Lotman's epistemology:
Analogy, culture, world

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Abstract. According to Jeanne Parain-Vial and others, humans are characterized by their need for analogy, together with the need for logic and intelligibility, and this need is expressed by a continuous research of models in the scientific field that can, in some aspects, bring to light some properties of reality, namely be *analogous* of them. The knowability of things is founded on analogy; thus, they are not exhausted by a single model of knowledge but rather through multiple and autonomous forms of comprehension.

As also pointed out by Juri Lotman and Boris Uspenskij, mythical thought was the first to postulate the possibility of establishing a relationship of likeness among very different realities, as in the archetypical cosmological model of world: a possibility that, as they explain, has survived in post-archaic man, constituting a fundamental component of cognitive activity and scientific modelling.

The article is dedicated to the use of analogy in Lotmanian semiotic theorization and to its heuristic and epistemological value.

Keywords: Lotman, semiotics, epistemology, analogy

1. The antinomy unity-multiplicity and the role of Aristotelian analogy

In modern time, the problem of the relationship between totality and parts (or unity and multiplicity) strongly emerged in the field of biology around the end of the 18th century, with the Cuvierian concept of *mutual dependence of functions*, namely a perspective that observes the living not through taxonomic-descriptive

criteria – from the simpler and more inert toward the more living and complex – but catches it in its unity and functional interdependence, as well as in its dynamics. In his *Archéologie des sciences humaines* Michel Foucault (2005: 291) writes that from Cuvier and from the concept of *focus of identity* the identity of the living is certainly stated through a play of differences, but these emerge only against the background of great functional unities with their own internal systems of dependences: from Cuvier "multiplicity is apparent and unity is hidden. […] the differences proliferate on the surface, but deeper down they fade, merge, and mingle, as they approach the great, mysterious, invisible focal unity, from which the multiple seems to derive, as though by ceaseless dispersion" (Foucault 2005: 291, 293). According to Foucault, the French biologist's vision, with its tension to discover the invariant structure of reality, or the functional homogeneity that secretly sustains it, lays the foundations of modern structuralism and reconfigures the whole-part relationship, fundamental for the developments of cybernetics and the theory of information.[1]

At that time, the same operation was also made by Goethe, albeit from a different scholarly point of view and in a completely autonomous way.[2] The research of

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[1]   In the following quotation we can glimpse the Lotmanian idea of culture as an organic system: "This reference to function, and this uncoupling of the level of identities from that of differences, give rise to new relations: those of *coexistence*, of *internal hierarchy*, and of *dependence* with regard to the *level of organic structure*" (Foucault 2005: 289).

[2]   Just as Goethe was elaborating his idea of "archetypical level of reality" (fundamental for Russian Symbolism), Cuvier made the conceptual reversal towards the modern biology. The main distinction between the two scholars – as Ernst Cassirer points out – was a different perspective about the "movement" of reality: static and structural in Cuvier's vision; genetic and dynamic in Goethe's. However, even though very close, Goethe criticized Cuvierian structural functionalism, not appreciating that they both were moving towards the same theorization of living, although from two different epistemological points of view. Cassirer (2007[1946]: 306–307) – putting the antithesis Goethe-Cuvier back in its right perspective and giving at last a definition of proto-structuralism – writes: "Goethe did not stand alone in this concept of the organic world. His theory of metamorphosis was rich in new and original ideas. In order to defend these ideas he had to challenge the greatest scientific thinkers of his age. In the famous controversy between Cuvier and Geoffroy de Saint-Hilaire he passionately sided with the latter. […] [But his polemic with Cuvier was not so incompatible as that with Newton's optics]. Cuvier advocated a static view of organic nature; Goethe a genetic or dynamic view. The former laid stress upon the constancy, the latter on the modifiability, of organic types. Yet, when going into the details of their discussion, we find that Goethe, even in his genetic view, was much nearer to Cuvier than to Darwin. In his *Geschichte der biologischen Theorien* Emanuel Rádl describes the biology of Goethe, of Cuvier and of Geoffroy de Saint-Hilaire as a "morphological idealism". That seems to me to be a very good and felicitous term. It expresses the common basis that remained unshaken in the controversy. Cuvier, Goethe and Geoffroy de Saint-Hilaire were unanimous in emphasizing that there are no mere accidental things in an organism. If we have found one of its characteristics, we have all the others; we can reconstruct the organism in its entirety. "*C'est*

a principle of unity despite the diversity, namely the wish to explain the coherence of the real (in a metaphysical and physical perspective) leads Goethe to write his theory of nature,[3] referring to what Cassirer talks about as "morphologic idealism", attributing to this the genesis of structuralism, together with Cuvier's perspective. The scientist Goethe, as Tzvetan Todorov (1991: 636) puts it, "conceived the idea of an internal relation among the different species of animals and plants, which had been originated by transformations […] from a protoform that was not possible to observe" – in other words, Goethe established relationships of similarity among different identities, starting from the intuition of the only matrix.

In both perspectives, the Aristotelian analogy restoration has a fundamental rule: building bridges among different orders of realities – for example, gills are to respiration in water what the lungs are to respiration in air (Foucault 2005: 288) – it respects the irreducible heterogeneity of the world and, at the same time, foresees that cosmological coherence that the Greek thought had already splendidly expressed in the word *kósmos* through the dynamics of *logos*.[4] By virtue of this, the analogy advances an idea of relationship between the *one* and the *many*, in which the *one* can only be a whole, decomposable in the *many*, but not reducible to them.

In fact, with the Cuvierian concept of mutual dependence of functions and the Goethean morphologic idealism, the organism starts to be studied as a wholeness clearly not reducible to the sum of its components, or as a system structured on a multi-level hierarchy in which the upper levels appear to be qualitatively and irreducibly different compared to the lower ones: what is defined, by contemporary science, as a "complex system".[5] This qualitative difference, as cybernetics aptly

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dans cette dépendance mutuelle des fonctions", says Cuvier, "[…] et dans ce secours qu'elles se prêtent réciproquement, que sont fondée les lois qui déterminent les rapports de leurs organes, et qui sont d'une nécessité égale à celle des lois métaphysique et mathématique". […] "dans l'état de vie, les organes ne sont pas simplement rapprochés, mais qu'ils agissement les uns sur les autres, et concourent tous ensemble à un but commun." [Cuvier, George 1835. *Leçons d'anatomie comparée*. Paris : Crochard, 49–50]" (Cassirer, Ernst 2007[1946]: 306–307).

[3]   The most famous writings in which Goethe explains his vision of nature are the poems "The metamorphosis of animals" (*Die Metamorphose der Tiere*) and "The metamorphosis of plants" (*Versuch die Metamorphose der Pflanzen zu erklären*).

[4]   The term *kósmos* is deeply connected with the original meaning of *logos* (from *léghein*, "to gather", "to get together") – a concept used repeatedly by Lotman –, which means "link", "calculus" and becomes "word" only later. The *logos*, moving along the multiplicity within its contradictions and *aporie*, gathers, connects and joins together the various objects of reality, highlighting reciprocal links, in order to find a principle of unity in the structure of nature and thus to achieve a vision and understanding of the existing whole in an ordered whole (*kósmos*).

[5]   The modern complexity is a problem that arose already in Aristotle's philosophy by the concept of *entelécheia*, namely the emergence of the unity of the whole as a result of the coordinated activity of parts.

pointed out, is linked to the fact that information, fitting in different levels of the organization of matter, determines in each of these characters and properties that are diverse also qualitatively and not just through quantitative additions – as it was postulated from the classic taxonomic-descriptive perspective –, thus becoming irreducible to one another. Saying that the whole is more than the sum of its parts, it has basically been stated that the whole contains new information (compared to those contained in the parts) that characterizes it as an entirety and as an identity; the information shows itself in its deepest meaning: gives form, unity, order, coordination and directionality.[6] At the same time, it has been stated that the whole has the faculty to replicate its parts, so that the parts can be said to be in a relation of analogy with the whole and, therefore, contain the identity of the whole.

Here we find an explanation to why, in contemporary science, the Aristotelian analogy, in close connection with information, returns to play a central role in the clarification of the relationship between unity and multiplicity: going beyond the solely biological field, the analogy does not give reason only of the great organic unities that connect very different realities – as Foucault reported with the example of respiration in general (gills are for the respiration in water what lungs are for breathing the air) – but solves in general the structural unity of the complex systems. Here, moreover, we find the explanation of why methodological reductionism, in order to preserve its heuristic legitimacy, should not end in conceptual reductionism, which tends to state a correspondence between the whole and the sum of its parts.

Bearing in mind that "there are no mere accidental things in an organism. If we have found one of its characteristics, we have all the others; we can reconstruct the organism in its entirety" (Cassirer 2007[1946]: 306–307), let us see now how Lotman uses analogy to relate himself to the external world and thus to infer models of culture which may, in some aspects, reproduce reality itself, namely the entirety.[7]

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[6]   It is not by chance that in the language of biologists and mathematicians, the Aristotelian schema of hylomorphistic theory is reappearing, through an approach of the concept of "information" to "substantial form", namely the principle that makes "one" the whole and imprints an identity to the matter (Strumia 2002).

[7]   In a very similar vein to Cassirer's utterance, Lotman (1967: 111–112) says in semiotic terms: "a structural researcher is always interested in relationships. [...] he always considers facts in relationship with one another and with the system in its whole" (Lotman 1967: 111–112).

2. Lotman, the analogy and various models of culture

2.1. Semiotics and cybernetics. The super-complex system

The discovery of the weight of information in the complex system organization highlighted three key issues that we have to underline in order to obtain a deeper understanding of Lotman's cultural models and, in particular, the cybernetic one: (1) how can a system maintain its identity and, at the same time, transform itself?; (2) how can a system preserve its balance in conditions of increasing disorder?; (3) how can a system generate new information though retaining its informative deposit?[8]

When Lotman, since the early essays, defined culture as "the totality of non-hereditary information acquired, preserved, and transmitted by the various groups of human society" (Lotman 1977[1967]: 213), he assigned a specifically cybernetic function to cultural codes: according to him, these "become instruments for preserving and transmitting information" (Lotman 1977[1967]: 213), so that basically an equivalence is established between culture and information. In this way he does nothing else but treat culture as a complex system, describing its dynamics and organization in the terms of a cybernetic structure. Now we have to make a reflection of epistemological sort. In the equivalence

<information : cybernetic complex system (1) = cultural codes : culture (2)>

a theoretical and methodological assumption is implied – *analogies of proper proportionality* (or similar structures of relationships) are in fact stated between cybernetic models (1) and semiotic models (2), so that if we know the structure of relationships and properties of the former, we can describe the structure of the latter in a similar manner despite the different nature of the two objects (these are so-called material analogies). In this case, we could talk about an "external" use of the analogy in Lotmanian semiotics: in fact, he adopts the analogy as a heuristic device suited for creating a dialogue of semiotics with the outside world, or rather with the other sciences, and to deduce patterns that, through the material analogies, might reveal some properties of culture, which is exactly what happens in the epistemological comparison between cybernetics and semiotics. Later we will see how Lotman used the analogy also in an "internal" way, or as a gnoseological device suited to explain the semiotic mechanism of culture, namely the internal dynamics of culture.

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[8]   These three key issues arise since the 1960s–1970s in the following writings of Lotman's: Lotman 1967: 107–127; Lotman 1977[1967]; Lotman, Uspensky 1973; Lotman 1980[1975]; Lotman 1979[1976].

It is necessary to underline that the above-mentioned issues in Lotman's theory are strongly linked to Ivanov 1977[1965]; Ivanov 1978[1962]; Ivanov et al. 1977[1962].

According to Lotman, an essential role is played by the hierarchical whole of codes which, by virtue of their structuring capacity, inform (in the sense of giving form) cultural objects, giving them a specific typological identity. In these terms, culture begins to have a new configuration, in which the system of codes, and the language (*langue*) *in primis*, ensures, on the one hand, the unity of the whole – the homeostatic function – and, on the other hand, the internal variety; Lotman and Uspensky (1978[1971]: 226) wrote in 1971 that the mechanism of the cultural system, on the one hand, "would exhibit particular homeostatic functions to such a degree as to preserve the unity of the memory, to remain the same, and on the other hand, would continually renew itself, deautomatizing itself at every phase and thereby maximizing its ability to absorb information".

Here we still do not have a real translation of the cybernetic model into semiotic terms, but this prepares the ground for the hypothesis that culture can be configured as an organic unity whose internal dynamism relates to a historically accumulated game of codes – so much so that the equivalence "culture = information" translates into the equivalence "information = memory".

In an essay from a few years later, "Culture as collective mind and the problems of artificial intelligence" (1977), Lotman makes a real "translation" of the cybernetic mechanisms of the complex systems into culture, finding in the latter the attributes (of semiotic nature) that make it a unity clearly not reducible to the sum of its components, in which the whole is replicated in all parts. As the cornerstone of the equivalence he puts "culture = collective mind" – a typical property of complex systems: the homeostasis (in increasing entropy conditions) that, in Lotmanian terms, is the cultural self-description in conditions of semiotic heterogeneity.

The self-description is the moment in which a culture, in its historical process, creates a model of itself and, through this, gives order to the system. For the first time, Lotman and Uspensky talk about it in 1971, in the above-mentioned essay "On semiotic mechanism of culture", they write: "at a specific stage in the development of culture, there comes a moment when it becomes conscious of itself, when it creates a model of itself. The model defines the unified, the artificially schematized image, that is raised to the level of a structural unity. When imposed onto the reality of this or that culture, it exerts a powerful regulating influence, preordaining the construction of culture, introducing order, and eliminating contradiction" (Lotman, Uspensky 1978[1971]: 227).

In 1977 Lotman again takes up the problem of self-description in the light of supracomplex models of cybernetics. He opens the essay "Culture as collective mind and the problems of artificial intelligence" (Lotman 1979[1977]: 89) by wondering whether it is possible to transpose to the culture that mechanism by virtue of which, in supracomplex models, "the stability of the whole grows with the growth of the internal diversity of the system" and, if so, how this can happen, since

a growing complexity should lead to an increase in entropy.[9] According to Lotman, this problem is still linked to another question: which is the functional necessity of cultural polyglotism? And, most of all, why is the act of communication always conceived as an exchange of equivalent things – he is referring to Jakobson, Mauss, Lévi-Strauss – if it is an asymmetrical and polyglot exchange? Well, Lotman answers, the appearance of semiotic communications is, at the same time, a source of heterogeneity and a device of homeostasis. As it happens in supracomplex systems it is true that the culture system shows a high internal diversity – this is clearly Lotman's reference to the Bakhtinian *ambivalence* –, but it also true that these irregular semiotic elements tend to become progressively autonomous structures by virtue of the unifying power of semiotic communication. Lotman (1979[1977]: 91) writes: "The tendency to increase semiotic diversity within the organism of culture has the result that each meaning-bearing node of its structural organization begins to show a tendency to turn into a peculiar "cultural personality", a closed immanent world with its own internal structural-semiotic organization, its own memory, individual behavior, intellectual capacities, and procedure for self-development. […] culture as an integral organism represents a combination of structural-semiotic formations, constructed according to the model of separate personalities, and the systems of connections (communications) between them".

These formations are never atoms detached from the whole: otherwise, Lotman writes, culture would risk semiotic schizophrenia and then an implosion – polyglotism that turns into a "Tower of Babel". This is the deep meaning of self-description as a primary mechanism of semiotics of culture. The emergence of a *metalanguage* that necessarily follows the moment of self-description leads culture to understand itself through what Lotman calls an ideal *self-portrait*, but also to grasp the meaning of the (seemingly inconsistent) semiotic heterogeneity on a higher level of abstraction (*metalevel*). "The metamechanism of culture", as Lotman (1979[1977]: 92–93) puts it, establishes a unity between the parts that strive for autonomy and becomes a language in which internal intercourse inside that culture is carried on. It contributes to the unification of separate structural nodes. Through it the isomorphism of the culture as a whole and its parts comes into being.[10]

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[9]   And, Lotman carries on, in semiotics terms, this translates into the emergence of a mechanism, internal to each culture, which serves as principle of identity (cohesion of the whole and reflection of it in its parts).

[10]   I think that here, as in other essays, Lotman assigns to isomorphism the meaning of similarity, analogy, resemblance. In mathematics, isomorphism actually implies a one-to-one correspondence between elements of distinct sets, by virtue of which there is no relationship of proper proportionality (or similarity of relationships), but an out-and-out equality. With reference to culture, isomorphism thus understood would create a situation of identity among texts and therefore conditions of semantic implosion: the force of culture, Lotman underlines, is exactly in its differential and relational unity, where texts – just because they are different and, at the same time, overinformed by cultural identity – may give life to ever new instances of meaning.

We can realize that these properties have an exceptional value for the explanation of cultural dynamics. Stating that there is an isomorphic relation between culture and its components, namely cultural objects (even if Lotman will talk about "texts") actually means arguing that access to the texts – in which the only identity is replicated – can lead to the comprehension of the culture as a whole, provided that the movement from one to many and vice versa is always dialogic: the culture in light of the texts, the texts in the light of the culture, otherwise the simplification and the reduction of the whole to its components. It is no accident that in "On the semiosphere" (1984), published several years later, Lotman will use a symbolic "prismatic" image to explain cultural dynamics:

> Like a face, which, wholly reflected in a mirror, is also reflected in any of its fragments, which, in this form, represent 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 […]. [like] 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. (Lotman 2005[1984]: 215–216)

Therefore the cybernetic analogy suggests another fundamental property of culture: as in the complex systems, where there is a resemblance among the parties and not an identity of structure, so in culture cultural objects are linked to each other and together by a relation of analogy with the whole (the culture), while, at the same time, they have their own characteristics: namely, there is always a margin of irreducibility and of dissimilarity among cultural objects (or the semantic gap). The continuous hybridization of these – being objects-in-relation – allows the system-culture to grow exponentially. Lotman often adopts the image of the Heraclitean *logos*, that grows by itself, to summarize cultural dynamics; and this is not by chance, because this term – although it has a polysemic meaning[11] – is summarized in the concept of *phronesis* ("mind"): *logos* and *phronesis* designate, at the same time, the language and the intelligence of the world, and undertake to gather the totality of things uttering and thinking their unity. Therefore the Heraclitean *logos* is a mind-that-utters[12] that can intuitively read and discourse about the resemblances of reality, by their nature exponentially infinite – like unlimited semiosis.

We have thus discovered the "internal" use of analogy in Lotmanian semiotics: a gnoseologic device apt to explain the semiosis of culture. Thus, the principle of

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[11]   See the Heraclitean fragments in Diels-Kranz's encoding.

[12]   Again, it is not by chance that Lotman defines culture also as a thinking organization, namely as a collective mind-that-utters.

similarity is manifested, both among models belonging to different orders of realities (semiotics, cybernetics, biology) as well as inside the same order. This is why Lotman suggested already in 1967, in his "Thesis on the problem of 'Art among the other modelling systems'", a move from a semiotics based on the concept of a "system of signs" to one grounded on the concept of the "model", as a heuristic way much more malleable – or less folded on contingency – and closer to the iconic sign (by its nature based on similarity).

The "internal" use of analogy leads us to another important consideration. By it, we discover that the semiotic mechanism of culture has not only an ordering, "informant" function, which features cultural heterogeneity as a whole: in this case, it could not be explained – as it happens with the concept of genetic information in the field of biology – the way by which the system maintains and ensures its own identity and functional unity and, at the same time, transforms itself and grows. Just by virtue of the relation of similarity and a semantic gap among its components, the semiotic mechanism of culture is also an intelligence creating thought and it is not a coincidence that after cybernetics Lotman should have been inspired by the dynamics of the human brain.

Concerning this, let us come back for a moment to the mechanism of self-description. Talking about it, Lotman underlines how, within culture, the structuring of many semiotic formations interrelated with one another and unified by meta-language generates a state of constant translation of the untranslatable, namely the condition of a cultural life: the creation of new information. Culture, always defined as *nonhereditary memory* of a collectivity, is now called *collective intellect* (a collective *phronesis*), a generative mechanism of ideas, exactly how it happens in the cerebral human activity: "It is this translation of the untranslatable that is *the mechanistic for the creation of a new thought.* At its base lies not a one-for-one transformation, but an approximate model, a resemblance, a metaphor. At this point we can observe the striking isomorphism between culture – the apparatus of collective consciousness – and individual consciousness. We have in mind the fact of the asymmetry of the human brain – the semiotic in the work of the left and the right hemispheres" (Lotman 1979[1977]: 93–94).

This opens the path to the theoretical switch of the 1980s and 1990s: attention to all that is heterogeneous in culture leads Lotman to study the functional asymmetries of cerebral hemispheres (the left hemisphere: linguistic functions *vs* the right hemisphere: visual-spatial elaboration) and to propose an analogical relationship between the bipolar structures of individual consciousness and the polyglot mechanism of cultural semiotics, namely the isomorphic correspondence between human cerebral activity – in its dialogical dynamics –, collective consciousness, text and culture. Referring to Ivanov's writings on the structure of human consciousness, Lotman (1979[1977]: 94) writes in his essay "Culture as collective

mind and the problems of artificial intelligence": "No "monologic" (i.e. monoglot) apparatus could produce messages that are in principle new (thoughts), i.e. could be called a thinking apparatus. A thinking apparatus must have in principle (in the minimal schema) a dialogic (bilingual) structure. This deduction, incidentally, gives new meaning to the prophetic ideas of M. M. Bakhtin about the structure of dialogic texts. I have attempted to point out the common features in the study of individual and collective consciousness, and to indicate a new approach to the problem of artificial intellect".

2.2. Semiotics and brain. The thinking organization

We have to underline that the relationship between dialogism and the isomorphic principle[13] is not at all new in Lotman's remarks. Already in the essay "Myth – name – culture" (1973) – whose profundity of thought reminds of some Mircea Eliade's writings on myth[14] – Lotman stresses that mythological thought (as an out-and-out way of knowledge), unlike the logic-syllogistic one, is based on the "capacity for establishing identifications, analogies, and equivalences" (1978[1973]: 226), as it happens, for example, in the isomorphism of "universe / society / human body" of the archaic consciousness.[15] This way of proceeding of the thinking, Lotman continues, has by no means been lost and replaced by the abstract one, but rather it has remained a fundamental gnoseologic basis in humanity:[16]

> It can be assumed that the ontogenetically conditioned mythological layer
> is fixed in the consciousness (and language), making it heterogeneous and
> in the end creating tension between the poles of mythological and non-
> mythological perception. "[…] heterogeneity is a primordial trait of the

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13   The isomorphic principle is meant always in the acceptation stressed in Footnote 10.

14   In particular *The Myth of Eternal Return* (1949).

15   Analogical capacity that – Lotman continues – has not only settled in the human language but has served as a fundamental scientific basis for the modern thought (logic-syllogistic) and, *in primis*, for the mathematical science. Again, in other essay, written together with Zara Minc, *Literature and Mythology* (1981), he said: "Just by [mythological] consciousness were elaborated the ideas of isomorphism and other -morphisms, which have played a crucial role in the development of mathematics, of philosophy and of other fields of theoretical consciousness" (Lotman, Minc 1981: 209).

16   The analogy makes also in the "modern" man infinite possibilities of linking. This is possible as the analogical language (or creative thought) does not specify the contents in an univocal way but potentially can express them in an endless variety of forms of expression – we could perhaps talk about "nebulous" meaning. Analogical mechanisms arise as constitutive of the expressive form of intuitional language.

human consciousness, for the mechanism of which the presence of at least two not completely mutually translatable systems is vitally necessary". (Lotman, Uspensky 1978[1973]: 218)

In Lotman, myth – just like infantile consciousness and, partially, game – represents the synthesis of cultural dynamics because, on the one hand, it always needs another consciousness (the non-mythological or abstract consciousness) to be translated and, on the other hand, it is structurally untranslatable by this:[17] it is just the asymmetry – which rules the relationship between the modern Reason and the mythological reason, the left hemisphere and the right one, the logic (discrete) language and the analogical (non-discrete) one – that is an endless source of meaning, principle of heterogeneity, an essential condition of the human and cultural communication.

Concerning this, Lotman pays particular attention to the difference between discrete texts and non-discrete texts both in "Culture as collective mind and the problems of artificial intelligence" as well as in "The phenomenon of culture" (1978), in order to explain the monologic and dialogic mechanisms in the light of the principle of heterogeneity. He points out that the emergence of new information within culture – by virtue of isomorphic principle between individual intellect and collective intellect – is realized just through the dialogical encounter between discrete texts (verbal languages, corresponding to the pole of logical-abstract knowledge) and non-discrete texts (iconic languages, corresponding to the pole of synthetic knowledge). The constant "interference", creolization and reciprocal translation between these two types of text ensure the elaboration of ever new information within culture.

From the remarks made up till now, we can make a fundamental conclusion about the function of analogy in Lotmanian semiotics: the coexistence of the *one* and the *many*, or the culture as identity and as heterogeneity, starts to be seen as a problem of coexistence of languages, which refers to the more general problem of distinction/separation/primacy between the logical-dialectic reason and the intuitive-noumenal mind. Analogy plays a key role here as it seems to be a dialogical solution within this antinomy.

The distinction between rational (or abstract) and intuitive thought emerges in the 1970s in a mature way; however, we have to point out that this argument was already touched upon in Lotman's early essay "Thesis on the problem of 'Art among the other modelling systems'" (1967) in which Lotman (1975[1967]: 4)

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[17]   In the essay "Literature and mythology" (1981), Lotman will sharply criticize the bad translation of the mythological metaphorism by modernity, which – with its worship for Reason – tends to impose a logocentric vision of the world.

wrote: "so, in order that the results [of the modelling activity] can be perceived as an analogue of the object, they must be subject to specific rules of *analogy*, formulated on intuitive or rational basis". According to Lotman, the different takes on the real (thought as mind/*nous* and thought as reason/*dianoia*) give back the same reality, making it knowable through its objects, caught both as noumenal objects and as analytical objects. Analogy has to be submitted to specific rules of intuitive or rational nature precisely because the recognition of relationships of similarity among the objects takes place via two different ways of thinking: intuitive or strictly analogical (non-discrete) and logical-analytical (discrete).

Summarizing the above, we can state that the "external" analogy leads Lotman to be inspired by scientific models of the human brain functioning, while the "internal" analogy stimulates him to find points of contact between the intuitive consciousness and the logical-analytical one.[18] In "Literature and mythology" (1981), written together with Zara Minc, he notes that "the continuous vision of the world and its verbal discrete modellization have an enormous cultural and intellectual value. [...] In the last period" – Lotman continues – "it has made the attempt to correlate the continuous consciousness – (not-discrete) – with the right hemisphere activity and the verbal discrete one with the left hemisphere activity" (Lotman, Minc 1985[1981]: 209). The sedimentation of the non-discrete consciousness in modern humans and its coexistence with the discrete (logical-analytical) espouses analogically with the dynamic of the hemispheres. If, according to cybernetics, the recourse to analogy was linked to the problem of the balance between order and entropy, stability and growth, now it is linked to interlinguistic and intercerebral translation – the mechanism that ensures the continuous emerging of new information within culture.

If, on the one hand, Lotman's progressive approach to biology leads him to use an organicistic simile to define culture, on the other hand, it exhorts him to reflect repeatedly on the epistemological value of the analogy, on its lights and shadows – and this, as we will see, is linked to Lotman' s growing worry about the relationship between humanities and natural sciences and, more generally, the predominance of science within contemporary culture. We notice it, for example, in the introduction to the various models of culture derived from theories of biological roots. In "Asymmetry and dialogue", an essay from 1983, Lotman writes:

> [...] the method of scientific though, which is able to reveal deep and otherwise inaccessible aspects of the phenomena, is *analogical*. Analogy can also become a source of mistakes and hasty conclusions, if it does not proceed with caution.

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[18]   The functional difference between intuitive consciousness and logical-analytical consciousness is well explained in Lotman 1998[1981] and Lotman, Nikolaenko 2000[1983].

> This is exactly the case of the analogies between new discoveries in the brain asymmetry field and the semiotic asymmetry of culture, in particular as concerns the attempt to attribute the complex functions of culture to the left hemisphere or the right. […] concepts such as "right hemisphericity" and "left hemisphericity" can be used for the cultural phenomena only for focusing attention on a *functional analogy* known at another structural level. The caution in using this analogy does not diminish but increases its significance. It remains the most important fact: the belief that every intellectual construct has to have a bi- or poly-polar and the functions of these substructures are analogical at different levels: from the single text and the individual consciousness to the national cultures and all the culture of humanity. (Lotman 1985a[1983]: 104)

This substantial reflection suggests some important aspects of his scientific method and the idea of culture that is taking shape in the 1980s. First of all, the concept of *functional analogy* gives evidence of Lotman's acute awareness of the methodological debate that had appeared in the humanities, predominantly in the second half of the 20th century – namely the need for a profound dialogue with natural sciences: an impracticable dialogue through a mere theoretical borrowing, but potentially fruitful by the "sensible" use of analogy, as an epistemological bridge among the various sciences.[19] Hence the caution of Lotman in bringing together two systems of different orders, brain and culture, and his attention to thinking at a high level of abstraction, so that one (the culture) is not flattened on the other (the brain).[20]

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[19]   In the 20th century through the research of unifying methodological criteria, the scientific world undertook the transdisciplinary path as the only solution to the preservation of the plurality of scientific perspectives – that had been seriously compromised by the positivist reductionism of the 19th century, more oriented to tracing back everything to the criteria of formal and physic-natural sciences. The path was particularly difficult for the humanities and social sciences as well as theoretical-philosophical sciences, which should reflect on their epistemological specificity, thus affirming the reasonableness of the intellectual experience unity, which is always expressed through a multiplicity of scientific models. The main problem that will still arise in the humanities now is striking a balance between formalizing and empiric-objective requirements and the hermeneutic vocation: by virtue of this, the humanities must not give in to the temptation to lean on the natural sciences to seem more "scientific", but rather have to find out the right harmonization with the latter and, as Lotman writes, to use analogy just as a dialogical device (Gismondi 2002).

[20]   In the same essay," Asymmetry and dialogue" (1983), Lotman (1985[1983]: 100) writes: "However, we have firmly to point out that the concepts of "right and left hemisphericity", when implied in the cultural field, are adopted in a completely conventional way and that we have to consider how they would be in inverted commas. We make use of them just in order to recognize the analogy that is there between some subsystems functions of the collective consciousness and of the individual, being aware that the nature itself of this phenomena has not been well determined yet".

Another aspect that emerges – from the hierarchical articulation in structures-substructures analogically linked to one another against the background of the big organic unity called "culture of humanity" – is the gradual increase of the typical properties of complex systems: this will lead to a fundamental step in Lotmanian semiotics in which culture will coincide with the so called "semiosphere", definitively sanctioning the organicistic turn.

In his essay "A theory about the reciprocal relationship among cultures (from the semiotic point of view)" (1983), Lotman (1985b[1983]: 122) writes:

> The tendency towards a growing autonomy of the elements and their transformation in independent unities, and [the tendency towards] an increasing integration and transformation in parts of a whole contradict and appeal to each other, producing a structural paradox. The result is the creation of an one-structure, in which every part is a whole and, at the same time, each whole works as a part.

2.3. Semiotics and biology. The semiosphere

I would like to open the part dedicated to the "last" Lotman by framing the scientific context in which he worked around the 1980s, lingering in particular over those theoretical instances that, gravitating in the Soviet area, more significantly affected Lotmanian semiotics: instances that refer essentially to the so-called "complex thought". The reception of this conceptual framework, in fact, was essential for the realization of that theoretical and methodological leap that shaped a real culturology; this dilated the structural-formalist roots of the "first" semiotics towards a dialogical and interdisciplinary approach of analysis of culture.

Between the 19th and the 20th centuries the horizon of sciences, especially in the West, saw (and is still seeing now) a shift from a "monocular" (mechanistic and deterministic) vision of science to a complex and multi-perspective one. In the field of formal and physical-natural sciences, a need was acknowledged for a radical revision of the assumptions around which traditional science defined and recognized itself. Epistemology had to deal with the positivist ideal of the "maximum of datedness", which needed a unified, quantitative, mathematical and axiomatic science (Gismondi 2002). The answer of the scientific world to this definiteness was a perspective shift, which has seen the emergence of a science based on a plurality of models and heuristic methods and on the assumption of analogy as an epistemological category for the understanding of the different levels of reality through which the object (of the scientific research) can occur.

The science of the 20th century, furthermore, in order to explain the complexity of certain phenomena and their properties (holism, aiming and ending, heterogeneity, discontinuity, unpredictability, non-linearity), became increasingly more directed towards the idea of "process", partially overcoming the idea of "law of nature", which, despite its ability to express the occurrences of nature through the logical-mathematical formalism, cannot explain those excesses and discontinuities, that are, however, constitutive of the major part of natural phenomena: such as in biology, and it is not by chance that most humanities use the biological analogy to explain complex phenomena such as social stratification, the emergence and the dynamics of cultural processes, the ideological-political movements.

Within the sphere in this science-in-transition (the science of complexity) fall two thinkers on whose ideas Lotman – again through the "external" analogy – drew strongly: the biologist Vladimir Vernadsky and the chemist Ilya Prigogine.

The contribution of the former to modern biology, as pointed out by Simonetta Salvestroni, consisted of a reversal of the traditional perspective, which led to a focus not on the "individual bricks" that make up the living being, but on the network of biological and intellectual relationships that shape reality (the so-called "biosphere"): Vernadsky, in essence, interpreted the evolution of the planet as a whole cosmic, geological, biological, anthropological process (Salvestroni 1985).

Prigogine's contribution from his studies on the thermodynamics of irreversible phenomena was to give a strong push to the switch from a science based on the idea of cosmos – supported by immutable and ordering laws – to one based on the idea of an evolutionary process, which implies a vision of reality much more closely linked to unpredictability.

In the 1980s, Lotmanian "culture" becomes an extremely complex subject of study, that expands to greater and greater portions of reality, or to translating heterogeneous phenomena and setting them in dialogue (in a semiotic language) – for this reason, Lotman will talk about "culturology".

Lotman's dialogue with natural sciences turns out to be particularly intense. The orientation towards super-complex systems of the cybernetic type and models inspired by the concept of structure-organism led him to enter the orbit of Vernadsky's biological theories, whose influence was visible in Lotman's essays of the early 1980s and, in a more mature way, in "On the semiosphere" (1984).

However, in the preface to *Text and Context. Semiotics of Art and Culture*, an anthology published in Italy in 1979, Lotman had already written:

> The penetration of the text [which Lotman defines as "heterogeneous" by virtue of the continuous process of translation] in the cultural system must not […] be associated with the static proximity of particular mechanisms and reminds something like the tissue of a living organism – more dynamic, interrelated

> and not subject to unique determinations. So, as the whole of biological beings forms the biosphere of our planet, which is the indispensable condition for the existence of life, so the global sphere of culture is the necessary condition for the existence of thought. Intellectual activity is in fact possible only if there is a reciprocal relationship between the individual consciousness and the various semiotic-cultural contexts. (Lotman 1980: 4)

This prepares way for an idea of culture as living tissue swarming with texts, never completed in themselves, always turned towards the only identity: namely, culture that is mirror of both the individual identity and collective identity.

The "external" use of analogy is, at this point, a very fruitful heuristic device, which leads Lotman to make an operation similar to one of Cuvier: to find a *focus of identity* of cultures, not starting from the single bricks, but going to catch it in the unity of its analogical relations.

The solution proposed by Lotman, regarding semiotics more and more able to embrace the multiplicity and the heterogeneity of the real, is to create a bridge between biology and culture – conceiving the latter, analogically to the living, as an organic unity – and to consider any cultural event, not in a state of isolation, but rather "in a specific semiotic continuum, which is filled with multi-variant semiotic models situated at a range of hierarchical levels" (Lotman 2005[1984]: 206) – the "semiosphere", a concept that Lotman derives (borrowing it in a semiotic key) from Vernadsky's work *The Biosphere* (1926).

Lotmanian semiotics is gradually finding its place in the orbit of the "complex thought", a scientific paradigm that, based on the study of nonlinear systems[21] and on the legacy of cybernetics, has reconsidered the relation between the whole and its parts in compliance with a holistic vision, arguing for the non-reducibility of the entire to its single components by virtue of those whole properties that, at certain levels of complexity, emerge as new information.

Assuming the anti-reductionist perspective of the complex thought, Lotman (2005[1984]: 208) stated in "On the semiosphere": "by sticking together individual steaks, we don't obtain a calf, but by cutting up a calf, we may obtain steaks", as if to say that culture, as organism provided with multiple levels of organization and stratification, can be surely broken down in many formal objects but it will be

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[21]   Study inaugurated by Henri Poincaré and then abandoned for decades after his death. The concept of non-linearity, in physics and in mathematical sciences, was a fact crucial for the introduction of the concept of complexity, namely the non-reducibility of the whole to the sum of its parts. In fact, when it works with non-linear systems, it is not possible to trace back the study of a solution to the study of simpler and well-known solutions – and this is fundamental if we think that most of natural phenomena can be described just through systems of non-linear equations.

understood in its richness only through an overview, based on the interdisciplinary dialogue.

We also have to keep in mind that this essay starts precisely with a reflection on the tendency of structuralism to ontological reductionism. The methodological statement of the traditional scientific thought, Lotman writes, is to set the simplest element as a starting point and to examine the entirety in the light of the smallest constituents. "However," Lotman (2005[1984]: 206) continues, "in this there is also the danger that heuristic expedience (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 simplest and clearly outlined atomistic elements, in accordance with their complexity. The complex object is thus reduced to the totality of the simple". Let us thus pick up, for a moment, the epistemological premise of "On the semiosphere". According to Lotman, the tendency of semiotic traditions to consider the simplest and atomic elements as the basis – a tendency that even Soviet semiotics followed at the time of the *Symposium on the structural study of sign systems* (1962) – can surely be considered as a heuristic opportunity, a facilitation in the study of complex semiotic objects; however, in case this opportunity is translated into a simplification of the object, or transforms the reduction into an "ontological character of the object" (Lotman (2005[1984]: 206), then semiotics would betray its own purpose – here Lotman is basically describing the shift from methodological to conceptual reductionism.

The choice, therefore, to abandon the equivalence "complex object as sum of simple elements", privileging an organicistic vision of culture, is precisely about a concern of the epistemological order, which can lead semiotics to paths incompatible with its object of research: culture is extremely complex by its nature. "[A]ll 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" (Lotman (2005[1984]: 208). The semiosphere emerges as a semiotic continuum in which every single semiotic act is such by virtue of the semiosic membrane that informs it. Hence, Lotman (2005[1984]: 220) wonders: "[I]s the whole universe not a form of communication, falling within an ever more general semiosphere? Is it not destined for a universal reading?"

He does not give, for the moment, an answer to this question, leaving it as the final reflection of his intellectual parable. However, this question mark opens the way for further reflection, that is the relation between isomorphism and asymmetry, identity and difference. Lotman premises, in fact, that in case we want to study the semiosphere as a universal unity, the principle of heterogeneity should be guaranteed, such as a basic mechanism of culture: the homogeneity of an

organism must always be matched by the heterogeneity of its elements. How does this dynamic happen? Lotman sees the semiosphere as a hierarchical system with various levels of organization where, however, the hierarchy does not imply a distribution of its elements in terms of value – from the most important language to the least – but in terms of (reflected) relationships with the extra-linguistic world; Lotman (2005[1984]: 216) writes: "[T]he 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". Some years later, in his *Culture and Explosion*, Lotman will talk about a resolution of the antinomy relationship between *language* and *world beyond the boundaries of language*: it is exactly the reciprocal untranslatability of languages (polyglotism) that is the source of the adequacy of the extra-linguistic object as regards its reflection in the world of language (semiosphere) – the unsayability of the world uttered through logical-analytical language ("to render the inexpressible in words and to express the world, which lies beyond the limits of logic, in logical terms") can become an accomplished expression through the synthetic-creative language and *vice versa* (Lotman 2009[1992]: 21).

Here, the distinction between primary and secondary modelling has definitely lapsed and the role of the isomorphic principle is clarified; a principle that implies both a relationship of vertical similarity (identity) among the elements of the semiophere – which ensures the unity of the system – as well as a relationship of horizontal heterogeneity (asymmetry) among them – which provides – the system dynamics.

This organization has a fundamental consequence in terms of emergence of new information. Concerning this, Lotman uses two beautiful images to explain the productivity of the Heraclitean *logos*: the face, and the object in the crushed mirror. The vertical isomorphism, by virtue of the principle of identity among culture, text and individual consciousness,[22] and the horizontal asymmetry together produce an exponential growth of information, namely *unlimited semiosis*.

What we have just said has fundamental consequences from the point of view of Lotmanian ethics. Lotman, in order to explain the value of the difference (asymmetry) within the identity, uses an image he holds very dear: that of hands superimposed (enantiomorphism). The opposable hands, in fact, are identical, but they lose their specular symmetry when superimposed. The same occurs in communication: it is not possible communication and, therefore, knowledge (information exchange) outside a dialogical relationship where, despite mutual understanding, the subjects of the communicative act remain irreducible to each other. Dialogue, Lotman goes on to say (2005[1984]: 218), precedes language and gives birth to

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22   Provided it is in a constant relation with extra-cultural reality.

it: the image of Robinson Crusoe who lives in seclusion is utopian and contradicts reality.

It has to be stressed that, according to Lotman, dialogue is the same semiosphere or the substratum of meaning that informs us and precedes us in any act. And for this reason, it is not possible even to think about the semiosphere without a horizontal heterogeneity: it would be an intrinsic contradiction to cultural semiosis, so that semiosphere – only held up by vertical isomorphism would in result be all flattened to the identical and finally implode, exhausting itself in the non-difference.

The enantiomorphic principle becomes, therefore, a symbol of the isomorphism-asymmetry bond because it is expression of what we might call a "correlative difference": this "distinguishes both identity – rendering dialogue unless – and non-correlative difference – rendering it impossible. […] the enantiomorphism represents the primary "mechanism" of dialogue" (Lotman 2005[1984]: 220–221).

2.4. Semiotics and epistemology of complexity.
The laboratory of unpredictability

The idea of process also enters Lotmanian semiotics, especially with regard to Prigogine's studies of complexity and the "new alliance" between man and nature.

The Russian scientist and epistemologist, studying non-equilibrium thermodynamics,[23] assigned a driving role in the thermodynamic systems evolution to complexity and the emergence of the unpredictable, scaling down the clout gained by the laws of nature in the (at times deterministic) explanation of the latter.[24] Giuseppe Tanzella-Nitti (2002: 797–798) points out that what he did was to affirm unpredictability over predictability, non-equilibrium over equilibrium, creative development over the expected, falling however – by the assignment of

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[23] The study of evolution of thermodynamic systems, far from solutions of equilibrium, allows to describe the emergence of organized structures morphologically richer and more complex than shown by the starting system. The "non-equilibrium solutions" – possible around the system's "bifurcation points", which are also the less explicable and therefore only dealt with in a probabilistic way – describe the evolutionary dimension or creative development of the system. The "equilibrium solutions", which come true far from the bifurcation point instead, would trace the system back to the predictable and deterministic phenomenology, represented by its well-known laws (Tanzella-Nitti 2002).

[24]   More easily associated with the description of equilibrium systems, with static solutions, with predictable developments, natural laws would refer to the notion of a bond and of eternal recurrence, while the idea of emergence or complexity would refer to the notion of creativity or event of freedom (Tanzella-Nitti 2002: 797).

a metaphysics value to the non-equilibrium thermodynamics paradigm – in a by-passing of his epistemological field: Prigogine, reopening the terms of an already classic tension, supported the primacy of becoming above being, process above substance, introducing into this comparison great ideas of philosophy and religion – as an appropriate philosophical frame he cited Martin Heidegger's work *Being and Time* (1927), and Alfred North Whitehead's philosophy of process.

Prigogine, claiming a less deterministic science on behalf of one more tied to the creative force of unpredictability, in a way attempted an interdisciplinary dialogue with the humanities, the "seat" of creativity and freedom, namely of those attributes that might inhabit also natural science.[25]

Although seemingly far from the semiotic discourse, the non-equilibrium thermodynamics phenomenology – welcomed by Lotman in his later works – underpins several cruxes of Lotmanian thought, in particular those related to time; and not casually, since Prigogine's scientific paradigm is precisely focused on the transition from the concept of static time (expected) to one that is dynamic-creative (unpredictable). Obviously, Lotman's time is not a physical but a semiotic category, which refers to historical constructions, namely the ideological-political, artistic, scientific visions: the semiotized time *par excellence*.

The "external" analogy is thus created by an epistemological encounter between the scientific notions of predictability and unpredictability[26] and the historical-semiotic concepts of gradualism and explosion; it represents, therefore, the device through which Lotman definitively gets in possession of history, reintroducing it into the semiotic mechanism of culture – his later writings, in fact, all lean towards an explanation of the ways through which culture moves forward in its historical development. Lotman (2009[1992]: 8) writes: "A minefield with unexpected explosive points and a river in spring with its powerful but directed stream – these are the two images visualised by the historian studying dynamic (explosive) and gradual processes".

What Lotman did in his later works, *Culture and Explosion* (1992) and *Unpredictable Mechanisms of Culture* (1993, posthumous), was to give historical thickness to semiosphere, bringing to light the semiotic mechanisms that underlie the great ideological constructions and their internal contradictions.

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[25]   Tanzella-Nitti (2002: 797–798) does not lack in adopting a seriously critical perspective towards Prigogine: the Russian chemist, in fact, would tend to create a reductionist equivalence between natural laws and determinism, between the principle of legality (namely the regularities or laws of nature) and fixity, thereby attributing the capacity of generating innovation and richness in the universe just to non-equilibrium thermodynamics.

[26]   Concepts that, as we have just seen, implied the notions of natural laws and evolutionary process.

Concerning this, Lotman's semiotic conception of temporality is in strong connection with the ways in which humanity thinks about itself and expresses the phenomenological world that surrounds it: art, science, ancient and modern mythologies (namely the grand narratives), technology, behaviour and collective passions, economic systems, social configurations (in their individual-collective polarization), history and geography – these latter intended as human constructions and interpretative categories of temporality and spatiality.

We could sum up the system of similarity relationships between Lotman's and Prigogine's thought as depicted in Table 1.

The question that underlies Lotman's growing emphasis on unpredictability concerns the idea of culturology as a science able to reproduce, progressively more, the real dynamics of culture. Scientific investigation, as pointed out by Mihhail Lotman (1993: 484), generally tends to analyze the "realized", stopping short of the realm of the failed potentialities: an approach that is harmful to the study of culture, which – Mihhail Lotman (1993: 484) continues – is not made by manifestly realized events but also by all those "unrealized possibilities [that] are also of the essence of reality even if they are fated to remain in a state of latent possibility". However, these possibilities build the dynamic potential of culture, i.e., its unexploded paths and possible bifurcations: as if to say that "a loaded but undischarged gun is not functionally identical with an unloaded one" (M. Lotman 1993: 484).

The adoption of a scientific approach to culture that denies the possible and disowns the unpredictable can have two essential consequences, according to Lotman. Firstly, in the wake of Hegelian historicism, the "lost" ways are forgotten by the scholar, who thus deprives the model of its complexity (the hierarchical stratification of possibilities) and its intrinsic dynamics. Secondly, this creates a model of culture in which the historical dimension – *par excellence* the field in which the dialectic between events-in-potential and events-in-being is played out – is completely reduced to "it could not have gone in a different way": namely the false eschatological inevitability of events that often turns into an ideology of history. The value of unpredictability, in Lotman's writings, has an eminently ethical nature and not safeguarding it can lead to an impasse both on the theoretical horizon as well as on the pragmatic one; in *Culture and Explosion*, Lotman (2009[1992]: 14) writes: "By removing the moment of unpredictability from the historical process, we make it totally redundant. From the position of a bearer of Reason who holds to the process of the internal point of view (such as may be God, Hegel or any other philosopher, who has mastered the "singular scientific method"), this movement is deprived of informativity", i.e., of the new that can open up unthinkable paths and bring to light unexpected possibilities.

Table 1. The Prigogine-Lotman's biosemiotic conception of time.

	Paradigm 1	Paradigm 2	
Scientific vision based on	natural laws	emergence of complexity	
Physical conception of time	cyclic time	linear, dynamic time	
In Prigogine's terms	balanced processes (symmetry)	unbalanced processes (asymmetry)	
Ways of the historical manifesting	total predictability	unpredictability or multiple-linear time (points of bifurcation)	linear predictability
Metaphysical conception of the time	eternal recurrence	creativity and freedom	progress
Self-description	archetypical order	explosion — binary or utopian description of explosion / ternary or mediating description of explosion	causality
Human interpretations of the temporality	history as iteration (eternally constant or eternally immutable being)	history as creative process	history as eschatological movement or inevitable predestination (fatalism)
Symbol	harmony or the Platonic closed circle	the creator-experimenter	the great teacher or the great watchmaker
Paradigmatic field of human activity	myth and ritualism	art, science	technology

Unpredictability in this sense is the opposite not so much of predictability but rather of mono-perspectivity, namely of a vision of things that does not take into account the substantial diversity of the real, in its being in presence or in potential, visible or invisible.

According to Lotman, in fact, predictability has a positive value and a key role in the historical-cultural process, as an engine of the new even though in an "expectant" form, or prepared and gradually accompanied by an incremental sequence of events (by the "river in spring with its powerful but directed stream" (Lotman 2009[1992]: 8).

Therefore we should not see the predictability as a source of ideological inflections (the inescapable pre-order of facts), but rather the exegesis that man, "historian-prophet" (Lotman 2009[1992]: 126), makes *a posteriori*, thereby building an interpretive category of history and a narrativization of memory *ad hoc*, a mono-perspective. Culture, Lotman (2009[1992]: 126), writes, reconstructs its own past, transforms and corrects the memory and, with an eye in the past and the consciousness in the present, interprets its own history as an "inevitable destination" (*ibid.*).

If predictability is prepared and conducted by the chain of events, unpredictability is their suspension: it is like a hole within the paradigm of possibilities (realized or latent), from which the unexpected spills out: the unexpected that can emerge both as an historical event – one only needs to think of the fall of the Roman Empire fall or the *perestrojka* – or, more generally, as an explosion of meaning. Since in *Culture and Explosion* the dimension of time emerges significantly in its semiotized form, or history, particular attention is paid to explosion as an historical turn – hence, the distinction between the binary structure and the ternary structure of explosion;[27] however, it should not be forgotten that, both in this work and especially in the posthumous *Unpredictable Mechanism of Culture*, unpredictability is an all-embracing concept: it is an opening of meaning in its more internal nature – polyglotism, namely the multiple and irreducible and (sometimes) inaccessible ways of the real saying itself; it is the multiplicity of the real itself – expressed and unexpressed, realized and in potential – which, just through the deep encounter of different languages and "many mutually dependent correlative "I"s"

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[27]   Lotman (2009[1992]: 167) explains the difference between ternary and binary structures in the following way: "[T]ernary structures retain certain values from the antecedent period and transport them from the periphery to the centre of the system. By contrast, the ideal binary system is represented by the complete destruction of all that already exists which is considered to be irremediably corrupt. The ternary system strives to adapt the ideal to reality, whereas the binary system seeks, in practice, to actualise an unrealizable ideal. In binary systems, the explosion penetrates life in its entirety. The ruthless nature of this experiment is not immediately apparent. First of all it attracts the most maximalist layers of society by virtue of its radicalism and a poetic subscription to the immediate construction of "a new earth and a new sky"".

(Lotman 2009[1992]: 24), shows itself in its own richness, diversity and untranslatability, unexpectedly demolishing the wall of the noumenal.

In Lotman, the unpredictability and, therefore, the explosion of meaning create a possibility that man has to know the reality in a profound way, not stopping in front of a "reality" that seems to be (Kantianly) fatally unknowable, but crossing this boundary through multilingual dialogue.

Because of the epiphany of heterogeneity, unpredictability is also the discovery of the different, of the utterly Other-than-self, that unhinges the mono-perspectivity imposing a multiple vision of the world. Misunderstanding, untranslatability, the (apparent) semiotic impermeabilities here become inexhaustible sources of new meaning, that is the real life of the semiosphere. Acknowledging them helps the scholar of culture – and, more generally, the scientist – to resist the temptation to build a perfect system, a model unassailable because absolutely abstract, an ideal unity that does not have anything to do with reality. According to Lotman, in fact, science runs the risk to accommodate to the only abstraction, i.e., to a synthetic way of the mind proceeding, ideally unifying and systematizing; the reality, on the contrary, is essentially contradictory and to catch it means thinking in an antinomic way and espousing reason (*dianoia*) with intuition (*nous*) and experience (*empeiria*): this is what saves thought and being from an ideological and pragmatical turning, which always arises within a self-referential, polarized and unanchored vision of reality. In this sense, Lotman is very close to Florensky's epistemology, founded just on the antinomy. This is deeply tied to the life, full of meanings and related opposites. People choose usually just one perspective since to keep one and its opposite is lacerating, but in this way they distort the integral experience of reality. It follows that what most people consider the truth is only one pole of the whole truth, drawing on this requires the courage to move from one's own perspective toward its opposite. Keeping alive one's own truth and, encompassing its opposite at the same time, you enter antinomy.[28]

We can definitely say that Lotman's whole work and, in particular, his latest intellectual production are pervaded with the pursuit of this tension between opposites and by the resolution in the maintaining of the alterity, the fount of the unpredictable: the returning of the integral experience of reality is an inevitable consequence of this.

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[28]   See Florensky 1997[1914].

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Эпистемология Лотмана: аналогия, культура, мир

По мнению Жанны Парэн-Виаль (Jeanne Parain-Vial) людей – помимо потребности в логике и понятности – характеризует и потребность в аналогии, и эта потребность выражается в сфере науки в постоянном поиске моделей. Познаваемость вещей опирается на аналогию; таким образом, они описываются не одной моделью, а скорее посредством многочисленных и автономных форм понимания.

Как показали Юрий Лотман и Борис Успенский, возможность подобия между кардинально различными реалиями было постулировано в мифологическом мышлении, например в космологической модели мира, в которой "вселенная, общество и человеческое тело рассматривались как изоморфные миры". Способность такого взгляда на мир сохранилось по их мнению и у людей постархаического периода и составляет основу когнитивной активности и научного моделирования.

Статья рассматривает употребление аналогии в семиотической теории Юрия Лотмана с точки зрения ее эвристической и эпистемологической значимости.

Lotmani epistemoloogia: analoogia, kultuur, maailm

Jeanne Parain-Viali järgi iseloomustab inimesi lisaks vajadusele loogika ja mõistetavuse järele ka nende analoogiavajadus ning seda vajadust väljendab teaduse vallas pidev mudelite otsimine, mis võivad heita valgust reaalsuse mõnedele omadustele, nimelt olla nendega *analoogilised*. Asjade teadmise võimalikkus tugineb analoogiale; seega ei ammenda neid üksainus teadmise mudel, vaid pigem mõistmise arvukad ja autonoomsed vormid.

Nagu on osutanud Juri Lotman ja Boriss Uspenski, postuleeriti väga erinevate reaalsuste vahelise sarnasussuhte kehtestamise võimalus kõigepealt müütilises mõtlemises, näiteks kosmoloogilises maailmamudelis, milles "universumit, ühiskonda ja inimkeha peeti isomorfseteks maailmadeks": võimalus, mis, nagu nad selgitavad, on säilinud ka postarhailistel inimestel, moodustades kognitiivse aktiivsuse ja teadusliku modelleerimise ühe alustrajava koostisosa.

See artikkel on pühendatud analoogia kasutamisele Lotmani semiootilises teoorias ning selle heuristilisele ja epistemoloogilisele väärtusele.