" look. This space is often also continual as far as it does not demand abrupt jumps between meaningful or sense-distinctive units — in contrast to even continually written letters, which presume separation from each other. Like discreteness of writing, the continuity of the perceptographic text is rather a characteristic of semiotic "form" than of "substance" of its expression plane, because the qualities of physical bearers in both cases are of no importance.

If the discreteness of successive units in verbal language reveals itself in the "principle of alphabet", the continual flowing of sense-distinctive shades of colours or tones corresponds to another principle, which can be called a "principle of palette". Like the palette gives the field for mixing of a number of ready paints, the perceptographic code as a system of optical means gives a possibility to exceed the limits of several standard units but to use the whole three-dimensional and continual "space of colours" with the fluent transits between different nuances of the spectrum as well as between their more or less dark and more or less pure shades. The "principle of palette" is valid also for lineal configurations, which can continually vary in two-dimensional depicting space, preserving the representative function in each of its fragments.

These syntactic features are connected with the specific *semantics* of the perceptographic code. As it was already mentioned, its plane of contents develops on the perceptual level, which permits to construct an image of the three-dimensional and continual space; this continuity of the depicted space motivates the same quality of the depicting plane. The relations between the plane of expression and the plane of contents in the perceptographic code differ from semantic relations in verbal language and similar systems of conventional signs by their non-significative way of representation. Instead of signs "vocabulary" with fixed meanings this code disposes a set of linear and colour indexes of different types, which meaning is not fixed without any context, but is obtained in the system of relations with other indexes. So, a configuration of drawn lines forms a net of connections, which does not signify directly "*what*" is depicted, but shows "*where*" the borders of the depicted figures, their coverings and intersections, etc. are situated, and only the resulting shape can be recognized. In a similar way a pattern of colour spots painted on a flat, arranges a system of contrasts and nuances between dark and light, bright and dim, etc. These relations form a set of indexes of the depicted world and of signals directing movements of the look in perceptive acts.

Comparing such structure of perceptographic code with organization of linguistic systems, it is possible to say, that perceptography has some features not of "lexical", but of "grammatical" type of languages, as they were distinguished by F. de Saussure (see Saussure 1972: 183). In the languages of grammatical type the motivated rules of constructing prevail over a set of conventional signs. The same

regards to the perceptographic code, where, for example, the linear perspective serves as a system of grammatical rules regulating construction of linear relations, but not as a set of lines and outlines with a "ready" meaning, — as well as a set of relations between colour spots in the system of lights and shadows is more important for creating of a perceptive image of the depicted situation, than any of these spots separated from each other. (Structural point of view, according to which the whole system of representative means is more important, than single elements, is valid equally for pictorial representation — as it has been shown theoretically by Gestalt psychologists, and as always was known on the empirical level for artists).

There are also specific *pragmatic* features of perceptographic code, which are connected, first of all, with its intention to activate the perceptual level of viewing subject. The perceptography allows to show objects instead of describing them. In contrast to verbal texts, where the plane of contents is developed only on the levels of notions and conceptions, the "mental address" of perceptographic text is just the perceptual level, treated even in narrower sense, — as an ability to construct images of presented forms without identifying and recognizing them (cf. Rock 1985: 105). "Reading" the perceptographic texts supposes interpreter to have different abilities, than for reading the verbal texts — not an ability of pure imagination, but a capacity to construct a perceptive image in the "plane of contents" of lines and colour spots functioning as the "plane of expression". Due to this ability a spectator can see "behind" the painted plane a space of the depicted world. For him the depicted space of the perceptogram can be more or less "transparent". A degree of this "transparency" depends on many pragmatic factors — on a purpose of depiction, on the individual skills of the beholder, on the cultural tradition to use some definite means of perceptography, etc.

The perceptographic code differs not only from linguistic systems but also from other visual-spatial codes, which control the translation of optical information to other mental levels. Particularly, it differs from codes of recognition, which regulate acts of categorization of perceived objects, for instance, — from the object-functional code regulating interpretation of a visible spatial form as a thing with a definite instrumental function (as a hammer, as a pencil, etc.) or from the proxemic code permitting to categorize spatial relations between some people as "close" or "far", "intimate" or "official", etc. The

codes of this type have features different than perceptual and perceptographic ones do, and due to their structure they are closer to linguistic sign systems. In particular, unlike the perceptographic code, they have a sort of vocabulary — a set of stabile units (visual schemes) used as samples of recognizable forms with invariable meaning, and thereby they are the systems rather of “lexical” than “grammatical” type in the above mentioned sense.

Usage of the perceptographic code provides as a rule conditions for recognition of the depicted objects, as well as — for application of other visual-spatial codes. However the perceptographic code and the codes of recognition are relatively independent from each other. Although the categorization of the visible form can influence the perceptive image, the act of perception (in the narrow sense) is not identical to recognizing of a familiar object and does not need it. The means of perceptography make possible to depict any spatial form independent of its existence, as well as independent of is it recognizable or not. Moreover, even this recognizing does not add any visual details, which can be seen only in the developed perceptive image. On the other hand, as this recognizing is based on the invariant of many of such images, it does not require the development of any of them: the visual categorization of a spatial image is possible even if it is reduced to a simple scheme. For example, a laconic pictogram can be quite a recognizable depiction without forming a detailed picture of object, and at the same time without turning into fully arbitrary sign. So, the pictogram can be considered as a perceptogram, reduced to a minimum set of object's indexes, permitting to use the code of recognition (in contrast to an ideogram, which needs to use this code only for recognizing of itself as a presented sign, but not of any represented object). Something similar one can see also in case of caricature concentrating several recognizable features of person's image without creating a naturalistic portrait.

4. Perceptography as art

It is not surprising, that various versions of the perceptographic code develop to the greatest extent in art sphere. Although this code belongs also to other spheres of culture as well, the visual arts involve it in the systems of their expressive and representational means,

transforming them according to historically changeable norms of its different kinds.

The art at all can be considered as a product of a skilful work with means of some verbal or non-verbal codes, which are used outside of the art sphere too. These codes are not created, but arranged and rearranged in art, which becomes a "laboratory", where the semiotic systems transform and develop most intensively. Diverse kinds of art distinguish between each other with those semiotic systems, which they cultivate, and with the artistic tasks which they put.

In particular, a mastering of different possibilities of perceptographic code is a basis of development of figurative painting and drawing. However, like not all of the said belong to art of word and not all written texts are works of calligraphy, not all of the artificially created depictions are pieces of perceptography as an art. A visual text worked out by means of the perceptographic code gets the quality of art of depiction only if these means and skill of their usage become a subject for special artistic evaluation and satisfies the criteria worked out in an artistic culture.

The *art of depiction* is not identical to figurative art in general, which uses diverse visual codes. Different kinds of figurative arts — painting, drawing or relief — can be considered as arts of depiction as far as they are just the skilful usage and development of various modifications of the perceptographic code. Each of these arts develops its own versions of perceptography for creating the artificial stimuli of perception of objects which are not presented actually. So the painting elaborates a complex of index means for representation of a deep space as, for example, "chiaroscuro" or "aerial perspective". An art of relief uses some perceptographic indices, especially perspective contractions, for volumetric representations (as, for example, in relief of east doors of Baptistery in Florence by L. Ghiberty). A pictorial effect with means of perceptive code can be made even in architecture as for example, it is in the famous "Scala regia" in Vatican, where its creator L. Bernini added to the natural perspective shortening of columns the artificial lessening of distances between them.

The diverse means of perceptography differ also the various ways of depictions in frame one and the same kind of art. In particular, the lineal drawing (for example Villard d'Honnecourd's designs) confines itself only to outlines, representing some borders between forms, and eliminates their tonal and colour "filling". The means of the black-

and-white graphics (for instance, by Aubrey Beardsley) includes the differences between two polar types of spots, whereas the tonal graphics (as, for example, Rembrandt's engravings) adds more gradations between the dark and the light. The painting obviously uses also the colour diversity and does it in different manner, proceeding from flat "polychromic" to volumetric "colouristic" depictions in various styles and trends.

The treatment to the perceptographic code is of a special stylistic importance for the applied arts, which, on one hand, as a rule hold a task to decorate a surface of useful objects, and, on the other hand, sometimes approaches to the decoration as to a figurative picture. So the difference between two spaces — the depicting and the depicted ones can be in the applied arts more or less strong — from maximum coincidence, for example, in case of flat silhouettes of figures on the surface in classical Greek vase painting, to maximum conflict between them, for example, in the Baroque Age, which was ready "to repeat" the Rafael's or Rubens' pictures on a flat surface of carpet or even to build a depiction of deep and concave space on a convex surface of pottery and porcelain wares. It is a peculiarity of the post-Renaissance artistic and general visual culture — to prefer even in applied and decorative art to look "through" the depicting surface, rather than to look directly at this surface itself.

From this point of view historical development of the arts of depiction, both fine and applied ones, can be treated as diachronic modifications of the perceptographic code: on one hand, — as extension of its means by using new "visual discoveries" (in terms of Gombrich 1960: Ch. IX), and, on the other hand, as more strict their selection. One can find the first step to artificial stimulation of perception in appearance of contours as the means of depictions using in communicative acts already in Palaeolithic Period. The next steps in this direction had permit to depict some spatial relations between the figures due to their coverings and crossings (as in painting of ancient Egypt) or due to representation of depth-relations per height-relations (as in painting of Fern East). There is also the lineal perspective (opened in antiquity and developed by artists of Renaissance) in the same row of "visual discoveries". One can see, how the dominating elements of the perceptographic code have changed from lineal to tonal and colour ones: the "graphic" outlines of depicted figures (in ancient and medieval painting) were changed by depictions of

"sculptural" volumes due to using of light and shadow (in painting of the Renaissance), then — by "architectural" constructions of complex built space by means of linear and aerial perspective (especially, in the Baroque paintings) and again — by painted "dissolution" of depicted forms and their local colours in a vague milieu of many divided chromatic elements (in the paintings of Impressionists).

The art of perceptography develops not only as a skill to create perceptive images of absent objects, but also as a skill to direct the process of perceiving. An artist constructs the relations of lines and colours in a depicting space in such way, that they visually unify something one and separate something other, singling out more important details and taking away secondary ones, etc. Skilful usage of perceptographic means by an artist can at first attract viewer's attention to one part of a picture, lead his look in a definite direction, at the same time "hiding" some other details of the picture till the next stage of the process of perception. So, for example, the elders from Tintoretto's "Susanna and the Elders" (Kunsthistorisches Museum, Vienna) are hidden in the bushes not only from Susanna, but also, till definite moment, from viewer's look. This skill to lead a look in a definite succession can be considered semiotically as the know-how to arrange the visual signals controlling the process of looking into the picture.

Mastering the means of the perceptographic code leads to historical changes of "forms of vision" and relations between the perceptographic and other visual-spatial codes. For example the perceptographic code in icon painting had to perform rather secondary function and was of less importance for Medieval visual culture, than, let us say, iconographic code, which connects the perceived and recognized figures with some verbal interpretations, first of all from the Sacred Book. However the later cultural transformations and secularization of the European culture were revealed in the sphere of visual culture particularly through the change of relations between the perceptographic and iconographic codes. The Renaissance, Baroque and Impressionists' paintings can be considered as the successive stages of increasing role of the perceptographic code in visual culture and its releasing from the subordination to the iconographic and other codes.

The perceptographic code was interesting for diverse epochs with its different possibilities. If mastering its means for the Renaissance

and Baroque artists was connected with the skill to make a depicting surface "hidden" from a spectator and "transparent" for the depicted world, the artists of the later epochs gave up the attempts to create an illusion of its absence, but, on the contrary, drew attention to the depicting plane. Particularly, in Impressionists' and Post-impressionists' paintings it became less "transparent", delaying a "transit" of the look into a depicted space and attracting the sight to lineal and colour elements on the surface. In the Cubists' paintings composition of these elements on the depicting plane becomes more important than the depicted objects. The Abstract art performs the next step: the lines and colour spots on the surface are independent of the function creating perceptive image of the depicted space. Thereby the perceptographic code turns out beyond the artistic attention, making way for the synesthetic, architectonic and other visual codes, which do not need to use perceptography. In the same time this change has eliminate from painting a complex of spatial codes, usage of which depends on creating depictions: body-language, mimic, proxemic, object-functional, social-symbolic, etc.

5. Perceptography and external optical means

Transformations of the perceptographic code in culture are connected with the changes of the external technical means used for creation, transmission and reception of visual images of space. Each of them transmits and transforms these images in its own way and introduces a possibility of some new "forms of vision" in visual culture.

In particular, usage of lineal contours for representation of depicted objects indeed depends on possibilities, which the culture gives (as it was suggested by Eco 1976: 194). However the cultural "graphic conventions" do not create absolutely arbitrary signs, but representative means motivated by the ability to abstract and to exteriorize the borders between different patches in a visual field. This ability and corresponding "conventions" are connected with the development of ways of drawing and engraving of lines on a surface, which were known in culture since the Upper Palaeolithic Period. The development of the "architecture with regular courses of jointed masonry", as it was mentioned by Meyer Schapiro, prepared the appearance of the "regular field" of depiction (Schapiro 1994: 3). Modifications of

"graphic forms of vision" can be correlated with such technical inventions as fresco, mosaic, encaustic, glaze, etching, etc. Invention of the oil paints and the change of palette function (as a tool not only for a rubbing but also for mixing paints) promoted a development of the "painting way of vision" and created conditions for the establishment of the "principle of palette" for the perceptographic code of the New-European painting.

In a row of technical means elaborated in culture for operating optical processes, a painted picture can be understood as an instrument, comparable with such technical inventions as mirrors, stained-glass or transparent windows, lenses, etc. Each of these technical means together with its possibilities of optical transformation gives opportunities of some own ways of vision. If, for instance, the medieval stained-glass windows permitted to show the depicted figures as immaterial ideas "floating" in the rays of light, the transparent windows, on the contrary, help to see an earthly "picture" behind their frame. The development of transparent windows since the Renaissance Age, as well as of glass mirrors (often having a form of windows) made a contribution to construction of linear perspective. Besides, a mirror allows the subject to see himself as an external object, and spreading of glass mirrors was a condition for the development of self-portrait paintings and for reflections over the relations between the painter and the model ("The Arnolfini Marriage" by Jan Van Eyck, "Las Meninas" by Velazquez, etc.). In a similar way the production of lenses and "magnifying glasses" influenced the wish to peer into small details, and it is notable, that Leeuwenhoek's discoveries coincide with the "golden age" of still-life in Dutch paintings, where the optical instruments were used for creating the naturalistic illusion.

When photography, based on combining of lenses and light-sensitive materials, was developed, the ways of vision changed again. These technical means of optical representation changed a valuation of traditional means of depiction. The "depressing perfection" (as E. Delacroix said) of mechanical means of depiction deprived former ways of the artificial stimulating of perception its high cultural status and removed them from centre to periphery of art culture. The new means of depiction change ways of representation of space and time in the picture. Instead of the relatively complete and closed model of the world, which was created in classic picture and, especially, in

medieval icon painting, photography due to its technology has to fix only single fragments of the spatial world. It does not "collect" the features of different things in one image — as painting do, but takes only something partial, concrete and individual. Therefore, it reproduces the space of the world not metaphorically, but metonymically. The change in the ways of vision after developing of photography influenced the painting itself, which began purposely "cut" a depicted space and represent it as a fragment of space exceeding the frames of a picture (for example, in Degas' paintings).

Cinematography extends this depicted space even more, "linking" many photograms in time and synthesizing its single fragments in discrete or continual rows. Thereby a new "cinematographic" way of vision was developed and influenced new forms of perceptography in paintings. Painters began looking for the means of division of spatial movement into single stages and their "summarizing" in a united picture (especially this way of vision was developed by Futurists).

As a continuation of the row of technical means creating depictions like photography and cinematography a "computerography" can also be considered. It allows to combine depicted spaces of different kinds, to join and to separate them, change their metric and topologic properties, etc. Despite each of these technical opportunities are known long ago to artists separately, their combination by computer gives more freedom for visual thinking.

However, the "photograms" differ from "chirograms" (in Gibson's terms) not only regarding to hand-created, but also to "mind-created" product of artist. They are not "perceptograms" in full sense, because they do not exteriorise a perceptive image of any subject more, but remake only optical conditions of its receiving. A "mechanical" reproduction of such conditions permits the spectator to master only the means of the natural (as far as it is possible for culturally educated mind) perceptual code, and not to develop special skills of perceptograms "reading". Nevertheless an artistic application of perceptography in these "photograms" is possible in case the picture is specially constructed as if it was made by the hand and mind of an artist — as, for example, in case of Sergey Eisenstein, who drew the single frames of his future films as artistically ordered pictures.

So, the connection between the external optical technique and the "internal implements" mediating the "technique of vision" in the perceptographic and other visual codes is obvious. Both of them

develop according to their own "logic" and are also determined by the conditions of the visual culture. If the last is not ready yet to accept some visual ideas, only technical possibilities for their realization are not enough. For example, despite the mosaic technique gives possibility for optical mixing of colours and for the "alphabetic" principle of their arrangement, only Pointilists, based on the "irrelevant" technique of oil paintings, treated to these means as to the subject of special artistic elaboration.

6. Some methodological remarks

Semiotics of visual-spatial codes and especially semiotics of perceptography is a sphere, where an application of traditional semiotic conceptions comes across with a "resistance" of the researched material. It is not surprising, because the main versions of semiotics are based on generalizations of verbal and derived from them sign systems — in the spheres of logic (Peirce and others) or linguistics (Saussure and followers). Both of them deal with higher levels of mental activity operating more or less abstract conceptions and generalized ideas. Despite the visual-spatial means of representation afford to express such conceptual meanings as well, much of them are formed on lower levels of mind. It is true for the synesthetic codes, mediating connections between feelings of diverse modalities on the sensory level, particularly — for the architectonic code, regulating relations between visual images and kinaesthetic feelings of mechanical forces, of weight relations, of balance, etc. It is true also for the perceptual and derivative perceptographic codes, which plane of contents is developed on the perceptual level. The codes mediating connections on these levels belong themselves to the index-signal type of information processes and are not sign-codes, if the concept of "sign" is accepted in enough narrow sense (see Tchertov 1999). These "non-sign" means of communication can remain nevertheless in the sphere of semiotic, if the last is not limited by linguistic or logic projects and is extended to all code means of information generating in culture or in nature as well. Such broad treatment of "semiosphere" allows not only to include natural index-signal systems in the frame of semiotics, but also to consider in these frame some transformations, which are occurred with many of these codes in culture.

The codes generating in the nature and transforming in a visual culture are a common subject matter, particularly, for psychology of human, where from time of G. Berkeley develops an idea of "visual language". The great interest to semiotics of visual-spatial means has also aesthetics, which by its separation in Baumgarten's work has already provided "Semiotica" as its necessary part (Baumgarten 1750: § 13), and which is, following Croce, an "universal science of expression". One can find many of "protosemiotic" ideas in art theory, which from L. Alberti till E. Gombrich researches the means of visual representation. It is naturally therefore that researches into sphere of art or into psychology of visual perception are included in context of the pictorial semiotics (as, particularly, in Sonesson 1992; 1995). In the same time it is also true, that semiotics of the visual-spatial codes in general, and semiotics of perceptography, specifically, is not identical to conceptions of psychologists, aesthetists or art theorists. Their fruitful ideas can be developed and get more exact explication within domain of these branches of semiotics. However it is possible only under the condition, that a pertinent set of concepts will be elaborated in the sphere of visual semiotics itself. The presented paper is an attempt to do some steps in this direction.

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Перцептографический код в визуальной культуре

Визуальная культура может рассматриваться с семиотической точки зрения как система визуальных кодов. Некоторые из них имеют еще естественные корни. Так, перцептивный код формируется уже на биологическом уровне, опосредуя превращение сенсорных данных в перцептивные образы пространственного мира. Средства естествен-

ного перцептивного кода трансформируются в культуре, включаясь в процессы коммуникации с помощью изображений. Изображение на плоскости может рассматриваться как “перцептограмма”, которая представляет собой, с одной стороны, внешнюю запись какого-то внутреннего перцептивного образа или представления, а, с другой стороны, — программу, в соответствии с которой строится визуальное восприятие зрителя. Средства такой перцептографии образуют уже некий искусственный код, который, в отличие от естественного перцептуального кода, оказывается коммуникативным, произвольно используемым и изменяющимся различным образом в разные периоды времени, в разных видах практической и художественной деятельности. Не всякая перцептограмма становится произведением искусства, однако вся история искусств может быть рассмотрена как процесс овладения этими средствами и их развития. Этот процесс зависит как от внутреннего изменения “форм видения”, так и от создания новых внешних средств коммуникации.

Pertseptograafiline kood visuaalkultuuris

Visuaalkultuuri võib semiootiliselt vaatepunktilt vaadelda kui visuaalsete koodide süsteemi. Mõned neist lähtuvad veel loodusmaailmast. Nii näiteks formeerub pertseptiivne kood juba bioloogilisel tasandil, vahendades sensoorsete andmete muutumist ruumilise maailma pertseptiivseteks kujunditeks. Loomuliku pertseptiivse koodi vahendid transformeeruvad kultuuris, lülitudes kommunikatsiooniprotsessidesse kujutiste abil. Kahemõõtmelist kujutist võib vaadelda kui “pertseptogrammi”, mis kujutab endast, ühelt poolt, mingi sisemise pertseptiivse kujundi või ettekujutuse ülestähendust, teisalt — programmi, millele vastavalt ehitatakse üles vaataja visuaalne vastuvõtt. Taolise pertseptograafia vahendid moodustavad juba teatud kunstliku koodi, mis, erinevalt loomulikust pertseptiivsest koodist, osutub kommunikatiivseks, mida vabalt kasutatakse ja muudetakse erinevatel aegadel, erinevates praktilise ja kunstilise tegevuse sfäärides. Mitte iga pertseptogramm ei saa kunstiteoseks, kuid kogu kunstiajalugu võib vaadelda kui nende vahendite omandamist ja arendamist. See protsess sõltub nii “nägemise vormide” sisemisest arengust kui ka uute väliste kommunikatsioonivahendite loomisest.

Semiosphere and/as the research object of semiotics of culture

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Abstract. Since 1984 when J. Lotman's article "On semiosphere" was published, this concept has been moving from one terminological field to another. In the disciplinary terminological field of the Tartu–Moscow School semiotics of culture, 'semiosphere' is connected with terms 'language — secondary modelling system — text — culture'. From interdisciplinary terminological fields, the associations either with biosphere and noosphere, or with logosphere, are more important. As a metadisciplinary concept, semiosphere belongs to the methodology of culture studies and is associated with the concepts of holism and the part and the whole. In this context, semiosphere marks the complementarity of disciplines studying culture, the movement towards the creation of general culture studies and "understanding methodology". On the background of the contemporary trends of science it has to be remembered that semiosphere is simultaneously an object- and a meta-concept. The dynamism of culture as a research object forces science to search for new description languages but the new description languages in turn influence the cultural dynamics as they offer new possibilities for self-description. Often, however, from a historical perspective, a new description language is nothing but a methodological translation. Thus also the term semiosphere joins together several concepts that are related to semiotics of culture and that have gained new relevance on the background of the culture's developmental dynamics. The concept of semiosphere brings semiotics of culture again into contact with its history, as it also brings applicational cultural analysis into contact with the history of culture and with the newest phenomena in culture. These contacts determine the place of the semiotics of culture among the sciences studying culture.¹

¹ The article is based on the presentation at the *First International Meeting for the Study of the Semiosphere*, organized by Irene Machado and her colleagues in São Paulo, Brazil, August 22–27, 2005.

Disciplinary logic demands that culture be declared the research object of semiotics of culture. But only a few years ago, in the epilogue to his study "The outlines of the prehistory and history of semiotics", Vyatcheslav Vs. Ivanov, one of the founders of semiotics of culture and of the Tartu–Moscow School of Semiotics, wrote:

The task of semiotics is to describe the semiosphere without which the noosphere is inconceivable. Semiotics has to help us in orienting in history. The joint effort of all those who have been active in this science or the whole cycle of sciences must contribute to the ultimate future establishment of semiotics. (Ivanov 1998: 792)

Ivanov's statement relies already clearly on interdisciplinary logic as the term "semiosphere" is here placed between biosphere and noosphere. It follows from this logic that the description of semiosphere by semiotics helps us to orient in history. But the term "history" is a very complicated concept for the scientists of the Tartu–Moscow School.

In the context of semiosphere, the interest of Juri Lotman as a literary and cultural historian in unmaterialized possibilities of historical choices is important. He had an extraordinary interest in imagining the consequences to which a different choice of development strategies could have led during pivotal moments, in the situation of cultural explosion. He speaks about this in his last book *Culture and Explosion* (published in 1992). At the request of Spanish colleagues, I had a discussion with Juri Lotman in the same year as this book was published. I will quote a passage from Lotman's talk:

The fate of people, history, accomplishments of science is unpredictable. [...] A chance, an accident is not really so accidental, I would say. A chance is so diffused, leaves such a wide range of choices that many things can find their place in there. But chance is not predictable. I think that if, among new ideas, there is something that we have now in reality, one of them — and I think the most important of them — is the idea of historical, scientific, and of yet some other kind of unpredictability. Unpredictability as the object of science. By the way, unpredictability [...] whose mechanism is one of the most important objects of science, introduces into science in a totally new manner the component of art. [...] Art has always been oriented towards unpredictability. To my mind, at the moment something most interesting is happening: it is as if science is becoming aesthetized. [...] Art is a totally different way of thinking, a different system of modelling the world. Essentially it is the creation of a different world, a parallel world to our world. It is thought that

we can live in a world that is based on the model of science, or that we can live in a world that is based on the model of art. In fact, however, we live in a world that is based on the conflictual unity of these two models. From here follow also the different levels of predictability and different meanings of unpredictability. (Lotman, in Torop 2000: 13–14)

The logic of this argument is close to our contemporary trans-disciplinary thinking. But at the end of discussion Lotman presented a rhetorical question:

What in fact is this enormous amount of people who now live on this planet and will maybe live here also in the future? Is it a conglomeration of individuals who live only in order to take over from each other territory and the right to live? Or is this conglomeration of individuals one method of description and each individual by himself or herself another method of description? Thus no method of description rules out another method of description. It is as if in their reciprocal tension they create a third viewpoint. (Lotman, in Torop 2000: 14–15)

The formulation of this third viewpoint would in fact mean that semiotics is given the status of metadiscipline.

Since the year 1984 when J. Lotman's article "On semiosphere" was published, this concept has been moving from one terminological field to another. In the disciplinary terminological field of the Tartu-Moscow School semiotics of culture, "semiosphere" is connected with terms "language — secondary modelling system — text — culture". From interdisciplinary terminological fields, the association, on the one hand, with biosphere and noosphere, and on the other hand, with logosphere, is perhaps more important. As a metadisciplinary concept, semiosphere belongs to the methodology of culture studies and is associated with the concepts of holism and the part and the whole. And as a transdisciplinary concept, "semiosphere" is very close to the concept of symbol in symbolism: symbol as an indefinable term is suitable for conveying the cognition of the incognizable, and at the same time symbol can have an enormous semantic volume as a reduced myth. In this context, semiosphere marks the complementarity of disciplines studying culture, the movement towards the creation of general culture studies and "understanding methodology".

For example, when we observe the scholarly reception of the concept of semiosphere, we can notice the emergence of some dominants. The first dominant is related to semiosphere as a universal

research level. For instance, Irene Portis-Winner in her last book remarks that Lotman's concept of semiosphere creates a perspective of holistic analysis: "Lotman's concept of the semiosphere subsumes all aspects of the semiotics of culture, all the heterogeneous semiotic systems or "languages" that are constantly changing and that in an abstract sense, have some unifying qualities" (Portis-Winner 2002: 63; cf. also Portis-Winner 1999). Edna Andrews, again, argues that the concept of semiosphere is helpful in better understanding semiosis: "Lotman's extensive work on the semiosphere and the semiotics of communication provide some invaluable concepts and categories that offer insights into the structural principles of semiosis" (Andrews 1999: 8). And in Neil Cornwell's opinion, the quality of the semiosphere to bind diachrony and synchrony, organize memory, transform systems turns it into a very functional mechanism that has been connected even with the Jungian term of collective unconscious (Cornwell 1992: 166).

From collective unconscious it is convenient to proceed to the next dominant, dynamism. Bogusław Żyłko stresses, from the perspective of Lotman's evolution, that the concept of semiosphere signifies transfer from static to dynamic analysis, and the basis of this transfer is understanding the relationship between holism and heterogeneity:

The shift, from the conception of culture as a bundle of primary and secondary modelling systems to the notion of semiosphere, is also a shift from static to dynamic thinking. If we took the former approach, culture would resemble a motionless unit made up of semiotic systems; whereas if we follow the semiospheric approach, culture takes the shape of a heterogeneous whole bustling with multiple rhythms of development and transient dominants. (Żyłko 2001: 400)

Dynamism is stressed also by Floyd Merrell in his comparison of Peirce and Lotman and treatment of biosemiosphere: "Cultures are processes, never products [...]" (Merrell 2001: 400).

I brought out these two dominants in the reception of semiosphere in order to emphasize one of Lotman's methodological principles, on which also his own treatment of semiosphere is based. This is the principle of dialogism. Usually the term "dialogue" is associated with the name of Mikhail Bakhtin, and Lotman's treatment certainly has its connections to Bakhtin's approach. The treatise published under the

name of Valentin Voloshinov *Marxism and the Philosophy of Language* suggests that

any element of an utterance that forwards a thought and is being foregrounded, or even a full utterance is translated by us into corresponding context that is different and active. Any understanding is dialogic. Understanding is contrasted to utterance as a speaker's words are contrasted to those of another speaker in a dialogue. Understanding is looking for a counterword to the word of a speaker. Only understanding of a foreign word seeks for "a similar" word in the native language. (Bakhtin 2000: 436)

Several scholarly works have been dedicated to the comparison of M. Bakhtin's and J. Lotman's dialogisms (Shukman, Lachmann, Danow, Bonafin), but the simultaneity of the dual understanding has not been stressed much. In essence, this is a situation in which understanding is a process that on the one hand creates differences (word and the counterword), and, on the other hand, similarities (word and its translation). And if the dialogism of understanding is borne in mind, we can in principle talk about two types of dialogue (cf. also Torop 2002: 599–602).

Furthermore, in Lotman's opinion, in order to understand dialogue, it is not enough to understand the language that is used in the dialogue. In his article "On Semiosphere" he wrote:

Consciousness is impossible without communication. In this sense it can be said that dialogue precedes language and generates the language. The idea of semiosphere is based exactly on this: the ensemble of semiotic formations precedes (not heuristically, but functionally) a single isolated language and is a precondition for its existence. Without semiosphere a language not only does not work, but does not even exist. (Lotman 1984: 16)

In the next stage of discussion on semiosphere, in his book "Universe of the Mind" published in 1990, Lotman emphasized that the dialogic situation has to be understood before dialogue: "...the need for dialogue, the dialogic situation, precedes both real dialogue and even the existence of a language in which to conduct it: the semiotic situation precedes the instruments of semiosis" (Lotman 1990: 143–144). Thus dialogue becomes not only a term closely related to semiosphere, but it becomes one of its ontological characteristics. The concept of dialogical model of culture appeared in Lotman's works in

1983 and the discussion on semiosphere develops this model first of all on the level of dynamics between the part and the whole:

Since all the levels of the semiosphere — ranging from a human individual or an individual text to global semiotic unities — are all like semiospheres inserted into each other, then each and one of them is both a participant in the dialogue (a part of the semiosphere) as well as the space of the dialogue (an entire semiosphere). (Lotman 1984: 22)

The understanding of dialogue as an ontological characteristic of semiosphere in turn means that the outer and inner borders of semiosphere are seen as bilingual. Borders separate and thus create identities, but borders also connect and construe these identities by juxtaposing the own and the alien. Therefore for Lotman the most important feature of the borders of semiosphere is their role as translation mechanisms. But also human consciousness is related to the same mechanisms since in determining one's identity, a person needs first to describe it to himself or herself. Translation mechanisms form the basis also for this thinking activity. And thus Lotman reaches the conclusion "that the elementary act of thinking is translation" and "the elementary mechanism of translation is dialogue" (Lotman 1990: 143).

The dialogism of semiosphere lends the concept of semiosphere also an important dimension pertaining to the history of science. In 1992 Lotman wrote in the foreword of *Sign Systems Studies* vol. 25 that was the last appearing in his lifetime:

During the past decades semiotics has changed. One achievement on its hard path was unification with history. The cognition of history became semiotic, but semiotic thinking obtained historic traits. [...] Semiotic approach tries to avoid the conditional stopping of the historical process. (Lotman 1992: 3)

Lotman also concludes that "each generation has a language for describing yesterday and principally lacks a language for tomorrow" (Lotman 1992: 4).

Speaking about semiosphere on the background of the contemporary trends of science it has to be remembered that semiosphere is simultaneously an object- and a meta-concept. Semiosphere is what is being studied in or as culture, and semiosphere is the means that is used in studying culture. A phrase *semiosphere is studied by means of*

semiosphere is not a paradox but points to the dialogue between the research object and its description language. The dynamism of culture as a research object forces science to search for new description languages but the new description languages in turn influence the cultural dynamics as they offer new possibilities for self-description. Often, however, from a historical perspective, a new description language is nothing but a methodological translation. Thus also the term *semiosphere* joins together several concepts that are related to semiotics of culture and that have gained new relevance on the background of the culture's developmental dynamics.

The first who deserves rereading is one of the leading figures of Russian Formalism Yuriy Tynianov. In his article "Literary fact" of 1924 he wrote: "Literary fact is heterogeneous, and in this sense literature is an incessantly evolving order" (Tynianov 1977: 270). The question of literary order or system is for Tynianov inseparable from the question of function:

A literary system is first of all a *system of the functions of the literary order which are in continual interrelationship with other orders*. Systems change in their composition, but the differentiation of human activities remains. The evolution of literature, as of any other cultural system, does not coincide either in tempo or in character with the systems with which it is interrelated. This is owing to the specificity of the material with which it is concerned. The evolution of the structural function occurs rapidly; the evolution of the literary function occurs over epochs; and the evolution of the functions of a whole literary system in relation to neighbouring systems occurs over centuries. (Tynianov 1977: 277)

In Tynianov's system, we can observe the relatedness of literary order to other orders — with the order of everyday life, the order of culture, social order. Everyday life is correlated with literary order in its verbal aspect, and thus, literature has a *verbal function* in relation to everyday life. An author's attitude towards the elements of his text expresses *structural function*, and the same text as a literary work has *literary function* in its relations to the literary order. The return influence of literature on everyday life, again, expresses *social function*. The study of literary evolution presupposes the investigation of connections first of all between the closest neighbouring orders or systems, and the logical path leads from the structural to the literary function, from the literary to the verbal function. This follows from the position that "evolution is the change in interrelationships between the elements of

a system — between functions and formal elements” (Tynianov 1977: 281; cf. also Torop 1995–1996; 2003: 328–330).

The next author belonging to the history of semiosphere is Roman Jakobson who in his article “Metalanguage as a linguistic problem” published in 1956 wrote: “Language must be investigated in all the variety of its functions” (Jakobson 1985: 113). With regard to the six factors of his communication model and their functions he wrote: “The diversity lies not in a monopoly of some one of these several functions but in their different hierarchical order” (Jakobson 1985: 113).

With regard to the rapid development of the culture’s technological environment, I suggest that the hierarchical principle is the basis for Jakobson’s approach both to translation as well as perception processes. His interlinguistic, intralinguistic and intersemiotic types of translation can be regarded individually but also as an inner dynamic hierarchy of a single translation process and, partly, of any communication process. The situation is the same when R. Jakobson stresses the semiotic value of all five senses in the human society: “All five external senses carry semiotic functions in human society” (Jakobson 1971: 701). Foreseeing the increase in the varieties of textual ontologies and problems of understanding, R. Jakobson stresses the importance of distinguishing between homogeneous messages, i.e. those based on a single sign system, and syncretic messages, i.e. those based on the combination of several sign systems: “The study of communication must distinguish between homogeneous messages which use a single semiotic system and syncretic messages based on a combination or merger of different sign patterns” (Jakobson 1971: 705).

Another semiospheric scientist is Mikhail Bakhtin of whose works I would like to mention in the present context the theory of chronotope even though this work was left unfinished. Nevertheless, it is still possible to reconstruct Bakhtin’s general understanding of a literary work as a chronotopical hierarchy (Bakhtin 1979: 338). On the horizontal plane this refers to the levels of topographic chronotope or homophony, psychological chronotope or polyphony, and metaphysical chronotope or heterophony. But on all these levels we can also speak of the binarity of the own and the alien (cf. Torop 1997), which is the basis for the so-called small chronotopes, such as road, bridge, stairs, and so forth. In Bakhtin’s view, without understanding

chronotopicality, it is impossible to understand artistic worlds (Bakhtin 1975: 406).

Thus there are three research strategies in front of us, which prepare the ground for the emergence of the concept of semiosphere: Tynianov and the hierarchical treatment of the evolutionary process, Jakobson and the hierarchical treatment of communication process, and Bakhtin and the treatment of text as a chronotopical hierarchy.

Theses on the Semiotic Study of Cultures [1973], the programmatic work of the Tartu–Moscow School, defines semiotics of culture as a science investigating the functional correlation of different sign systems. This approach entails also the recognition of the hierarchy of sign systems:

In defining culture as a certain secondary language, we introduce the concept of a “culture text”, a text in this secondary language. So long as some natural language is a part of the language of culture, there arises the question of the relationship between the text in the natural language and the verbal text of culture. (*Theses* 1998: 43)

We could add here another aspect related to the logic of possible worlds: “The place of the text in the textual space is defined as the sum total of potential texts” (*Theses* 1998: 45).

Until then, when speaking of text, Lotman had emphasized the importance of the beginning and the end, or the frame. Therefore for him, text was a delimited whole and the possibility of delimiting, either natural or artificial, made it possible to speak about levels of material, the coherence and hierarchy of levels. When the material was not natural language but film language, he tried to describe the system of distinctive features and to analyse the text on the basis of markedness–unmarkedness. A fundamental turn took place in 1981. In his article “Cultural Semiotics and the Notion of Text” Lotman replaces the notion of deciphering or decoding the text with the term of communication and creates, by describing circulation of texts in culture and relations between the text and the reader, a typology of different, although complementary processes: (1) communication of the addresser and the addressee, (2) communication between the audience and cultural tradition, (3) communication of the reader with him/ herself, (4) communication of the reader with the text, (5) communication between the text and cultural tradition (Lotman 2002: 88). The usage of the term communication in textual analysis meant,

in fact, a semiospherical turn already before the concept was born. The same way as it is possible to understand texts in various ways, it is also possible to analyse this understanding in several ways.

When Lotman's approach to text became parametric, combining different possibilities of analysis, there emerged a need for a unity of a higher order that would join together the individual and the general, the part and the whole, description and self-description. The juxtaposition, in textual analysis, of a delimited whole and a communicating whole created the wish to keep system and process apart, similarly to what L. Hjeltslev did. In 1978 Lotman wrote an article "The phenomenon of culture" where he created a typology distinguishing between statics and dynamics. The basis for the typology is the distinction of the static and dynamic aspects of cultural languages. From the *static* aspect cultural languages divide into the discrete and the continual (iconic-spatial), and for Juri Lotman this forms the semiotic primordial dualism. In discrete languages sign comes first and meanings are created through the meanings of signs. In continual languages text comes first and meaning emerges through holistic text that integrates even the most heterogeneous elements. These are the two languages between which it is difficult to create translatability.

In *dynamism* the simultaneity of the two processes in culture is important. On the one hand, in different fields of culture, specialisation of cultural languages takes place as a result of autocommunication and identity searches. On the other hand, on the level of culture as a whole there emerges integration of cultural languages as a possibility of self-communication and self-understanding. Yet the dynamism of integration is revealed in the simultaneity of the two processes. On the one hand, self-descriptions and alongside with them also meta-descriptions or descriptions from the position of culture as a whole are being created in different parts of culture. This is integration through autonomies. On the other hand, cultural languages diffuse and become creolised due to the communication between different parts of culture. Creolisation is a feature of dynamism and an intermediary stage at reaching a new autonomy or pure (self)description.

As a result of descriptive processes this allows us to talk about cultural self-models. Cultural self-description as a process can be viewed as proceeding in three directions. Culture's self-model is the result of the first, and its goal is maximum similarity to the actually existing culture. As a second result there emerge cultural self-models

that differ from ordinary cultural practice and have been designed for changing that practice. Thirdly, there are also self-models that exist as an ideal cultural self-consciousness separately from culture and are not oriented toward it (Lotman 2000: 568–580). By this Lotman does not exclude conflict between culture and its self-models. But the creation of self-models reflects the creativity of culture. In 1980s Juri Lotman described creativity, relying on Ilya Prigogine. The article “Culture as a subject and object for itself” maintains that:

The main question of semiotics of culture is the problem of meaning generation. What we shall call meaning generation is the ability both of culture as a whole and of its parts to put out, in the “output”, nontrivial new texts. New texts are the texts that emerge as results of irreversible processes (in Ilya Prigogine’s sense), i.e. texts that are unpredictable to a certain degree. (Lotman 2000: 640)

Semiosphere is a concept that allows semiotics of culture to reach a new understanding of holism, a holistic analysis of dynamic processes. In semiotics of culture, the term semiosphere converges all that which recently in sciences studying culture converges into semiotics — a wish for finding a description language that could be translated into and that could unify different disciplinary and interdisciplinary languages. In elaborating general principles of cultural analysis in the interests of an understanding methodology, science needs to search for possibilities to interpret as diverse and nontrivial cultural phenomena and texts as possible and to promote cultural self-descriptions. At the same time, from the historical perspective, the metalinguistic and conceptual heterogeneity of our contemporary science is much more homogeneous.

Therefore, in conclusion it has to be said that the concept of semiosphere brings semiotics of culture again into contact with its history, as it also brings applicational cultural analysis into contact with the history of culture and with the newest phenomena in culture. The science of signs comes into contact with the art of signs. These contacts determine the place of the semiotics of culture among the sciences studying culture. And it is not paradoxical that semiosphere studies semiosphere and culture studies culture. This is so because all this takes place within one single semiosphere of human culture and each attempt to describe culture from any scientific position proves,

on a different level, to be a self-description of culture. By creating treatments of culture, we also can be part of culture's creativity.²

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² The support of Estonian SF grant no. 5313 is acknowledged.

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Семиосфера и/как объект исследования семиотики культуры

С 1984 года, когда была напечатана статья Ю. М. Лотмана, данное понятие кочевало из одного терминологического поля в другое. В терминологическом поле семиотики культуры тартуско-московской школы семиосфера связана с понятиями язык — вторичная моделирующая система — текст — культура. Из интердисциплинарных терминологических полей можно считать наиболее существенным примыкание к понятиям биосферы и ноосферы, с одной стороны, и логосферы, — с другой стороны. В качестве метадисциплинарного понятия семиосфера входит в методологию культурологии и связывается с понятием целостности, а также части и целого. В качестве трансдисциплинарного термина семиосфера примыкает к понятию символа в символизме: символ как неопределяемое понятие подходит для передачи познания непознаваемого и в то же время символ может быть семантически насыщенным как редуцированный миф. В данном контексте семиосфера обозначает дополнительность дисциплин, изучающих культуру, и движение в сторону создания общей культурологии и “понимающей методологии”.

Рассуждая о семиосфере на фоне развития современной науки следует помнить, что мы имеем дело одновременно как объектным так

и метапонятием. Семиосфера — это то, что изучается в культуре или в качестве культуры, и семиосфера является средством для изучения культуры. *При помощи семиосферы изучается семиосфера* — это не парадокс, а обозначение диалога между объектом исследования и языком его описания. Динамика культуры как объекта исследования заставляет науки искать новые языки описания, но и новые языки описания в свою очередь влияют на динамику развития культуры, так как предлагают новые возможности для самоописания. С исторической точки зрения новый язык описания часто является лишь методологическим переводом. Так в понятии семиосферы объединены несколько разных концепций, связанных с семиотикой культуры и актуализованных в связи с динамикой развития культуры.

Понятие семиосферы сопоставляет семиотику культуры с ее историей, а также сопрягает прикладной анализ культуры с историей культуры и новейшими явлениями в культуре. От этих сопоставлений зависит место семиотики культуры среди изучающих культуру наук.

Semiosfäär ja/kui kultuurisemiootika uurimisobjekt

1984. aastast, mil ilmus J. Lotmani artikkel "Semiosfäärist", on see mõiste liikunud ühest terminiväljast teise. Tartu–Moskva koolkonna kultuurisemiootika distsiplinaarsel terminiväljal on ta seotud mõistetega keel — sekundaarne modelleeriv süsteem — tekst — kultuur. Interdistsiplinaarsetest terminiväljadest on ehk olulisem seotus mõistetega biosfäär ja noosfäär ühelt poolt ning logosfäär teiselt poolt. Metadistsiiplinaarsena on semiosfäär kultuuriteaduse metodoloogiasse kuuluv mõiste ning seostub seal holismi ning osa ja terviku mõistega. Ja transdistsiplinaarsena on semiosfääri mõiste väga lähedane sümboli mõistele sümbolismis: sümbol on defineerimatu mõistena sobiv tunnetamatu tunnetamise vahendamiseks, samas võib sümbol olla erakordselt suure tähendusemähuga kui redutseeritud müüt. Selles kontekstis tähistab semiosfäär kultuuri uurivate distsipliinide komplementaarsust, liikumist üldise kultuuriteaduse ja "mõistva metodoloogia" loomise suunas.

Semiosfäärist tänapäeva teaduse suundumuste taustal rääkides tuleb mees pidada, et tegemist on üheaegselt objekt- ja metamõistega. Semiosfäär on see, mida uuritakse kultuuris või kultuurina, ning semiosfäär on see vahend, mille abil kultuuri uuritakse. *Semiosfääri abil uuritakse semiosfääri* ei ole paradoks, vaid tähistab uurimisobjekti ja tema kirjelduskeele dialoogi. Kultuuri kui uurimisobjekti dünaamika sunnib teadust

otsima uusi kirjelduskeeli, kuid ka uued kirjelduskeeled mõjutavad omakorda kultuuridünaamikat, sest pakuvad uusi võimalusi enesekirjeldusteks. Tihti on aga uus kirjelduskeel ajaloolisest vaatepunktist vaid metodoloogiline tõlge. Nii ühineb ka semiosfääri mõistes mitu erinevat kultuurisemiootikaga seotud kontseptsiooni, mis on kultuuri arengudünamika taustal uutmoodi aktualiseerunud.

Semiosfääri mõiste viib kultuurisemiootika uuesti kokku oma ajalooga, nagu ta viib ka rakendusliku kultuurianalüüsi kokku korraga kultuurilooga ja kõige uuemate nähtustega kultuuris. Need kokkupuuted määravad ära kultuurisemiootika koha kultuuri uurivate teaduste seas.

Semiosphere and a dual ecology: Paradoxes of communication

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Abstract. This article compares the methodologies of two types of sciences (according to J. Locke) — semiotics, and physics — and attempts thereby to characterise the semiotic and non-semiotic approaches to the description of ecosystems. The principal difference between the physical and semiotic sciences is that there exists just a single physical reality that is studied by physics via repetitiveness, whereas there are many semiotic realities that are studied as unique individuals. Seventeen complementary definitions of the semiosphere are listed, among them, semiosphere defined as the space of qualitative (incommensurable) diversity. It is stated that, paradoxically, diversity, being a creation of communication, can also be destroyed due to excessive communication.¹

Semiotics is not simple, and cannot be simple, because it must take into account those aspects that natural-scientific approach would either overrule or not notice. But it is a paradox that the method used in order to make the world understandable — the building of models, both in semiotics and in natural sciences — simplifies by itself the state of affairs. If it is indeed so then the attempts to make things understandable may turn out to become a threat to semiotics. However, taking into account that model-building is a general feature of life² — a different

¹ The article is based on the presentation at the *First International Meeting for the Study of the Semiosphere*, organized by Irene Machado and her colleagues in São Paulo, Brazil, August 22–27, 2005.

² “The understanding that biology models the activity of model-building organisms is at the core of biosemiotics” (Hoffmeyer 1999: 156). “This semiotic understanding is also achieved if we include into the features of this model the model-building itself, because models are not the sum of their building blocks but are defined by being about something else; they are complex signs occurring in organisms” (Emmeche *et al.* 2002: 14). The statement that model-building, or Umwelt-building, is a universal feature of all living systems (i.e., an attribute of life), including plants, has been further analysed in Kull 2000.

answer is conceivable. Understanding, from a semiotic point of view, would not be achieved just via a good model, but requires instead a continuous interchange between contradicting models.

In this paper I am going to study the relationship between the semiosphere and the sphere of ecological relationships. That means — in which sense the study field of ecology (an ecosystem, the environmental relationships of organisms and communities) could or could not belong to the semiosphere. In order to find a solution to this problem, we need not only to have a precise definition of the semiosphere, but also to make very clear, what the non-semiotic space would look like, or what is non-semiosphere. Below, I will list 17 complementary definitions of the semiosphere.

1. Code duality, and being in multiple worlds

In several of his lectures, Juri Lotman liked to begin his talk with a paradox. Since *semiosphere* is a very general notion, a description of it via paradoxes might indeed be helpful. A paradox with what it would be appropriate to start here is the famous paradox of learning — Meno's paradox. It has been formulated in the Platonic dialogue *Meno*, and it states that one cannot search for what one does not know and does not need to search for what one already knows. If so, then learning turns out to be impossible. Learning as acquiring knowledge of something else is essentially a sign process, and in this sense it requires an embeddedness into the sphere of signs. Eight hundred years after Plato, in *De Magistro*, in a dialogue between Augustine and his son Adeodatus, Augustine says (e.g., King 1998; Chang 2002): When a sign is given to me, it can teach me nothing if it finds me ignorant of the things of which it is the sign; but if I'm not ignorant, what do I learn through the sign?

Juri Lotman, when describing the assumptions for communication, has described a similar paradox: If two individuals are absolutely different from each other, if they do not have anything in common, then meaningful communication between them is impossible. But if two individuals are absolutely identical, then, also, communication is impossible — actually, it is possible, but they just do not have anything to tell each other.

In its more general aspect, the same paradox sounds as the everlasting controversy between identity and change: in order to continue, one has to remain the same — life itself, however, is *the* changing, life is permanent movement.

The solution to this paradox can already be found in Socrates — in the principle of dialogue. However, Lotman's formulation is more precise. He claims that there is always more than one text, more than one code. There cannot be such thing as single language, or single culture. In order to have a message, at least two different codes, or two languages are required.

A text is a mechanism constituting a system of heterogeneous semiotic spaces, in whose continuum certain initial message is circulated. We do not perceive this message to be the manifestation of a single language: a minimum of *two* languages is required to create it. No text of such kind can be adequately described in a perspective of one single language. (Lotman 1981b: 7)³

To be defined as 'text', a message should be at least dually coded. (Lotman 1981a: 4)

These can be seen as different formulations of the code duality principle.⁴ It presupposes the coexistence of continuity and discreteness in any form of meaning-creating or significant communication. This principle has been similarly described by Jesper Hoffmeyer and Claus Emmeche (1991).

Code duality principle establishes the principal feature of semiosphere — the co-existence of complementary descriptions.⁵ And it is a very non-physical concept (or assumption) indeed — because, despite of N. Bohr's complementarity principle, for physical approach it would be absurd to assume that a single description is by definition meaningless.

The semiosphere can be defined as *the space of meaning-generation*. Indeed, there is only one way to generate meaning — via multiple simultaneous descriptions; i.e., simultaneously to understand and not to understand; or, to recognize and not to recognize one and

³ An English translation in Lotman 1994.

⁴ In analytic philosophy, the problem is often solved via a compositional theory of meaning that every natural language has; or, via a duality or relationship between syntactic and semantic aspect of messages (e.g., Schiffer 1987).

⁵ 'Description' is used here in a very broad sense.

the same thing. J. Lotman (1992: 16) says: “non-understanding [...] appears to be as valuable a mechanism of meaning as understanding”.⁶ Without paradox there is no signification.

Thus, being, or living in all its forms, assumes multiple simultaneous interpretations. And that is what makes learning possible.

2. The semiosphere

I have been interviewing several participants of the conference on semiosphere,⁷ asking them to give a brief definition of semiosphere. As surprising as this may be — the answers turned out to be very diverse. Ten people gave ten different responses. Thus, it may not be uninteresting to list some of these definitions here.

This principle — that neither a sign, an organism, a text, or a culture can exist alone, singly — it always requires another sign, other organisms, texts, cultures, in order to exist, to live — this principle is namely the one that has been formulated by Juri Lotman as the concept of semiosphere (Lotman 2005 [1984]). He formulated this concept first in 1982, under the influence of Vladimir Vernadsky's concept of biosphere.⁸ Probably the first note on it is in Lotman's letter to Boris Uspensky from March 19, 1982, in which he wrote:

I am reading Vernadsky and [...] I am stunned by one of his statements. You know [...] my opinion that a text can exist (i.e., it can socially be recognized as a text) only if it is preceded by another text, and that any developed culture should be preceded by another developed culture. And now I find Vernadsky's thought, deeply founded on the experience of exploring cosmic geology, that life can arise only from living, i.e. that it is preceded by life. [...] Only the antecedence of *semiotic sphere* makes a message a message. Only the existence of mind explains the existence of mind. (Lotman 1997: 629–630)

⁶ “[...] neponimanie [...] predstavlyaetsya stol' zhe tsennym smyslovym mehanizmom, chto i ponimanie”.

⁷ The First International Meeting for the Study of the Semiosphere, São Paulo, August 22–27, 2005.

⁸ See also Torop 2005; Kull 1999; Kotov 2002; Kotov, Kull 2006.

Thus, here we get the first definition — (1) ‘semiosphere is a textual whole, a text together with other texts that make it a text’.

From here we get also another definition — namely that (2) ‘semiosphere is anything formed from the (endless) web of interpretations’. Or, (3) ‘semiosphere is the sphere of communication’. It “consists in communication” (Hoffmeyer 1997: 933). Thus, (4) ‘semiosphere is a web of sign processes, or semioses’. As it has been pointed out:

The semiotic point of view is the perspective that results from the sustained attempt to live reflectively with and follow out the consequences of one simple realization: the whole of our experience [...] is a network or web of sign relations. (Deely 2005: 16)

And this sort of circle, according to which language, in the presence of those who are learning it, precedes itself, teaches itself, and suggests its own deciphering, is perhaps the marvel which defines language. (Merleau-Ponty 1964: 39)

And not only language, of course, but all varieties of sign systems. (5) “Semiosphere is the set of all interconnected umwelten. Any two umwelten, when communicating, are a part of the same semiosphere” (Kull 1998: 305).

Few additional definitions can be listed.

Almost identical to (4) is the definition: (6) ‘semiosphere is the space of semioses’. The concept of ‘space’ appears to describe an important aspect of the semiosphere, e.g., (7) ‘semiosphere is the space of meaning-generation’. Also, (8) ‘semiosphere is the space of whole-part relations’. This definition pays attention to the relational dimension of sign, allowing us to state that a sign is always a *part*.

A tradition in semiotics that uses the idea of Gregory Bateson about information as a ‘difference that makes a difference’ could lead to the following formulation: (9) ‘semiosphere is where distinguishing occurs, where distinctions are made’. And as a reformulation of this definition, (10) ‘semiosphere is the space of qualitative diversity’.

Indeed, we may state that ‘diversity in a web’ is the main concern of semiotics. Semiosphere as a space of diversity provides us with the insight into the similarity between various processes of relational diversification, from biological speciation to conceptual categorization.

An existence of identity also assumes a possibility of destroying it. Accordingly, it is possible to think that (11) 'semiosphere is a sphere of healing'. This is because in a non-semiosphere, there is no such condition as 'healthy' or 'ill' or even 'broken'. There cannot be 'errors' outside the semiosphere.

Unlike the physical world, which manifests a single truthful reality, (12) 'semiosphere is the world of multiple truths, of multiple worlds'.

We may also state that (13) "the totality of 'contrapuntal duets'⁹ forms the sphere of communication — the semiosphere" (Emmeche *et al.* 2002: 21). According to T. Sebeok (2001: 164): "Biosemiotics presupposes the axiomatic identity of the semiosphere with the biosphere". And (14) "semiosphere is thus the totality of interconnected signs, a sphere that covers the Earth" (Emmeche *et al.* 2002: 21).

3. Semiotics and physics

When speaking about the semiosphere as the space of meaning-generation — or (15) 'semiosphere as a continuum of culture' — it would be helpful to compare it to the space that is not (part of the) semiosphere. For instance — atmosphere is obviously not semiosphere. Similarly, anything else about what a semiotician would use an expression "purely physical" would not be semiosphere. Thus it is reasonable to ask what is the difference between physical space and semiotic space (or semiosphere).

It is always necessary to consider that 'semiotic' means both an approach and an object. In addition to the semiotic study of semiosis (i.e. semiotics *s. str.*, including semiotics of culture and biosemiotics), there also exists a semiotic study of the environment that is not necessarily a living one or semiotic *per se* (this environment is studied, e.g., by semiotics of environment), which means the textualization of everything, independent of its nature. And, in addition to the non-semiotic study of non-semiotic (or study of "meaninglessness", as in physics), there also exists a non-semiotic approach to the living, i.e. to semiosis-consisting objects (examples of this approach include large part of biology, and the natural scientific study of society) (Table 1).

⁹ On the notion of 'contrapuntal duets' see Uexküll 1982: 54.

Table 1. Interrelation of semiotic/nonsemiotic methods and semiotic/non-semiotic things as generating a principal classification of sciences.

Things \ Methodologies	Non-semiotic (detextualised) approach	Semiotic (textualised) approach
Non-semiotic (not alive)	physics <i>s. str.</i>	semiotics of environment
<i>Primary semiotic threshold</i>		
Semiotic (alive)	biology <i>s. str.</i>	biosemiotics
<i>Secondary semiotic threshold</i>		
Semiotic (lingual)	sociology <i>s. str.</i>	semiotics of culture

This classification follows from the nature of semiosis that multiplies the reality. Consequently, (16) 'semiosphere is the region of multiple realities' (or, semiosphere is the world of several realities). However, the region and phenomena of multiple realities can be described as all belonging into one single reality (as the physical approach does). In addition, the regions of single reality can be projected into the multiple one via the description process itself (like semiotics does). Thus, four groups of sciences can be distinguished in this respect (Table 2).

Table 2. Projections of realities from two types of world (of one or several realities) into two types of models (of descriptions in a single or multiple languages) as a basis for classification of sciences.

World \ Models	Non-semiotic models	Semiotic models
Non-semiotic (world of no semiosis)	Single reality into Single reality	Single reality into Multiple realities
Semiotic (world of semioses)	Multiple realities into Single reality	Multiple realities into Multiple realities

According to John Locke, all human knowledge can be divided between three major sciences¹⁰ — ethics, physics, and semiotics.¹¹ Let me try to compare here the last two.

These two principal types of inquiries, or sorts of sciences — *physica et semiotica* — provide two distinct types of descriptions. A brief comparison of these two points of view is presented in Table 3.

Both physics and semiotics have expressed their ambition to study everything in the world, or at least their ability to cover everything. Accordingly, these can be seen as types of sciences, or approaches, or points of view. In principle, any phenomenon can be studied both physically and semiotically.

From Table 3 it appears to be quite clear that the difference between physics and semiotics when studying seemingly one and the same thing is rooted in their methodology. Physics and semiotics are just two different methodologies, or two separate points of view¹² — and two sets of methods — to study the world. A principal difference is that there exists just a single physical world that is studied by physics via repetitiveness, whereas for semiotics there exist many worlds that are studied as unique individuals.

For example, we may study the physics of an organism, and alternatively, we may study the semiotics of an organism. The former is about many things (its mechanics, dynamics, chemistry), but not about meanings. The latter is the study in terms of semiotic space, and accordingly emerging meanings can be studied.

It is important to note that both — physics and semiotics — make predictions. However, the methods of making the predictions are principally different. The physical types of predictions are quantitative — either deterministic, or probabilistic, statistical. The semiotic predictions are qualitative ones. For instance, when studying a text that is currently in the process of writing, it is possible to make a scientific prediction about the next word to appear. In case of a physical approach, a prediction would use correlations between adjacent words in the language, and accordingly it will be possible to calculate the statistical probabilities for the next word. A semiotic approach, instead, would look at the possible meanings of the expression, and provide a prediction about the next word on a purely qualitative basis.

¹⁰ J. Locke has used the expression 'sorts of sciences'.

¹¹ See Deely 2001: 593ff.

¹² Cf. Deely 2005: 12ff.

Table 3. Relationships between the two types of sciences — physical, and semiotic.

	Physics	Semiotics
Study fields, e.g.	natural sciences	sciences of meaning
	study of quantities	study of qualitative diversity
	physical ecology	semiotic ecology
	biophysics	biosemiotics
Objects (models) of study	physical space	semiotic space, semiosphere
	non-textual or detextualised	Textual or textualised
	things and interactions	signs and semioses ¹³
	laws	codes, habits
	transformations	translations, interpretations
	quantities	qualitative diversity
	<i>multiple</i> objects	<i>unique</i> objects
Features of objects (models)	world as non-living	living world
	commensurability	incommensurability
	context-independence	context-dependence
Methods of study	no errors in nature	fallibilism
	measurements	qualitative methods
	experimental	experiential
	from outside	from inside
	by independent researcher	participatory
	reductionism	holism, mimesis ¹⁴
Truth, reality	statistical tests	comparison
	<i>single</i>	<i>multiple</i>

Speaking about the environment and ecology in this context, one can notice that ecology is clearly twofold. There is an ecology that has been developed as a natural science, according to the Modernist model of science — a field of quantitative research of environment with organic systems in it, without any intrinsic value or meaning in itself.

¹³ Or *objects*, in the sense of Deely 2005.

¹⁴ The role of mimesis as a study method opposed to reductionism has been described by Rosen 1999.

And there is an ecology that includes meaning and value. The latter would include ecophilosophy, biosemiotics, semiotic ecology. The first is a branch of physics, or biophysics, and the latter is a branch of semiotics. Thus, semiosphere is a concept of fundamentally post-modern approach¹⁵ — in the sense of John Deely (2005).

Environment as a physical concept is not the same as semiosphere. But the situation is different if we speak about the ecosphere as a semiotic concept. According to the biosemiotic view, semiosphere coincides with the ecosphere. Hence, this is a concept that can deal with environmental problems without the nature-culture opposition; instead, these problems can be formulated in terms of specific features of sign systems.

Umwelt — a concept introduced by Jakob von Uexküll — is a notion close to semiosphere. We may redefine it: umwelt is a personal semiotic space. Thus — *Umweltforschung*, or umwelt-research is a semiotic study, whereas there can also be, in parallel, a physical study of the environment — of the same environment, however, without any meaning-generation noticed.

Of course — the issue is more complicated, because one can distinguish between physical and semiotic *things*, physical and semiotic *methods or approaches*, and physical and semiotic *models, knowledge*.

If we look at the level of models, of knowledge, and semiosphere being a concept or model belonging to semiotic knowledge, then it is obvious that we can speak about semiosphere everywhere where semiotic knowledge extends. Also, everything physical can be viewed semiotically, can be textualised, and physical models can be seen (interpreted) as special cases of semiotic ones.

If we look at the level of methods, it turns out that physical method is not capable to discover meaning, meaningfulness. In order to detect meaning, we need a semiotic approach — physical approach is insufficient for that (even more, physical approach is unnecessary for that). Thus — semiosphere is a creation or a construct of semiotic method.

If to consider that semiosphere is not just a construct of our theory or method, i.e. that meaning-generation is actually taking place independent of its human descriptions — then semiosphere should exist also in the world of things.

¹⁵ This statement is also supported by M. Lotman 2002.

Semiosphere is formed by those who are capable of making differences. The power of distinction-making is, in a way, also a method. Only those who use at least two codes, two languages, etc., can be a part of the semiotic world, the semiosphere.

4. Diversity

Most briefly, *semiosphere is the space of diversity*.¹⁶ Which means that the semiosphere is heterogeneous space (or communicative medium) enabling qualitative diversity to emerge, to fuse, and to sustain. Diversity is a relational phenomenon, and accordingly, it is based on communication, on the ability to make differences.

Diversity, accordingly, would be a central concept of semiotics. Semiotics can be defined as a study of qualitative diversity — as opposed to physics, the study of quantities.

Diversity means the existence of non-reducible differences, a lack of a common measure that would enable converting one into another. Thus, diversity also assumes certain non-convertibility, or incommensurability.

This leads to a quite paradoxical definition — (17) ‘semiosphere is a communicative space of non-translatibility’. And semiotics being the study of non-translatibility.¹⁷

Let me give one example here. In most organisms, there cannot exist any *interest in survival* — despite of the fact that they appear to behave as if there was something like that. It is because most organisms cannot be informed about their own death — except humans, of course. Organisms have many needs, many animals have emotions, etc., which constitute their interests. There are many interests, qualitatively different interests (in finding food, finding partner, avoiding an enemy, etc.) that an organism can itself distinguish from each other; however, the interest in survival is evidently just applied via models and not recognized by most of organisms themselves. A claim about the existence of a general interest in survival and accordingly a

¹⁶ Cf. definition (10), above.

¹⁷ Cf. Lotman (1992: 15): “translation of non-translatable carries the information of highest value”; Lotman (1992: 42): “Semiotic space occurs for us as a multi-layer overlapping of different texts [...] of various translatability and of spaces of non-translatibility”.

common measure of survival — the quantitative fitness — is a typical example of how physical approach to an issue transforms it and removes qualitative diversity.

In order to communicate, participants not only need to share the semiosphere, but much more — their semiotic spaces have to be similar in several aspects. And there exists a trend of increasing similarity between regular communicants.

It is a paradox that diversity, being a creation of communication, can also be destroyed due to excessive communication. Indeed — communication makes *umwelten* more similar to each other. Or in other words — *too much communication* can be described as a general reason for many ecological problems that lead to homogenization of the world and loss of diversity. This is the case both in biological communities and in cultures:

Communication between cultures makes them more similar to each other, and thus, indeed, too much communication would mean a threat to diversity and identity. On the other hand, cultural differences are not just a result of historical chance and development in separateness. The differences and identities themselves are very much of communicative origin, so the diversity of cultures can be seen as a result of dialogue. (M. Lotman *et al.* 2004: 143)

It is well known how the development of *ecological understanding* of ecological webs and recycling has shifted people's approach and evaluation of many common habits that concern our environment, consumption, trash. In a similar vein, the development of *semiotic understanding* of the semiosphere would lead to shifts that concern many common habits in our cultural behaviour. These may be shifts in the evaluation of diversity and difference, and accordingly, of the communication sphere itself.¹⁸

¹⁸ *Acknowledgements.* I thank Irene Machado and her colleagues in the semiotic group of São Paulo for raising the topic of this paper. I thank Silvi Salupere, Riste Keskaik, and Andres Luure for helpful comments and corrections.

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Семиосфера и двоякая экология: парадоксы коммуникации

Сравниваются методологии двух основных типов наук (в понимании Джона Локка) — семиотики и физики, — на основе чего характеризуется семиотический и несемиотический подход к описанию экосистем. Главное отличие между физическими и семиотическими науками состоит в том, что для первых существует одна и единственная физическая реальность, которая исследуется с использованием присущей ей повторяемости, в то время как семиотика признает существование многих семиотических реальностей, которые изучаются как единственные (уникальные, индивидуальные). В статье насчитывается 17 разных, но согласующихся между собой определений семиосферы. Согласно одному из них семиосфера является пространством качественного разнообразия (отсутствие единого измерения). Парадоксальным образом коммуникация оказывается как создателем разнообразия, так и — в случае чрезмерной коммуникации — его разрушителем.

Semiosfäär ja kahetine ökoloogia: Kommunikatsiooniparadoksid

Võrreldakse J. Locke'i poolt eristatud kahe põhilise teaduse vormi — semiootika ja füüsika — metodoloogiaid, iseloomustades sedakaudu semiootilist ja mittesemiootilist lähenemist ökosüsteemide kirjeldamisele. Peamine erinevus füüsikaliste ja semiootiliste teaduste vahel seisneb selles, et eksisteerib üks ja ainus füüsikaline reaalsus, mida uuritakse temas esinevaid korduvusi kasutades, ning palju semiootilisi reaalsusi, mida uuritakse kui ainulisi (unikaalseid, individuaalseid). Artiklis loetletakse 17 erinevat, kuid omavahel kooskõlas olevat semiosfääri määratlust. Neist ühe järgi on semiosfäär kvalitatiivse mitmekesisuse (ehk ühismõõdutuse) ruum. Paradoksaalselt on kommunikatsioon nii mitmekesisuse loojaks kui ka — ülemäärase kommunikatsiooni korral — selle hävitajaks.

The problem of the autocatalytic origin of culture in Juri Lotman's cultural philosophy

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Abstract. The origin of culture remains in the sphere of hypotheses. Although the hypotheses derive from two presumptions: first, how the structure of culture is envisaged, and secondly, how culture is thought to function. Juri Lotman dealt with both aspects of culture, initially the structural and typological and later the dynamic aspects. Thereby, he arrived at the cultural-philosophical hypothesis of the autocatalytic origin of culture. A catalyst is a component of a chemical reaction which itself doesn't transform during the reaction, but whose presence is needed to guarantee the reaction (or to stimulate it). Thus, autocatalysis is a paradoxical situation in which the genesis of something presumes the pre-existence of the final product. The paradox of the autocatalysis of culture lies in the fact that culture cannot emerge from anything other than from culture itself, from its own germination. In 1988, speaking about the autocatalysis of culture, Lotman referred to the cultural historicist Nikolai I. Konrad (1891–1970), who undoubtedly borrowed this idea from Jacob Christopher Burckhardt (1818–1897). This undiscovered connection reminds us of the fact, that a model for autocatalysis (or an autopoiesis) was basic to *Naturphilosophie* of the 19th century. In the 20th century, this was represented by Vladimir I. Vernadsky (1863–1945), from whom Lotman in 1982 received the impetus to formulate the concept of semiosphere as well as of the autocatalysis of culture. The autocatalysis model of culture is culturally diachronical, the semiosphere is, however, a synchronical one. In both cases, the natural philosophical cytology of the 19th century was Lotman's semiotical meta-language.

Models of cultural memory: The world of names

The cultural history reflected in consciousness can be modeled as a system of proper names, the nodes of which are the cultural phenomena, which are indicated by proper names (more often personal names). The greatest portion of cultural memory is encoded in proper names, and participation in some culture primarily means the ability to orient among the culture's proper names. Being cultured is the ability to speak using names.¹ Georg Wilhelm Friedrich Hegel has aptly commented on the personal nature of cultural history: "There are two kinds of sequences (*Folgerungen*): some are just the working out of principles into further details; some, however, are the return to deeper principles; historicity consists of just this, to indicate which individuals possess such a subsequent deepening of thought and its unlocking" (Hegel 1830: xvii–xviii).

To the mythological consciousness it is self-evident, that looking back to the dawn of time, to the beginning of everything, there is One Very First Name. Together with names marking cultural phenomena all culture is collected into this primeval beginning. This One Very First Name belongs to the Creator of Culture, to the Demiurge, or the primeval being, "from whom all has gotten its beginning", "from whom everything has started to be" — Bochica of the Indians of Colombia, the Polynesian Maui, the Egyptians' Osiris and Toth, the Greek Prometheus.

Such a narrowing of the proper name network into the Very First Name, as a clearly mythological thought process cannot be acceptable to the scientific, purely logical understanding of the development of culture. The scientific cultural history operates on a concept of the dispersal of proper names, according to which looking back, personal

¹ Here we cannot leave unmentioned a pertinent episode in "The Winners" (*Los premios*, 1960) by the Argentinian author Julio Cortázar, which describes the shipboard meeting of two intellectuals starting out on a trip around the world: "Did you already find the bar? It is upstairs next to the dining room. Unfortunately I also saw a piano in the corner, but we have the chance to cut the strings in the next day or two." — "Or to cause it to be so out of tune that everything played on it sounds like Křenek," answers the other. Later recalling the event, the first remarks: see, the trip didn't start off badly — "someone in the ship's corridor mentioned Křenek's name — just like that, in passing!" (Cortázar 1979: 72–73).

names thin out and finally disappear, giving ground to the anonymity of cultural carriers.

Positive facts, of course, confirm such an understanding. In the depth of time, people were quite dispersed. For instance, today we know of only 200–300 Neanderthals, i.e. about one individual per every thousand years! Here names cannot even be spoken of. Therefore, in scientific descriptions of the genesis of culture, we have to operate without names, and accept that the “four energy principles which our modern technology uses have come from unknown and unnamed ice age inventors, who lived on earth thousands of years before us” (Lips 1968: 93).

Yet, such anonymity makes thinking about culture uncomfortable, which is why hidden mythological tendencies can be found in even the most seriously scientific treatment.

Hidden mythological thinking doesn't operate directly with the names of gods or heroes, but substitutes vague pre-historic people with a Man, as such, who starts to act as a mythological being: “From the beginning, man has tried by using different resources to lighten his work burden” (Lips 1968: 80). This Man, who is again mythologized, will successfully compete with Prometheus: “How man first came in contact with fire which he wished to tame and preserve, this remains undiscovered,” says scientologist John D. Bernal (1962: 43) figuratively.

Such examples confirm, that the question is not just in stylistic clumsiness, but actually in a mythological thought process for the treatment of culturology which claims to be purely scientific: an anonymous collective is treated as an individual who has secretly been granted a researcher's absolute consciousness.

Nature and culture: Dualism or monism?

To conceive of Culture only as something different than Nature does not explain its genesis.

The hypothesis that the transition from Nature to Culture occurs with the help of some outside third force is made inevitable by the dualistic opposition of nature and culture.

This is not just a typical mythological, but also a religious and theological understanding of Culture's (and civilization's) relationship

with Nature. Referring to Thomas Aquinas, who clearly emphasizes that intellect and the spiritual culture built on it cannot be a function or side function of some material, bodily (natural) organ but has a separate origin.² The endurance of this conviction is confirmed by Pope Pius XII in his encyclical on the topic of evolution *Humani generis* (1950), which allows for the possibility of researching physical evolution, but emphasizes the divine origin of the soul and (spiritual) culture.

And finally, such a Nature and Culture dualism also characterizes such pseudo-religious conceptions of culture as Erich von Däniken's hypothesis on the extraterrestrial origin of civilization: those from outer space cultivate the earthlings until they become reasoning beings. In such a way, E. von Däniken surmises that a new race can emerge, which can jump over a certain portion of natural evolution (Däniken 1972: 95).

Notably more interesting, and problematic are efforts to explain the genesis of Culture monistically, efforts to build a bridge between Nature and Culture. These have existed for a long time and, at least at first glance, they can be divided into materialistic and idealistic. As the first example, we should mention Democritus's understanding that human culture has developed as a direct imitation of animal activity: weaving-sewing taught by spiders, house building by swallows, singing by swans and nightingales. Therefore, culture has a natural, animalistic origin.

Such primitivism and naturalism is contrasted with the common idealistic, pantheistic concepts of natural and divine beginnings, which — in case they are connected with the development idea — see the premise for the rise of Nature into Culture in the spirituality of nature itself. This is the legacy of natural philosophy.

The leading figure of modern natural philosophy became Friedrich Wilhelm Joseph Schelling with the works "Ideas for a Philosophy of Nature" (*Ideen zu einer Philosophie der Natur*, 1797), "On the World Soul" (*Von der Weltseele*, 1798) and "First Plan of a System of the Philosophy of Nature" (*Erster Entwurf eines Systems der Naturphilo-*

² S. th., P. I, qu. 7, art. 2 ad 3: "Hoc ipsum quod virtus intellectus extendit se quodammodo ad infinita, procedit ex hoc quod intellectus est forma non in materia, sed vel totaliter separata, sicut sunt substantiae Angelorum, vel ad minus potentia intellectiva, quae non est actus alicuius organi in anima intellectiva copori coniuncta" (Thomas Aquinas, *Summa theologiae*, 1274).

sophie, 1799). Having studied mathematics, physics and medicine for two years at Leipzig University, he knew the contemporary sciences quite well, as Alexander von Humboldt, the great German naturalist, admits. F. W. J. Schelling's main natural philosophical position was pantheistic hylozoism — life exists in all things as the finalistic principle of polarity and reproduces itself (as *natura naturans*).

Theory of the autocatalysis of life

The cellular theory was founded 1838 by the German scientists, botanist Matthias Jacob Schleiden and anatomist-physiologist Theodor Schwann. They asserted that cells are the basic unit of all living organisms and that without cells there is no life. (The arguments on the topics of the life of viruses were a long way off.) In the period 1860/70, the German physician Hermann Eberhard Friedrich Richter presented the slogan *Omne vivum ab aeternitate e cellula* — “From the beginning of time, everything living comes from cells”. The leading Prussian scientist Rudolf Virchow affirmed in his work “Cellular Pathology” (*Die Cellularpathologie*, 1858), that cells can only arise from cells (*Omnis cellula e cellula*).

During the 19th century, cell theory was still largely the arena of supposition. Recall Ernst Haeckel's “theory of cell souls”! Behind the views of R. Vichow, we can also recognize F. W. J. Schelling's natural philosophy.

Actually the question of life's biogenesis or a-biogenesis is also natural philosophical. (An example from the 19th century is Jean-Baptiste Lamarck's theory of the parallel genesis of soil as a compound of elements and plants as life form.) For instance, biogenesis is promoted today by Śrīla Prabhupāda, the great teacher of Krishna with the very emotional argument: “We must teach that life is born from life, not from material. We must make this fact known, because we possess the truth, while scientists rely on fallacies” (Prabhupāda 1999: 44).

With references to Indian religion, Vladimir I. Vernadsky confirms in the speech “Origin and Eternity of Life” (*Nachalo i vechnost' zhizni*, 1921) that the origin of live matter only come from live matter. In addition to these religion-themed arguments, V. I. Vernadsky also refers to natural philosophy, most emphatically to the cytologist H. E. F. Richter. With positivistic arguments, V. I. Vernadsky actually de-

fends the postulates of natural philosophy claiming that, since the physical conditions on Earth were not conducive to life, "life could have arrived on Earth from outside", as conserved particles from outer space, or that "life is a cosmic, not a specifically earthly occurrence". In summary, he writes "Life is eternal in so far as the Cosmos is eternal, and it has always been carried forward by biogenesis" (Vernadskij 1989: 102, 104, 105).

In his arguments, V. I. Vernadsky relies on Francesco Redi's, the 17th century Italian naturalist's, position *omne vivum ex vivo* — "all life is born from the living" and recalls once more H. E. F. Richter's cell theory, saying that "Redi's principle can be applied to cells, as the smallest organized elements" (Vernadskij 1989: 113).

According to the knowledge of today, H. E. F. Richter's theory does not, however, apply on the level of organelles. Many parts of cells, for instance mitochondria, as well as plastides in plant cells, in which an organism's chemical energy source adenosine triphosphate (ATP) is produced and which contain DNA, are actually created by splitting from identical cell particles. All other cell particles, however, do not emanate from division but are produced internally from material synthesized in the cell.³

V. I. Vernadsky's assertion that "the evolution process is nothing more than different expressions of one and the same substrate — the unitary life" is actually the core of F. W. J. Schelling's *Naturphilosophie*.

The autocatalysis of culture

Significantly, semiotician Juri Lotman found an application for this model of natural philosophical biogenesis of life in the spiritual sphere. On March 19, 1982, he wrote to his colleague Boris A. Uspensky:

I am reading Vernadsky with great pleasure and find many of my thoughts there (I am writing articles on semiotics). Reading Vernadsky, I am struck by one of his statements. You know, that once at our Moscow seminar [...], I dared to express the belief that a text can exist (that is, be socially acknowledged as text) when it is preceded by another text, and *that every developed*

³ The author thanks Andres Piirsoo of the Tartu University for useful comments.

culture must have been preceded by developed culture. And now I discover in Vernadsky the deeply reasoned thought, based on long cosmic geological research, that life can only originate from the living, that is, only when it is preceded by life. Therefore, he defines living and dead (he says: inert) material as two primeval elements, which are expressed in different forms, but remain forever separated from and in contact with each other. I am convinced, however, that thought as well cannot develop evolutionally from non-thought (a separate issue is that apparently we should not deny thought in the case of animals and maybe life without thought is impossible at all). For just as life consists of all forms of life activity from the work of anaerobic bacteria to the most complicated forms, so too thought (semiosis) takes both simple and complicated forms.

It is interesting, that Vernadsky constructs his arguments as an empiricist and positivist, taking care to distance himself from theological and mystical thought. He argues thusly: science only can be based on observable or constructed facts. The moment of changing non-life into life is not traceable or constructable anywhere in the universe. Even going back a million years, we still find some forms of organic life (or traces of its existence) and non-life. And all hypothesis of the [non-living] origin of life are speculation, which are based on a hypothesis, that one [i.e. life matter] must develop from the other [i.e. non-life matter]. I believe for my part that neither the acceptance of the existence of primeval rationality needs a theological or opposing [i.e. atheistic] view. This only indicates a simple fact: we cannot decide, whether light impulses from stars are semiotic signals or not, because we lack the presumption of rationality. *Only the previous existence of the semiotic sphere makes a message into message. Only the existence of intelligence explains the existence of intelligence.* (Lotman 2001: 683–684; my emphasis — L. P.)

Six years later, Lotman presented a paper “University and science” (*Universitet i nauka*, 1988) in Bologna. He refers to the correspondence of Nikolai I. Konrad, the Russian orientalist, with Arnold J. Toynbee, the English cultural historian (which was published in Russian in 1967):

N. I. Konrad wrote to A. Toynbee and argued against his ideas on the ruin of culture, that “*The Iliad* certainly does not mark the beginning of a new literature; it is a summary of all previous culture, but a summary, which has been made by a new people, who have inherited this culture. The real beginning of Greek literature is the primitive poetry and prose, which we find in the “post-Homeric period”. (Lotman 1989: 51).

It should be said, that here N. I. Konrad is actually repeating a thought expressed by Jacob Christopher Burckhardt, the Swiss cultural

researcher in his work "History of Greek Culture" (*Griechische Kulturgeschichte*, 1898/1902):

Homer could not, at any rate, have been the first artistic poet; nevertheless his tone and style are possible only as the result of a long tradition of rhapsodists and schools of rhapsodists; this is the only way to explain the unerring assurance of the treatment. Most probably the tone and the style of such narrations were both created by very talented individuals during ancient times. (Burckhardt 1898/1902: 156–157)

Ample references to J. C. Burckhardt allow us to conclude with confidence, that the Swiss author's works were familiar to N. I. Konrad and significantly influenced his views.

Although N. I. Konrad creates a model situation from J. C. Burckhardt's single observation, claiming analogous phenomena in Indian culture:

It seems to me that in the same way we can approach another enigmatic literary relic, the Indian *Rāmāyana*. [...] Perhaps there is a similar historical mystery here as in the case of *The Iliad*. In any case, the *Rāmāyana* is not primitive. Is no starting point" (Konrad 1974: 278).

And he generalizes that "lost cultures are reborn not only transformed, but also as one with an enormous mass of matter which has been already created by its own [i. e. *Rāmāyana*'s] contemporary time" (Konrad 1974: 278).

By connecting these thoughts by N. I. Konrad with V. I. Vernadsky's natural philosophical views, Lotman puts into words the basic thesis of cultural autocatalysis: "We can assume, that *the origin of a developed civilization needs the existence of another developed civilization*, even if the other one has already been destroyed" (Lotman 1989: 51; my emphasis — *L. P.*).

From typology to dynamics

Two phases can be detected in the development of Juri Lotman's cultural semiotical views — typological and dynamic (Torop 1999: 387–404).

In the phase dealing with typology, in "Articles on Typology of Culture" (*Stat'i po tipologii kul'tury*), the collection published in 1970, Lotman admits that "cultures are communciative systems, and human cultures are created on the basis of this all-encompassing semiotical system, which is natural language" (Lotman 1970: 13). This expresses Ferdinand de Saussure's understanding, that natural language is the primary modeling system, and different cultural notations are but secondary modeling systems which have developed from this example: "Language is a system for expressing concepts and therefore it can be compared to the scripture, sign language of deaf-mutes, symbolic rituals, forms of politeness, military signals, etc. etc. It is just the most important of these systems" (Saussure 1977: 54).

But at the same time, Lotman drops a remark, which will later develop into his basic thesis of cultural semiotics: "A society, which is built on non-sign (for instance para-psychological) communications, would have a totally different choice of opportunities for building a culture" (Lotman 1970: 13).

From here Lotman's linguistic-pictorial dualism starts to develop from F. de Saussure's linguistic monism. Lotman admits here, that the primacy of natural language in today's human communication is not the only possibility, rather at some point mankind stood — in a figurative sense — before a choice, whether to go the route of verbal or pictorial communication. At some time at the beginning of human culture, the choice was made in favor of verbal language.

The banishment of the picture by the word as an information carrier, the competition of the two in cultural history is repeatedly treated by Lotman, especially in his last book "Culture and explosion" (*Kul'tura i vzryv*, 1992) using dreams as an example of the purely pictorial medium, saying that

the speech sphere with its opportunities brought into play more powerful mechanisms and destroyed the potential possibilities of dreams to become a developed realm of a self-abundant consciousness. [...] The development of speech forced this cultural realm into the background and promoted its further simplification. (Lotman 1992a: 220–221)

The cornerstone of Lotman's cultural dynamic model is the assertion that pictorial communications have not disappeared, but have preserved its primary role as the creator of basic heterogeneity in the culture and thereby as the motor of cultural dynamics.

The dynamics of culture as a complete semiotic system is not derived from the fact that the existing languages of cultural texts are simply different and translatable from one to the other, but from the fact, that they are different in principle, founded on two equal primary modeling systems. In 1973, Lotman asserts in his article "Some remarks on the structure of a narrative text" (*Zamechaniya o strukture povestvovatel'nogo teksta*) that following in F. de Saussure's footsteps and accepting natural language as the only primal language of human communication is "mere habit":

In discrete verbal messages, the text consists of signs, in the other case [i.e. in the case of pictorial texts] there are not signs, and the message is delivered by the text as a whole. And if we add discretion, separating the sign-like structural elements, then we must treat this as the mere habit of seeing verbal intercourse as the primary if not only form of communicative contact and to equate pictorial texts with verbal ones. (Lotman 1973: 383–384)

Also in the speech, in which Lotman formulated the idea of cultural autocatalysis, he speaks about "the basic bilinguism (of conventional and iconic languages) of a culture", where

the existence of two such mutually untranslatable languages, conventional (discrete, verbal) and iconic (continuous, spatial), is the necessary assumption for a new information generating (that is "thinking") device (*ustrojstvo*). The tension between discrete and continuous mechanisms has been detected in every artistic text and in the culture as a whole (Lotman 1989: 50–51).

The beginnings of culture

Juri Lotman's answer to the question about the provenience of culture's basic dualism is not derived from cultural theory, but from cultural philosophy and is patterned on 19th century natural philosophy.

We are dealing with a hypothesis. But there is not this only one.

In the article "On dynamics of culture" (*O dinamike kul'tury*, 1992), Lotman raised other hypotheses about the "very first beginning" of culture, surmising that "human culture got its beginning from a large-scale, maybe catastrophic, giant explosion". As a result, a pre-ritualistic and pre-artistic language of gestures was created, "a consentaneous system of movements, calls and melodic cries, which,

when semiosis became more complicated, changed from an “action speech” into a “speech of conventional marks”. With the assertion, that from that moment “mankind’s future history changed into a history of using words”, where “semiotics (the function and role of speech) [becomes] the dominant mechanism of history” (Lotman 1992b: 9–15), Lotman returns to his drafted hypothesis of 1970 that human culture could probably have developed into a pictorial medium dominant one.

Lotman had no opportunity to integrate his views on the origin and dynamics of culture; therefore their coherence still awaits explanation. It must certainly be noted, that Lotman, as a person with an extremely wide horizon, used different models to explain his concepts, which reflected the development and enrichment of his theoretical positions.

Thinking of semiosphere units, he sometimes obviously thinks of monads (as defined by Gottfried Wilhelm Leibniz), writing:

In the same way that an individual is a part as well as a holistic analogue of a collective, the isolated history of literature, or of some other art discipline, or of art as a whole, can be treated as well as a part of cultural mix or as an analogue of the whole. (Lotman 1992b: 18)

Let us compare this thought to paragraph 67 of G. W. Leibniz’s “Monadology” (*La Monadologie*, 1714): “Every portion of matter may be conceived as a garden full of plants and a pond full of fish. But every branch of a plant, every limb of an animal, and every drop of the fluids within it, is also such a garden or such a pond.”⁴

On the other hand, in Lotman’s mind’s eye he sees the semiosphere as an organism, which is divided into cells: “for the mentioned semiosphere [i.e. a subset unit of semiosphere] reality changes into “reality for itself” only to the extent that it is translatable into its language (just as cell can assimilate external chemical matter only when these have turned into appropriate biochemical structures — both cases are the examples of the same rule)” (Lotman 1992c: 14). Lotman compares the border of a semiosphere unit to the membrane of a living cell. For this reason, he always sees the border as a border of individuality — as opposed to Mikhail M. Bakhtin who treats borders “non-cellularly” (Bakhtin 1979: 405).

⁴ E.g., <http://stripe.colorado.edu/~morrsto/monadology.html>.

The model of cultural autocatalysis is a temporal, even historical (diachronical) model, the semiosphere, however, is a cultural spatial (synchronical, although dynamic) model. However, in both cases, Lotman's semiotic meta-language is the 19th century natural philosophical cytology.

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Проблема автокаталитичности культуры в философии культуры Юрия Лотмана

Проблема возникновения культуры остается в области гипотез. Но эти гипотезы опираются на две предпосылки: во-первых, каким представляют строение культуры и, во-вторых, каким представляется функционирование культуры.

Юрий Михайлович Лотман рассматривал оба аспекта культуры: сначала структурально-типологический, позже динамический. Отсюда возникла гипотеза об автокаталитическом возникновении культуры.

Катализатором называется компонент химической реакции, который сам в ходе реакции не изменяется, но который обеспечивает или возбуждает реакцию. Автокатализ представляет собой парадоксальную ситуацию, где для возникновения чего-то нужно наличие этого же “чего-то”. Автокаталитичность культуры заключается в парадоксе: культура не может возникнуть без наличия культуры.

В 1988 году Ю. М. Лотман указывает по поводу автокаталитичности культуры на историка культуры XX века Николая Иосифовича Конрада (1981–1970), который несомненно вычитал эту идею у историка культуры XIX века Якоба Кристофера Буркгардта (1818–1897). Эта не раскрытая до сих пор связь указывает на факт, что автокаталитическая (или “автопойэтическая”) модель служила основой натурфилософии XIX века. В XX веке эту философию представлял В. И. Вернадский (1863–1945), идеи которого послужили в 1982 году Ю. М. Лотману при формулировании концептов как семиосферы так и автокатализа культуры.

Автокаталитическая модель культуры является диахронической, семиосфера — синхронической моделью культуры. Но в обоих случаях семиотическим метаязыком Ю. М. Лотмана была натурфилософская цитология XIX века.

Kultuuri autokatalüütilise päritolu problem Juri Lotmani kultuurifilosoofias ja ka sisukorras parandada

Kultuuri teke jääb hüpoteeside alaks. Kuid need hüpoteesid tulenevad ikka kahest eeldusest: esiteks, millisena kujutletakse kultuuri ehitust, ja teiseks, kuidas arvatakse kultuuri funktsioneerivat.

Juri Lotman käsitles mõlemat kultuuri aspekti — algul struktuuraal-tüpoloogilist, hiljem dünaamilist. Seeläbi jõudis ta ka kultuurifilosoofilise hüpoteesini kultuuri autokatalüütilisest tekkest.

Katalüsaatoriks nimetatakse keemilise reaktsiooni komponenti, mis ise reaktsioonis ei muutu, kuid mille olemasolu alles tagabki reaktsiooni toimumise (või ergutab seda). Autokatalüüs kujutab endast niisiis paradoksaalset olukorda, kus millegi tekkeks on vajalik sellesama asja eelnev olemasolu. Kultuuri autokatalüütilisus seisneb paradoksis, et kultuur ei saa tekkida millegi muu kui kultuuri olemasolu eeldusel, omaenda "juurestist".

1988. aastal viitab J. Lotman kultuuri autokatalüüsist rääkides XX sajandi kultuuriloolasele Nikolai Konradile (1891–1970), kes selle idee kahtlemata sai XIX sajandi kultuuriloolaselt Jacob Christopher Burckhardtilt (1818–1897). Too avamata seos juhib tähelepanu tõsiasjale, et autokatalüüsi (või *autopoiesis*'e) mudel oli üldse aluslik XIX sajandi natuurfilosoofias. XX sajandil esindas seda Vladimir Vernadski (1863–1945), kellelt J. Lotman 1982. aastal sai tõuke niihästi semiosfääri kui ka kultuuri autokatalüüsi kontseptsiooni formuleerimiseks.

Kultuuri autokatalüüsi mudel on kultuuri diakrooniline, semiofäär aga sünkrooniline mudel. Kuid mõlema puhul oli J. Lotmani semiootiliseks metakeeleks XIX sajandi natuurfilosoofiline tsütoloogia.

On the semiosphere

Juri Lotman

Translated by Wilma Clark¹

Abstract. This article, first published in Russian in 1984 in *Sign Systems Studies*, introduces the concept of semiosphere and describes its principal attributes. Semiosphere is the semiotic space, outside of which semiosis cannot exist. The ensemble of semiotic formations functionally precedes the singular isolated language and becomes a condition for the existence of the latter. Without the semiosphere, language not only does not function, it does not exist. The division between the core and the periphery is a law of the internal organisation of the semiosphere. There exists boundary between the semiosphere and the non- or extra-semiotic space that surrounds it. The semiotic border is represented by the sum of bilingual translatable “filters”, passing through which the text is translated into another language (or languages), situated *outside* the given semiosphere. The levels of the semiosphere comprise an inter-connected group of semiospheres, each of them being simultaneously both participant in the dialogue (as part of the semiosphere) and the space of dialogue (the semiosphere as a whole).

Contemporary semiotics is undergoing a review of some of its basic concepts. It is a well-known fact that at the heart of semiotics lie two scientific traditions. One of these goes back to Peirce-Morris and begins with an understanding of the sign as the first element of any semiotic system. The second is based on the theses of Saussure and the Prague school and has at its core the antinomy of language and speech (texts). However, despite the differences of these approaches,

¹ [Translator's note.] This article, regarded as a classic or seminal piece by many who have studied Lotman's work, was first published in 1984 in *Signs Systems Studies* (Труды по знаковым системам) 17: 5–23, and includes one of the first mentioning of the term ‘semiosphere’ coined by Lotman. Translated from the original Russian language version, published in Lotman 1992. We are not informed about any earlier English translation of this article. (See also fn. 6.)

they share one important commonality: they are based on a simple, atomic element, and everything that follows is considered from the point of view of its similarity to this. Thus, in the first instance, the isolated sign is analysed, and all subsequent semiotic phenomena are considered as a succession of signs. The second point of view, in particular, is expressed by the urge to consider a single communicative act — an exchange of communication between addressee and addressor — as the prime element and model of any given semiotic act. As a result, the individual act of sign exchange has come to be regarded as a model of natural language, and models of natural languages — as universal semiotic models, whereas semiotics itself has sought to be understood as the extension of linguistic methods to objects not included in traditional linguistics. This approach, originating with Saussure, was expressed with maximum clarity by the late I. I. Revzin who, during discussions at the second Summer school on secondary modelling systems in Kääriku (1966), proposed the following definition: *The subject of semiotics is any object, which acts as a means of linguistic description.*

Such an approach adheres to the well-known rule of scientific thinking: the movement from the simple to the complex — implicitly justifying oneself at the first opportunity. However, in this there is also the danger that heuristic expediency (the convenience of analysis) comes to be accepted as the ontological character of the object, which is assigned to it by the structure derived from the simple and clearly outlined atomistic elements, in accordance with their complexity. The complex object is thus reduced to the totality of the simple.

Over the last 25 years the path of semiotic research has permitted many alternative approaches to emerge. It may now be possible to suggest that, in reality, clear and functionally mono-semantic systems do not exist in isolation. Their articulation is conditioned by heuristic necessity. Neither, taken individually, is in fact, effective. They function only by being immersed in a specific semiotic continuum, which is filled with multi-variant semiotic models situated at a range of hierarchical levels.

Such a continuum we, by analogy with the concept of "biosphere" introduced by V. I. Vernadsky, will call the 'semiosphere'. We must, however, warn against any confusion between the term "noosphere" used by V. I. Vernadsky and the concept of "semiosphere" here introduced. The noosphere — is a specific stage in the development of

the biosphere, a stage connected with human rational activity. Vernadsky's biosphere is a cosmic mechanism, which occupies a specific structural place in planetary unity. Situated on the surface of our planet and including within itself the totality of living things, the biosphere transforms the radiated energy of the sun into the chemical and physical, and is concerned with the transformation of the inert inanimate materials of our planet, the noosphere occurs when human rational activity acquires a dominant role in this process.² If the noosphere represents the three-dimensional material space that covers a part of our planet, then the space of the semiosphere carries an abstract character. This, however, is by no means to suggest that the concept of space is used, here, in a metaphorical sense. We have in mind a specific sphere, possessing signs, which are assigned to the enclosed space. Only within such a space is it possible for communicative processes and the creation of new information to be realised.

V. I. Vernadsky's understanding of the nature of the biosphere may be useful for defining the concept introduced by us, let us, therefore, look at this in more detail. V. I. Vernadsky defined the biosphere as a space, filled with living matter. "Living matter" — he wrote, — "is the totality of living organisms" (Vernadsky 1967: 350). It would seem that such a definition provides a basis for the supposition that, on this basis, we may take the atomic fact of a single living organism, the totality of which represents the biosphere. However, in reality, this is not so. The fact is that the living matter is already considered as an organic unity — a film on the surface of the planet — and the multiplicity of its internal organisation is displaced at a second level by the unity of the cosmic function — to become a mechanism of the transformation of energy, received from the sun, into the chemical-physical energy of the earth, — which, according to Vernadsky, reveals the primacy of the biosphere relative to the individual organism.

All these aggregates of life are intimately connected. One cannot exist without the other. This connection between the variety of living films and aggregates and their constant nature is a well-known feature of the mechanism of the earth's crust, occurring throughout many geological periods. (Vernadsky 1960: 101)

² "The history of scientific thought, of scientific knowledge [...] is simultaneously the history of the creation of a new geological force in the biosphere — prior to this scientific thought did not exist in the biosphere" (Vernadsky 1977: 22).

More specifically, this idea is expressed in the following formula:

The biosphere — consists of a quite definite structure, defining everything, without exception, which falls within it [...]. A thinking being, as he exists in nature, as do all living organisms, as does all living matter, is a function of the biosphere, in its definition of the spatial-temporal. (Vernadsky 1977: 32)

An analogous approach to semiotic questions is also possible. The semiotic universe may be regarded as the totality of individual texts and isolated languages as they relate to each other. In this case, all structures will look as if they are constructed out of individual bricks. However, it is more useful to establish a contrasting view: all semiotic space may be regarded as a unified mechanism (if not organism). In this case, primacy does not lie in one or another sign, but in the “greater system”, namely the semiosphere. The semiosphere is that same semiotic space, outside of which semiosis itself cannot exist.

Just as, by sticking together individual steaks, we don't obtain a calf, but by cutting up a calf, we may obtain steaks, — in summarizing separate semiotic acts, we don't obtain a semiotic universe. On the contrary, only the existence of such a universe — the semiosphere — makes the specific signatory act real.

The semiosphere is characterized by a range of attributes.

The existence of boundary

The concept of semiosphere is linked to a definite semiotic homogeneity and individuality. Both these concepts (homogeneity and individuality), as we shall see, are difficult to define formally and depend on systems of description, but this does not change their reality and positive activity on the intuitive level. Both these concepts imply a boundary between the semiosphere and the non- or extra-semiotic space that surrounds it.

One of the fundamental concepts of semiotic delimitation lies in the notion of boundary. Insofar as the space of the semiosphere has an abstract character, its boundary cannot be visualised by means of the concrete imagination. Just as in mathematics the border represents a multiplicity of points, belonging simultaneously to both the internal and external space, the semiotic border is represented by the sum of bilingual translatable “filters”, passing through which the text is

translated into another language (or languages), situated *outside* the given semiosphere. "The isolated nature" of the semiosphere subsists in the fact that it cannot be contiguous to extra-semiotic texts or non-texts. In order that these may be realised, they must be translated into one of the languages of its internal space, in other words, the facts must be semiotized. In this way, the border points of the semiosphere may be likened to sensory receptors, which transfer external stimuli into the language of our nervous system, or a unit of translation, which adapts the external actor to a given semiotic sphere.

From the aforesaid, it is clear that the notion of boundary correlates to the concept of semiotic individuality. In this respect, we may say that the semiosphere has a "semiotic personality" and combines within this property of personality both the empirically indisputable and intuitive manifestation of the concept and the difficulty of its formal definition. It is a given that the boundary of personality, as a phenomenon of cultural-historical semiotics, depends on the method of coding. Thus, for example, wife, children, dependent servants, vassals may in one system be included in the personality of man, master and patron, without independent individuality, and in others — may appear like separate personalities. This is clearly revealed in the relativity of juridical semiotics. When Ivan the Terrible executed, together with the fallen boyars, not only his family, but all his servants, this was a product not of fear (as if a slave from the provincial patrimony might be a danger to a tsar!), but rather to the fact that, legally, they all belonged to one head and house and, consequently, the execution naturally extended to them.

For the Russian people, the "Terror" — the cruelty of a tsar — which lay in the wide application of execution to his people, together with the fact that amongst their number were representatives from all strata of the population, was for them natural. Foreigners, however, were revolted by the fact that the guilt of one man could cause *another* to suffer. As early as 1732 the wife of the English Ambassador, Lady Rondo (who was not exactly hostile to the Russian court and wrote in her letters of the friendship and sensitivity of Anna Ioanovna and the dignity of Biron) when reporting on the exile of the Dolgoruki family in her European correspondence, wrote: "You may be surprised at the exile of women and children; but here, when the head of the family falls into disgrace, then the whole family is subject to persecution" (Shubinskij 1874: 46). This concept of the collective (in this case —

patrimonial), and the non-individual personality lies, for example, in the concept of the blood vendetta, where the killer's relatives are regarded as a legally responsible person. S. M. Solovev convincingly connected this practice with the establishment of the collective patrimonial personality:

It is understood, that through such strong patrimonial unity, through such responsibility of all members of a race one towards the other, the meaning of the individual person has necessarily disappeared in the face of the meaning of the race; a single person would be unthinkable without a race; the famous Ivan Petrov was not thought of as a singular Ivan Petrov, but was thought of only in the sense of Ivan Petrov and his brothers and nephews. Through such linkages of person and race, as is raised a singular person — so is raised an entire race, as through the abasement of a single member of the race — so the whole race is abased. (Solovev 1960: 679)

The border of semiotic space is the most important functional and structural position, giving substance to its semiotic mechanism. The border is a bilingual mechanism, translating external communications into the internal language of the semiosphere and vice versa. Thus, only with the help of the boundary is the semiosphere able to establish contact with non-semiotic and extra-semiotic spaces. As soon as we move into the realm of semantics, we have to appeal to an extra-semiotic reality. However, let us not forget, that this reality becomes for a given semiosphere "a reality in itself" only insofar as it has been translated into the language of the semiosphere (in the same way that external chemical materials may be adopted by a cell only if they have been transformed into the internal biochemical structures characteristic of it: in both cases — these are particular manifestations of one and the same law).

The function of any border or film — from the membrane of a living cell to the biosphere as a film (according to Vernadsky) covering our planet, to the delimitation of the semiosphere — comes down to a limitation of penetration, filtering and the transformative processing of the external to the internal. At different levels this invariant function is manifested in a variety of ways. At the level of the semiosphere it represents the division of self from other, the filtration of external communications and the translation thereof into its own language, as well as the transformation of external non-communication into communications, i.e. the semiotization of incoming materials and the transformation of the latter into information.

From this point of view, all mechanisms of translation, serving external contacts, lie within the structure of the semiosphere.

In instances where cultural space has a territorial character, the border is spatially located in elementary meanings. However, even in this instance, the border retains the idea of a buffer mechanism, a unique unit of translation, transforming information.

So, for example, when the semiosphere identifies itself with the assimilated "cultural" space, and the world which is external to itself — with the realm of chaotic disorganised elements — then the spatial distribution of semiotic forms takes the following shape in a variety of cases: a person who, by virtue of particular talent (magicians) or type of employment (blacksmith, miller, executioner), belongs to two worlds, operates as a kind of interpreter, settling in the territorial periphery, on the boundary of cultural and mythological space, whilst the sanctuary of "culture" confines itself to the deified world situated at the centre. In the early years of 19th century culture, the "destructive" zone on the outskirts lay in direct contrast with the town centre, which embodied the dominant social structure, outskirts described, for example, in Tsvetaeva's poem ("Frontier Post") as part of the town, and yet belonging to that place, which destroyed the town. Its nature is bilingual.

All great empires, bordered by nomads, whether "steppe" or "barbarians", settled on their borders members of those same tribes of nomads or "barbarians", hiring them to protect the borders. These settlers formed a zone of cultural bilingualism, ensuring semiotic contacts between two worlds. Areas of multiple cultural meanings carry out the very same function on the boundaries of the semiosphere: town, trade route and other areas forming a kind of creolisation of semiotic structures.

A typical boundary mechanism is that of the "frontier novel" of the type of the Byzantine epic about Digenis or that which alludes to "The Tale of Igor's Campaign". Generally speaking, a subject such as "Romeo and Juliet", about a loving union, connecting two hostile cultural spaces, clearly reveals the essence of the "boundary mechanism".

However, what must also be taken into account is that if (from the point of view of an immanent mechanism) the boundary unites two spheres of semiosis, then from the point of view of semiotic self-knowledge (self-description on a metalevel) in a given semiosphere, it divides them. To realise itself in a cultural-semiotic sense means a

realisation of its specific character, in terms of its opposition to other spheres. This serves to accentuate absolutely those features by which a given sphere is outlined.

At different historical moments in the development of the semiosphere, one or other aspect may dominate, suppressing or fully neutralising the other.

The boundary has another function in the semiosphere: it is the area of accelerated semiotic processes, which always flow more actively on the periphery of cultural environments, seeking to affix them to the core structures, with a view to displacing them.

For example, the history of ancient Rome illustrates well a more general conformity to natural laws: a cultural area, growing rapidly, incorporates into its orbit external collectives (structures) and transforms them into its own periphery. This stimulates strong cultural-semiotic and economic growth of the periphery, which translates its semiotic structures through to the centre, setting cultural precedents and, in the long run, literally conquers the cultural sphere of the centre. This, in turn, stimulates (as a rule, under the slogan: back "to basics") the semiotic development of the cultural nucleus, in which new structures — linked to the path of historical development — are already visible, but which hides itself in the meta-categories of old structures. The opposition of centre/periphery is replaced by the opposition of yesterday/today.³

Insofar as the border is a necessary part of the semiosphere, the semiosphere also requires a "chaotic" external sphere and constructs this itself in cases where this does not exist. Culture not only creates its internal organisation, but also its own type of external disorganisation. Antiquity constructs its "barbarians", and "consciousness" — "subconsciousness". It is irrelevant that these "barbarians", firstly, might possess a significantly more ancient culture, or secondly, (not having established a unitary whole) that they might form a cultural gamut ranging from the high civilisations of antiquity to tribes in hugely primitive stages of development. Nevertheless, antique civilisation may only regard itself as culturally intact through the construction of this allegedly unitary "barbarian" world, the main sign of which was the lack of a common language with the culture of antique

³ [Translator's note.] This whole paragraph is missing in Lotman 1992, but exists in the first publication (Lotman 1984).

civilisation. External structures, distributed on that side of the semiotic boundary, are presumed to be non-structures.

An appreciation of internal and external space is not fixed. The very *fact of the presence of a boundary* is significant. Thus, in the Robinsoniads of the early 18th century the world of "savages" existing outside of the semiotics of the civilised world was valued positively. A similar situation is found with the artificially constructed worlds of animals or children — which are located outside of the "conventionalities" of culture, that is, of its semiotic mechanisms.

Semiotic irregularity

From the aforesaid, it is clear that "non-semiotic" space may actually occur within the space of other semiotics. Thus, from an internal point of view, a given culture can look like the external non-semiotic world, which, from the point of view of the external observer, may establish itself as a semiotic periphery. In this way, the crossing point of the boundary of a given culture depends upon the position of the observer.

This question is made more complicated due to the inherited internal irregularity which is a rule of the organisation of the semiosphere. Semiotic space is characterised by the presence of nuclear structures (frequently multiple) and a visibly organised more amorphous semiotic world gravitating towards the periphery, in which nuclear structures are immersed. If one of these nuclear structures not only holds a dominant position, but also rises to a state of self-description, thereby separating itself from the system of meta-languages, with the help of which it describes not only itself but also the peripheral space of a given semiosphere, then the level of its ideal unity creates a superstructure which itself is above the irregularity of a real semiotic map. The active interaction between these levels becomes one of the roots of the dynamic processes within the semiosphere.

Irregularity on one structural level increases the fusion of levels. In the reality of the semiosphere, the hierarchy of languages and texts, as a rule, is disturbed: and these elements collide as though they coexisted on the same level. Texts appear to be immersed in languages which do not correspond to them, and codes for deciphering them may be completely absent. Imagine a room in a museum, where exhibits from different eras are laid out in different windows, with texts in

known and unknown languages, and instructions for deciphering them, together with explanatory texts for the exhibitions created by guides who map the necessary routes and rules of behaviour for visitors. If we place into that room still more visitors, with their own semiotic worlds, then we will begin to obtain something resembling a picture of the semiosphere.

The structural heterogeneity of semiotic space creates reserves of dynamic processes and represents one of the mechanisms for the creation of new information inside the sphere. In peripheral areas, where structures are "slippery", less organised and more flexible, the dynamic processes meet with less opposition and, consequently, develop more quickly. The creation of meta-structural self-descriptors (grammar) appears to be a factor which dramatically increases the rigidity of the structure and slows down its development. Meanwhile, sections which were not subjected to description, or registered in categories which are clearly inadequate or "at the expense" of grammar, develop quicker. This allows for the future displacement of the function of the structural nucleus to the periphery of the previous stage, and the transformation of the former centre to the periphery. This process can be clearly traced in the geographic transference between the centre and the 'outskirts' of civilised worlds.

The division between the core and the periphery is a law of the internal organisation of the semiosphere. The dominant semiotic systems are located at the core. However, if the fact of such a division is absolute, then the forms in which it takes shape are semiotically relative and are, to a considerable degree, defined by the selected meta-language of description — depending on whether there are elements of self-description (description from the internal point of view and in terms worked out in the process of the self-development of a given semiosphere), or whether this is conducted by an external observer through the categories of another system.

The formation of peripheral semiotics may be represented not by fixed structures (languages) but by their fragments or even separate texts. Falling into the category of "foreigners" within a given system, these texts fulfil the function of a catalyst in the whole mechanism of the semiosphere. On the one hand, the border with foreign texts always appears as an area of enhanced meaning generation. On the other, any fragment of the semiotic structure or separate text preserves the mechanisms for reconstruction of the whole system. Thus the

destruction of integrity speeds up the accelerated process of "recollection" — reconstructing the semiotic whole through its parts. This reconstruction of language already lost to the system, in which system the given text would have brought meaning, practically always brings the creation of a new language, as opposed to the reconstruction of the old one, as this appears from the point of view of the self-knowledge of culture.

The eternal flow in culture of specific reserves of text with lost codes leads to the process of creation of new codes, often understood subjectively as reconstructions ("recollections").

The structural irregularity of the internal organisation of the semiosphere is determined, in part, by the fact that, having a heterogeneous nature, the semiosphere develops at different speeds and in different places. Different languages belong to different times and different quantitative cycles, thus natural languages develop at a significantly slower pace than mental-ideological structures. Therefore, its processes cannot be synchronous.

In this way, the semiosphere repeatedly traverses the internal borders, assigning a specialized role to its parts in a semiotic sense. The translation of information through these borders, a game between different structures and sub-structures; the continuous semiotic "invasions" to one or other structure in the "other territory" gives birth to meaning, generating new information.

The internal diversity of the semiosphere implies its integrity. Parts enter the whole not as mechanistic details, but as organs in organisms. The essential feature of the structural formation of the core mechanisms of the semiosphere is the fact that each of its parts creates its own whole, isolated in its structural independence. Its connections with other parts are complex and are characterised by a high level of deautomatisation. Moreover, at higher levels, they acquire a behavioural character, i.e. they gain the ability to independently choose programmes of activity. Relative to the whole, located at other levels in the structural hierarchy, they reveal an isomorphic quality. Thus, they are, simultaneously, the whole and its likeness. To clarify this relationship, we may take another example from the end of the 14th century, from the writer Tomasz Śtítný. It is also like a face, which, wholly reflected in a mirror, is also reflected in any of its fragments, which, in this form, represents the part and yet remains similar to the whole mirror; so, too, is the integral semiotic mechanism and the

separate text, relative to the isomorphism of all the texts of the world, and there is a distinct parallelism between individual consciousness, the text and culture as a whole.

Vertical isomorphism, which exists between structures located on different hierarchical levels, generates the quantitative growth of communications. In the same way that an object, reflected in a mirror, generates hundreds of reflections in its fragments, a communication, introduced into the integral semiotic structure, is circulated at the lower levels. The system facilitates the conversion of the text into an avalanche of texts.

However, the transformation of fundamentally new texts requires another mechanism. Here fundamentally different contacts are required. Here, the mechanism of isomorphism is constructed in a different way. Since, here, we don't have in mind a simple act of transfer, but rather an *exchange*, between participants there must be not only a relationship that is similar, but also one that exhibits a specific difference. A simple condition for this form of semiosis could be outlined as follows: substructures participating in the act of semiosis must not be isomorphic to each other, but separately isomorphic to a third element operating at a higher level of the system which they seek to enter. Thus, for example, the textual and iconic languages of pictorial forms are not isomorphic to each other. But each of them, in a variety of ways, is isomorphic in the extra-semiotic world of reality, which they represent in a given language. On the one hand, this allows for an exchange of communication between these systems and on the other, for the not so trivial transformation of communication and the processes of their transference.

The presence of two similar but simultaneously different partners in communication is one of the most important, but not the only, conditions in which dialogic systems originate. Dialogue includes within itself a reciprocity and mutuality in the exchange of information. But for this, it is necessary that the time of transference be superseded by the time of reception (Newson 1978: 33). And this implies discreteness — the possibility of interrupting the transmission of information. The possibility of giving information in portions appears to be a general law of dialogic systems — from the distribution by dogs of odorous matter in the urine to the exchange of texts in human communication. It should be borne in mind that discreteness can appear at a structural level at a point where, in its material

realisation, there occurs a cyclic change between periods of high activity and periods of maximal decrease in activity. In fact we might say that the discreteness of semiotic systems is generated by the description of cyclical processes in the language of a discrete structure. Thus, for example, in the history of culture we may delineate periods when one or another form of art, situated at a high point of activity, transmits its texts into other semiotic systems. However, these periods are changed by others when a given type of art as it turns into "receipt". This does not mean that by defining the isolated history of a given type of art we will encounter a break in continuity: studied as immanent, it will appear to be continuous. It is nevertheless worthwhile to set ourselves the goal of describing the whole of art within the framework of a given epoch, as this will clearly reveal the expansion of some and the "interruption", as it were, in the history of others. This may explain still one more phenomenon, well-known to cultural historians, but according to the majority of cultural theories, theoretically non-sensical: such phenomena as the Renaissance, Baroque, Classicism and Romanticism, generated within a given culture by universal factors, must be diagnosed synchronically, against different artistic areas and, indeed, wider still — different intellectual developments.

However, the real history of culture gives quite another picture: the moment of attack of similar epochal phenomena on a variety of different arts only levels out at the metalevel of cultural self-knowledge, crossing over then into research concepts. In the real substance of culture, non-synchronicity does not appear as a sudden deviation, but as a regular rule. At the apogee of its activity, the transferring agent simultaneously produces innovative and dynamic features. The addressees, as a rule, are still experiencing a former cultural stage. There are other, more complex relationships, but such irregularity has the character of universal conformity. Thus, thanks to the constant nature of this conformity (from the immanent point of view) the processes of development from the common cultural position appear discrete.

We might also look at this in terms of the greater natural cultural contacts: the processes of cultural influence of the East on the West and of the West on the East is connected to the non-synchronic sinusoids of their immanent development which, for the external

observer, establishes a discrete change in their multi-directional activities.

A similar system of relations can also be observed in the diversity of other dialogic systems, for example, between the centre and periphery of cultures, their highs and lows.

The fact that pulsation of activity at the very highest structural level appears to be discrete should not surprise us, if we recall that the boundary between phonemes exists only on the phonological, but by no means at the phonetic level and does not exist in the sonic oscillogram of speech. We may also say the same, relative to other structural boundaries, for example, between words.

Finally, dialogue must possess still another property: insofar as the translated text and the response received from it must produce, from some other third point of view, the *unitary text*, and through this each of them, from their own point of view, becomes not only a separate text, but has the tendency to become a text in another language; the translated text must, anticipating a response, conserve within itself an element of transference into the other language. Otherwise, dialogue is not possible. John Newson, in the above-cited article showed that, in a dialogue between a nursing mother and her baby, a mutual transition into the language of the other which mimics spoken signals takes place. This dialogue, actually, may be distinguished from one-sided animal-training.

To this is linked, for example, the fact that 19th century literature, in order powerfully influence painting, had to include in its language elements of the picturesque. Analogous phenomena also occur in territorial cultural contacts.

The dialogic (in the wider sense) exchange of texts is not a facultative phenomenon of the semiotic process. The isolated utopia of Robinson Crusoe, a product of 18th century thought, conflicts with the contemporary understanding of consciousness as the exchange of communication: from the exchange between hemispheres of the great brain of man to the exchange between cultures. Meaning without communication is not possible. In this way, we might say, that dialogue precedes language and gives birth to it.

And this also lies at the heart of the notion of semiosphere: the ensemble of semiotic formations precedes (not heuristically but functionally) the singular isolated language and becomes a condition for the existence of the latter. Without the semiosphere, language not

only does not function, it does not exist. The different substructures of the semiosphere are linked in their interaction and cannot function without the support of each other.

This is the sense of semiosphere in the contemporary world, steadily expanding into space over the centuries, it has now taken on a global character, and includes within itself the call signs of satellites, the verse of poets and the cry of animals. The interdependence of these elements of the semiosphere is not metaphorical, but a reality.

The semiosphere has a diachronic depth, since it is allotted by virtue of a complex memory system without which it cannot function. The mechanism of memory occurs not only in individual semiotic sub-structures, but also in the semiosphere as a whole. Despite the fact that we are immersed in the semiosphere, it can nevertheless establish itself as a chaotic, irregular object, a collection of autonomous elements; it follows, however, that the presence of internally regulated, functionally connected parts can be assumed, the dynamic relationship of which establishes its *behaviour*. This assumption answers the principle of economy, as, without it, the obvious fact of separate communications would be difficult to explain.

The dynamic development of elements of the semiosphere (sub-structures) is dictated by their specifications and, consequently, the increase in internal diversity. However, this does not destroy the integrity of the semiosphere, as the basis of all communicative processes lies in the invariant principle, making them similar to each other. This principle is built upon the combination of symmetry-asymmetry (at the level of language this structural feature was described by Saussure as the "mechanism of similarities and differences") with the periodic ebb and flow of all vital processes in any of their forms. And these two principles can also be incorporated into a more general unity: symmetry-asymmetry may be regarded as the breaking-up of any form of unity by a plane of symmetry, as a result of which a mirror of the deconstructed structure appears, forming the basis for a subsequent growth in diversity and functional specification. The cyclic recurrence forms the basis of a rotary movement around the axes of symmetry.

The combined effect of these two principles can be observed on very different levels — from the opposition of the cyclic recurrence (of the axis of symmetry) in the world of the cosmos and the atomistic explosion of unidirectional movement, which predominates in the

animal world and which appears as a result of a plane of symmetry — to the antithesis of the mythological (cyclic) and historical (directed) time.

Insofar as the combination of these principles has a structural character, impacting not only on the limits of human society but also the living world, and demands the creation of general structures similar to itself, for example, in poetical works, then the question naturally arises: is the whole universe not a form of communication, falling within an ever more general semiosphere? Is it not destined for a universal reading? It is doubtful whether we were able to find an answer to this question. The possibility of dialogue simultaneously suggests both heterogeneity and homogeneity of elements. Semiotic heterogeneity implies a structural heterogeneity. In this sense, the structural diversity of the semiosphere creates a basis for its mechanisms. In truth, and so conforming to the problem of interest to us, is the following principle, which V. I. Vernadsky called “the principle of P. Curie-Pasteur”, may be interpreted as one of “the basic principles of the logic of science — an understanding of nature”:

“Dissymmetry may only be drawn out by a cause that itself already possesses dissymmetry.” (Vernadsky 1977: 149)

The simplest and most widely disseminated form of combination of a structural identity and difference is enantiomorphism, mirror symmetry, through which both parts of the mirror are equal, but unequal through superposition, i.e. relating one to the other as right and left. Such a relationship creates the kind of correlative difference that distinguishes both identity — rendering dialogue useless — and non-correlative difference — rendering it impossible. If dialogic communication is the basis of meaning generation, then enantiomorphism divides the unity, and the rapprochement of the difference forms the basis of the structural correlation of individual parts in the construction of meaning generation (Ivanov 1978).

Mirror symmetry creates the necessary relations between structural diversity and structural similarity, which allow dialogic relationships to be built. On the one hand, the systems are not identical and give out diverse texts, and on the other, they are easily converted, ensuring mutual translatability. We may say that, in order for dialogue to take place, the participants must be distinct and yet simultaneously contain within their structure a semiotic image of counter-agent (Paducheva

1982), and thus enantiomorphism represents the primary "mechanism" of dialogue.

The proof that mirror symmetry can radically change the functionality of the semiotic mechanism, lies in the palindrome. This phenomenon has seen little study, so that — regarded as a piece of poetic fun — the fruit of "the game of word art" (Kvyatkovsky 1966: 190) has, until now, been openly and pejoratively regarded as "juggling words" (Timofeev, Turayev 1974: 257). In the meantime, even a surface examination of this phenomenon reveals very serious problems. We are not interested, here, in the ability of the palindrome to preserve the meaning of a word or a group of words through reading, whether in a straight line or in the opposite direction, but in the fact that, in so doing, the mechanism of textual formation changes and, therefore, also, the mechanisms of consciousness.

Let us recall the analysis of the Chinese palindrome, carried out by the academic, V. M. Alekseev. In declaring that a Chinese hieroglyph, taken in isolation, can only suggest the conceptual family of words, whereas its concrete-semantic and grammatical character are revealed only in correlation to the textual bonds so that, without the order of the word-sign, it is not possible to determine its grammatical category or the real semantic content, which makes concrete the generally abstract semantics of the isolated hieroglyph, V. M. Alekseev reveals the startling grammatical-conceptual displacement, which occurs in the Chinese palindrome, independently of the direction in which it is read. In the Chinese "palindrome" (i.e. a word appearing in normal verse in reverse orientation) all Chinese syllabic words, remaining punctually in their place, are called upon to play other roles, both syntactic and semantic (Alekseev 1951: 95).

From this, V. M. Alekseev drew the methodologically interesting conclusion: that the palindrome represents the best material for studying the grammar of the Chinese language.

The conclusions are clear:

- (1) The palindrome represents the best possible means of illustrating the interrelationship of Chinese syllabic words, without resorting to the artificial lecture-theatre style of displacement and unity exercised by students of Chinese syntax, lacking in skill and talent.
- (2) The palindrome represent the best Chinese material for the construction of a theory of Chinese (and perhaps not only Chinese) words and simple sentences. (Alekseev 1951: 102)

An observation of Russian palindromes has brought other conclusions. S. Kirsanov, in a short article, expresses a uniquely interesting reflection on the problem of psychology for the author of Russian palindromes. He notes that, "whilst still a student at the gymnasium" he "involuntarily said of himself":

"Тюлень не лют" [The seal is not fierce] then suddenly realised that this phrase could be read in reverse. From then on I often threw myself into reading words in reverse. [...] With time I was able to see words "as a whole", and such self-rhyming words and their combinations appeared involuntarily. (Kirsanov 1966: 76)

Thus, the mechanism of the Russian palindrome lies in the fact that the word is *seen*. This then allows it to be read in the reverse order. A very curious thing occurs: in the Chinese language, where the word-hieroglyph seems to hide its morpho-grammatical structure, reading it in the reverse order helps to reveal this hidden construction, displaying the hidden sequential choice of *structural elements* in a holistic and visible way. In the Russian language, however, the ability to "see the word as a whole" is required, i.e. to receive it in an integrated manner, in its *natural hieroglyph*. The Chinese palindrome transforms the visible and integral into the discrete and may be analytically differentiated from Russian — which transforms the exact opposite: visibility and integrity. That is to say, *reading backwards activates the mechanism of different hemispheric consciousness*. It is a primary fact of enantiomorphism that the form of the text changes the type of consciousness attributed to it.

Thus, the perception of the palindrome as a useless "jongleur's tool" or a thoughtless joke resembles the opinion of the rooster in Krylov's fable about the pearl. It is appropriate to recall the moral of this fable:

Fools judge precisely thus:

What they don't understand, they regard as trivial. (Krylov 1946: 51)

The palindrome activates the hidden layers of linguistic meaning and represents exceptionally valuable material for experiments dealing with the problems of functional asymmetry of the brain. The palindro-

me is not without meaning⁴, but has multiple meanings. At the highest levels the reading in reverse order has been linked to magical, sacred, hidden meanings. The text in its "normal" reading identifies itself with that which is "open", and in its reverse state — with the "esoteric" sphere of culture. The use of palindromes in spells, magical formulas, on the gates of tombs, is significant i.e. its use on the boundaries and magically active places of cultural space — areas where earthly (normal) and infernal (inverse) forces meet. Thus, the authorship of the famous Latin palindrome; which the bishop and poet Apollinaris Sidonius attributed to the devil himself:

Signa te signa, temere me tangis et angis.
Roma tibi subito, motibus ibit amor.

(Cross thyself, you who plague and vex me without need.
For by these words you are about to reach Rome, the object of your desire.)

The mirror mechanism, revealing symmetrical-asymmetrical pairings, is so widespread in all sense-making mechanisms, that you might call it a universal, including the molecular level and general structure of the universe, on the one hand, and a global creation of the human soul, on the other. For phenomena included in the term "text" it is, indisputably, universal. For, parallel to the antithesis of the sacral (direct) and infernal (inverse) structure, its spatial reflectivity is characterised by a convex Purgatory and a concave Hell, the configuration of which, according to Dante is shared between one and the other as form and content. As the subject of a palindromic creation, we may look at the composition "Eugene Onegin" where, in movement in one direction: "she" loves "him", outlining her love in a letter, but receives a cold rebuff, and in a reverse parry "he" loves "her", sending his love in a letter and receives, in his turn, a rebuff. This kind of repetition of the subject is characteristic of Pushkin (Blagoy 1955: 101f). Thus, in "The Captain's Daughter", the subject is composed of two journeys: Grinev's journey to the self-proclaimed "peasants" tsar

⁴ S. Kalacheva in an article, written from the position of the Krylovian character, comments thus on the Khlebnikov's poem, "Razin": "the value, and sense of words and word combinations ceases to interest the author [...]. The collection of these features is justified only by the fact that it is possible, with an identical measure of success, to read from right to left and from left to right" (Timofeev, Turayev 1974: 441).

to save Masha and then Masha's journey to the "noblemans" tsarina to save Grinev (Lotman 1962). Analogous mechanisms at the level of the character appear the doubles that inundate the romantic and post-romantic literature of 19th century Europe, frequently connected to the theme of mirrors and reflections.

Of course, all these elements of symmetry-asymmetry are only mechanisms of meaning-making, and like the bilateral asymmetry of the human brain, characterise the mechanism of thought, without pre-determining its content; they determine the semiotic situation, but not the content of this or that communication.

Let us give yet one more example of the way in which mirror symmetry changes the nature of the text. N. Tarabukin suggested the rule of pictorial composition, according to which the diagonal axis from the lower right to the upper left corner of a canvas gives the effect of passivity, whereas the inverse — from the lower left to the upper right — is active and intense.

Thus, it is interesting, from an observer's point of view, to consider Jericho's well-known painting "The Raft of Medusa". Its composition is constructed on two interweaving diagonals — the passive and the active. The trajectory of the raft, tossed by the wind, moves from the right to the left and into the depth. It personifies the spontaneous forces of nature, carrying along a handful of helpless people, the victims of a shipwreck. Along the inverse, active line, the artist has placed several human figures, gathering their final strength, so as to extricate themselves from their tragic situation. They have not given up the struggle. High above them is a single individual man, they are helping him to raise the flag, so as to draw the attention of a ship, which has appeared on the distant horizon (Tarabukin 1973: 479).

From this flows an experimentally corroborated fact: that one and the same canvas, transformed into the mirror symmetry of a printed engraving, transforms the emotional-semantic accent to its inverse state.

The reason for these notable phenomena lies in the fact that reflected objects possess their own internal structure of surface symmetry and asymmetry. Through enantiomorphic transformation, surface symmetry is neutralised and cannot be displayed in any other way, and asymmetry becomes the structural signifier. Therefore, mirror-symmetry represents the primary structure for the dialogic relationship.

The law of mirror symmetry is one of the basic structural principles of the internal organisation of meaning-making constructions. It includes, at the topical level, such parallel phenomena as the "high" or comic character, the appearance of doubles, parallel topicality and other well-known phenomena in the duality of intra-textual structures. Also included in this are the magic function of the mirror and the role of the mirror motif in literature and art. The phenomenon of "texts within texts"⁵ also has the very same nature. In this respect, we may even compare a phenomenon examined by us elsewhere, which may be observed at the holistic level of national cultures: the process of mutual acquaintance and inclusion into a specific general cultural world causes not only the rapprochement of separate cultures, but also their specialization — after entering a specific general culture, a given culture begins to cultivate its own originality in a more acute fashion. In its turn, the other culture also considers it as "special", "unique". The isolated culture "to itself" is always "natural" and "usual". Only by taking part in a much greater whole, does it recognise the external point of view as specific to itself. In this way, cultural generalities of the type "West" and "East" are revealed in the enantiomorphic pairings of functional asymmetry.

Since all levels of the semiosphere — from human personality to the individual text to the global semiotic unity — are a seemingly inter-connected group of semiospheres, each of them is simultaneously both participant in the dialogue (as part of the semiosphere) and the space of dialogue (the semiosphere as a whole), in each can be seen manifestations of 'rightism' and 'leftism' and, whether lying to the right or left, each also includes within itself, at the lowest level, structures belonging to both right and left.

Earlier we described the basis of the structural creation of the semiosphere as the intersection of three-dimensional symmetry-asymmetry and the sinusoidal change of intensity and attenuation of temporal processes, which generates discreteness. After all is said and done, we can reduce these two axes to one: the development of right-left; that which, from the genetic-molecular level to the most complex information processes, forms the basis of dialogue — the basis of all meaning-making processes.

⁵ See the papers by V. V. Ivanov, P. H. Torop, Yu. I. Levin, R. D. Timenchik, and myself in *Text within Text* (*Sign Systems Studies* 14, 1981).

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О семиосфере

Восходить от простого к сложному — естественный принцип науки. Однако в нем таится и опасность: эвристическая целесообразность (удобство анализа) начинает восприниматься как онтологическое свойство объекта, которому приписывается структура, восходящая от простых и четко очерченных атомарных элементов к постепенному их усложнению. Сложный объект сводится к сумме простых.

Пройденный за последние двадцать пять лет путь семиотических исследований позволяет на многое взглянуть иначе. Как можно теперь предположить, четкие и функционально однозначные системы в реальном функционировании не существуют сами по себе, в изолированном виде. Вычленение их обусловлено лишь эвристической необходимостью. Ни одна из них, взятая отдельно, фактически не работоспособна. Они функционируют, лишь будучи погружены в некий семиотический континуум, заполненный разнотипными и находящимися на разном уровне организации семиотическими образованиями. Такой континуум, по аналогии с введенным В. И. Вернадским понятием “биосфера” мы называем семиосферой.

Семиосфера характеризуется рядом признаков, прежде всего отграниченностью и неравномерностью. Одним из фундаментальных понятий семиотической отграниченности является понятие границы. Поскольку пространство семиосферы имеет абстрактный характер, границу ее не следует представлять себе средствами конкретного воображения. Структурная неравномерность внутренней орга-

⁶ A German translation (*Über die Semiosphäre*) has appeared in *Studia Russica Helsingiensia et Tartuensia*. Helsinki, p. 7–24 (1989); and in *Zeitschrift für Semiotik* 12(4): 287–305 (1990). There exist also translations of this article into Spanish, into Estonian, etc.

An earlier attempt to translate this article into English in order to publish it in *Semiotica* has been made in 1986, however, as Thomas Sebeok has described in his memoirs, the process unfortunately failed (see *Sign Systems Studies* 26: 29–31, 1998).

низации семиосферы определяется, в частности, тем, что, будучи гетерогенной по природе, она развивается с различной скоростью в различных своих участках. Разные языки имеют различное время и различную величину циклов, так, естественные языки развиваются значительно медленнее, чем ментально-идеологические структуры. Поэтому о синхронности протекающих в них процессов не может быть и речи. Внутреннее разнообразие семиосферы подразумевает ее целостность. Части входят в целое не как механические детали, а как органы в организм. Существенной особенностью структурного построения ядерных механизмов семиосферы является то, что каждая ее часть сама представляет собой целое, замкнутое в своей структурной самостоятельности.

Сознание без коммуникации невозможно. В этом смысле можно сказать, что диалог предшествует языку и порождает его. Именно это и лежит в основе представления о семиосфере: ансамбль семиотических образований предшествует (не эвристически, а функционально) отдельному изолированному языку и является условием существования последнего. Без семиосферы язык не только не работает, но и не существует. Различные субструктуры семиосферы связаны во взаимодействии и не могут работать без опоры друг на друга. Поскольку все уровни семиосферы — от личности человека или отдельного текста до глобальных семиотических единств — являют собой как бы вложенные друг в друга семиосферы, каждая из них представляет собой одновременно и участника диалога (часть семиосферы) и пространство диалога (целую семиосферу).

Semiosfäärist

Liikumine lihtsamalt keerulisemale on teaduses loomulik põhimõte. Ometi peitub temas oht: heuristilist otstarbekohasust (analüüsi hõlpsust) hakatakse tajuma kui objekti ontoloogilist omadust ja objektile omistatakse struktuur, mis lihtsatest ja kindlapiirilistest atomaarsetest elementidest lähtudes järk-järgult areneb nende keerukustumise suunas. Keeruleine objekt taandatakse lihtsate summaks.

Viimase kahekümne viie aasta jooksul läbitud semiootikauuringute tee lubab näha paljusid asju teisiti. Nagu nüüd võib oletada, pole kindlapiirilisi ja funktsionaalselt ühetähenduslikke tähendussüsteeme reaalses talitluses omaette ega isoleeritud kujul olemas. Nende väljaliigendamist tingib üksnes heuristiline vajadus. Eraldi võetuna ei ole ükski neist tege-

likult töövõimeline. Nad toimivad ainult paigutatuna teatavasse semiootilisse kontiinumisse, mis on täidetud eritüübiliste ja erisugusel korras-
tusastmel semiootiliste moodustistega. Niisugust kontiinumit me nime-
tame semiosfääriks — analoogia põhjal Vladimir Vernadski poolt tarvi-
tusele võetud “biosfääri” mõistega.

Semiosfääril on rida iseloomulikke tunnuseid, eelkõige piiritletus ja ebaühtlus. Semiootilise piiritletuse üks alusmõisteid on piiri mõiste. Et semiosfääri ruumil on abstraktne iseloom, ei ole vaja tema piiri enesele konkreetse kujutluse abil silma ette manada. Semiosfääri sisekorralduse struktuuriline ebaühtlus on muu hulgas tingitud sellest, et olles loomult heterogeenne, areneb semiosfäär oma eri piirkondades erineva kiirusega. Eri kehtel on erinev aeg ja erisugune tsüklipikkus: loomulikud keeled arenevad märksa aeglasemalt kui mentaal-ideoloogilised struktuurid. Sellepärast ei saa juttugi olla neis kulgevate protsesside sünkroonsusest. Semiosfääri sisemine mitmekesisus peab silmas ta terviklikkust. Osad ei kuulu tervikusse mitte mehaaniliste detailidena, vaid nagu organid organi-
smi. Semiosfääri tuummehhanismide struktuurse ehituse peamine ise-
ärasus on, et iga osa on ise tervik, suletud oma struktuursesse iseseis-
vusesse.

Teadvus ei ole võimalik ilma kommunikatsioonita. Ses mõttes saab öelda, et dialoog eelneb keelele ja sünnitab keele. Just sellel põhinebki semiosfääri-kujutelm: semiootiliste moodustiste kooslus eelneb (mitte heuristiliselt, vaid funktsionaalselt) üksikule isoleeritud keelele ja on tema olemasolu tingimus. Ilma semiosfäärita keel mitte ainult et ei hakka tööle, vaid teda pole olemaski. Semiosfääri erisugused allstruktuurid on vastastikku seotud ega saa töötada ilma üksteise toeta. Et semiosfääri kõik tasandid — inimesiksusest või üksiktekstist kuni globaalsete semiootiliste ühtsusteni — on justkui üksteise sisse asetatud semiosfäärid, siis on iga-üks neist ühtaegu nii dialoogis osaleja (semiosfääri osa) kui ka dialoogi ruum (terve semiosfäär).

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ISSN 1406-4243