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Lotmanian referentiality and (cultural) semantics

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Abstract: Lotmanian semiotics comprises a complex and wide-encompassing system for understanding meaning-making in culture and cultural dynamics more generally. Its complexity is compounded by Lotman's historically and artistically minded orientation. In this paper we propose a brief rereading of a particular aspect of Lotmanian theory – what we will term *Lotmanian semantics* – based on an interpretation of modeling systems theory that, by our account, retains the form of the original by appealing to the notion of language employed by Lotman and deployed as propositional thought *qua* language. We revisit Sebeok's critique of modeling systems theory and find it unnecessary for the interpretation that we make of Lotman's semiotics, and we then propose a two-level interpretation of the theory that allows us to describe both perceptual and cultural phenomena as different semantic kinds.

Keywords: cognition; Juri Lotman; modeling systems theory; propositional thought; reference

1 Introduction

Being able to systematize the nebulous concept of culture in as efficient a way as Juri Lotman did is by no means an easy feat. Lotmanian cultural dynamics are, one could argue, part of a holistic program to understand how culture is done, what is done through it, and what its discrete parts are. Lotmanian semiotics is thus not reducible to its main conceptual tools – signs, texts, semiospheres, specific aspects of cultural dynamics and so on – and so our intent in this paper is limited to presenting a rereading of modeling systems theory that tackles the cognitive challenge raised by Thomas Sebeok's level-shifting proposal.

First, we quickly review Lotman's modeling systems theory (MST) in the context of his semiotics of culture and then describe Sebeok's challenge and proposal, before finally reformulating Lotman's MST into a referential semantic theory. The upshot of such a reading is that it retains consistency within Lotman's larger system and makes

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Sebeok's challenge unwarranted, *contra* the standard view of MST, particularly as expressed within the more naturalistic varieties of semiotics. We start this brief journey by revisiting Lotman's formulation of MST.

2 MST in Lotmanian thought

In "The place of art among other modelling systems" (2011),[1] Lotman's systematic presentation of his conception of *modeling* presents a cognitive argument: that a model is a cognitive substitute of a perceived object (1.2.1). Models can be systematic and rule-bound, including natural languages (1.3.1, 1.4). The introduction of a distinction between *primary* and *secondary* modeling systems (MS) is made immediately after this: A *primary* MS is to be understood, per 1.3.1, as a language, which means that Lotman attributes to natural language the property of being analogous to perception or cognition; at the same time, Lotman states that a *secondary* MS is a MS that is built upon natural language. The immediate example is that of the literary arts as built upon natural language. In this case, natural language is analogous to reality, structured, and rule-bound, and the literary arts build upon the rules of language to make something more – simultaneously similar and dissimilar (2.0). Lotman gives us a furtive, but useful definition of a sign as a "substitution of a denotat" (2.2) – in other words, a sign is a realized reference to a certain referent. This is important for us later on. A model, following the same point, is a *perceptually efficient* realized reference to a referent. In order to help us understand this difference, Lotman states in 2.3 that works of art are built on iconic signs.[2] Taking from Lotman (1977),[3] we see Lotman make this clearer by stating that "iconic signs are constructed on the principle of a causal relationship between expression and content […]. A sign models its content" (21). In the visual arts this may be simpler to see: An artistic depiction of an

1 For the sake of specificity, I refer to the specific numbered points when referencing the text instead of using page numbers.

2 Given the conceptual differences of iconicity across the semiotic literature, a good way to understand this claim is to look at other instances of the usage of icon and symbol in Lotman's work. In Lotman (2019), 20 years after "The place of art among other modelling systems," the terminological precis is Saussurean in nature: "Saussure contrasted symbols to conventional signs, stressing the iconic nature of the former. Saussure discussed this in reference to scales, which can serve as a symbol for justice insofar as they represent iconographically the idea of balance, whereas a cart does not" (161). Later in the same text, we also find the following assertion: "A symbol differs from a conventional sign by the presence of an iconic element, which establishes a resemblance between the levels of expression and content" (172). We should not let other nomenclatures muddle what Lotman has in mind when saying *iconic*.

3 This point is made explicit by Nöth (2001).

individual ceases to be *solely* a depiction of an individual and instead it becomes a representation of itself.

Lotman assigns special roles to different modeling activities, such as art and play, but we won't concern ourselves too much with their characteristics. What matters to us is simply the distinction between primary and secondary, as these are the generalizations made and seen as relevant for this kind of semiotics. In *The structure of the artistic text* (1977), Lotman sees natural languages as "dealing with sequences of signs" that allow us "to stratify the natural linguistic structure into individual layers, each with a completely immanent function" (279) – these strata can be phonological, grammatical, lexico-semantic, and syntactic (phrasal and supra-phrasal). Earlier, in Lotman et al. (2013), we see the reference to natural language as primary (in point 6.1.3) simply reaffirming this notion,[4] echoed throughout the secondary literature (for instance, to name but a few: Birnbaum 1990; Chang 2003; Shukman 1977). Secondary MS, being dependent on the primary MS, build upon it while creating something different. The previously mentioned strata are possible in a secondary MS, but insufficient to explain its functioning and requires us to look at how these levels interact with each other – that is, we may find more relevance in one level or another as opposed to how we would look at a non-artistic text (1977: 279). We can imagine how poetic phrasing of a sentence may work in this sense, where a metaphor or an odd syntactic structure may become more prominent in their reading.

The distinction between primary and secondary MS is what allows us to analyze the construction of culture – human communicative activities that seem to transcend a bare-bones linguistic exchange. As such, an important caveat moving forward is that MST entails only part of a larger vision on how cultural activity works – MST allows us to analyze some cognitive features of culture, but it does not paint much of a picture of cultural dynamics nor of large-scale cultural taxonomy, two points that are better reflected in other aspects of Lotmanian thought.

In what follows, we look at the Sebeokian challenge to Lotmanian MST and his proposal for a solution to this alleged issue.

3 The Sebeokian cognitive challenge

Throughout the last couple of decades, the original dual formulation of MST has seen a massive shift into a tripartite MST, with very little resistance. This is for good reason: The points raised by Thomas Sebeok (and later Marcel Danesi) are coherent

4 For a thorough examination on the conceptual notion of language as a primary MS for the Tartu–Moscow School of Semiotics, see Gramigna (2013). Semenenko (2016: 37–38) presents a careful overview of the primary sources on modeling systems and their definitions.

with the current paradigm in semiotics – if not a direct cause of it. In this section, we look at the objection to the scale of MST, its rationale, and a proposed solution.

Recognizing the centrality of MST in the Tartu–Moscow School of Semiotics, Sebeok first interprets the concept of a secondary MS as an ideological model of the world in reciprocity to another MS, and a model of the world as a behavioral imperative (Sebeok 1991). Taking a Peircean route, and coupling it with Uexküllian concepts, Sebeok first understands language as a model by appealing to how Soviet linguistics owes a debt to Uexküll's theory of meaning,[5] namely, that a model of the world is a perceptual given (333). This he extends to how humans have developed models of the world based on their evolution, where brain size growth led a possible non-articulated linguistic system into a fully-fledged one, and that this may be an evolutionary trait that increased human fitness and was only later exapted for communication (334–335). In other words, language is a MS in human cognition. Invoking the Peircean notion of the sign – and the idea that thought comes in the form of signs – Sebeok presses the point that other organisms also model the world through simple, nonverbal models that "fit" reality well enough for survival (336). It is here then that Sebeok sees the perceptual–morphological pairing as the primary MS, pushing language to the second stratum. The reasoning for the latter is that the syntactic component of language seems to be a unique feature that allows humans to represent infinite possibilities, including, but not limited to, reality. At the same time, this pushes art and other cultural expressions into a tertiary stratum.

In the glossary at the end of Sebeok (2001), we further find "primary model" defined as a "simulative form (icon)," and "primary modelling system" as the "instinctive ability to model the *sensible* properties of things (i.e. properties that can be sensed)" (155). Later, Sebeok defines "secondary model" as "either an extension of the physical form or meaning of a simulacrum or an indexical form," with "secondary modelling system" as a "system that allows for indication or the extension of forms" (156). Finally, "tertiary model" is conceived as "a symbolically devised form" and "tertiary modelling system" as a "modelling system that undergirds highly abstract, symbol-based modelling" (157). It is easy to see the Peircean interpretation of MST here, where the sign types are, to some extent, related to the level of modeling proposed by Sebeok's reading of Lotman. Sebeok's challenge to Lotman, to be precise, lies in the consideration of natural language as a secondary vehicle of cognition. The assumption that Sebeok makes is that perception is indirect and it models the external world, and that this representation of the world becomes re-represented in natural language. Danesi (2014) makes this relation clearer, by tying primary MS to Peircean iconicity, secondary MS as related to indexicality, and tertiary MS to symbolicity.

5 Though he largely leaves the extents truly owed a mystery.

Sebeok and Danesi (2012) give us the most complete account of this proposal, building from the same Peircean account. This proposal has, in fact, been profoundly influential, particularly in biosemiotics. Kull (2010) sees modeling as a perceptual radical,[6] but notes that Lotman could regard any sign system as a language (55). However, the focus of Lotman in human culture did not allow for noticing the perceptual basis of modeling.

The implications are far-reaching: By equating MST to levels of interpretation (or Peircean sign types) and identifying the primary MS as the Uexküllian Umwelt, Lotmanian theory has been reconstructed to be part of the modern biosemiotic synthesis. The Sebeokian *cognitive challenge* seems to successfully argue for an interpretation of Lotman that requires us to think of a substratum of meaning-making in cognition, something not found in Lotman's original formulations. This interpretation, I argue, is not, however, a fair interpretation of MST and relies on incompatible assumptions about semantics that are inferential to Lotman's MST.

In what follows, I introduce a rereading of Lotman's MST that is arguably closer to the original notion, does not rely on expanded assumptions about sign types, and is still compatible with semiotic thinking about both cognition and culture.

4 Referential semantics in MST

Lotman had accepted that, to some degree, primary modeling was not necessarily limited to a single language (Gramigna 2013: 347) and that primary modeling was not concerned exactly with linguistic capabilities (Kull 1999: 19) – though this may have come to be a consideration for Lotman after Sebeok, as the later Lotman did consider primary MS within biological codes too (Velmezova and Kull 2022: 94). The point of this is that Lotman's thinking about primary modeling is not as clear-cut as simply stating that it was all about *language*.

Birnbaum (1990) notes the loose definition of language employed by Lotman but equates primary MS to "ordinary language" (55). Umberto Eco, in the introduction to Lotman (2001), sees Lotmanian semiotics as a "cognitive science" (x), and in the same volume, Lotman asks us to not forget that, per Saussure, language may be considered as a system, not only as an expression in speech (5–6). Among important details to keep in mind is the point that the communicative function of language is but one aspect of *language*. Though conceptually ambiguous, Lotman's notions of language separate the aspect of expression from its earlier systematic existence. In this sense then, we can distinguish at least two forms of language as used by Lotman, capital-L Language as the system underlying lowercase language, its functional expression – the Saussurean

6 And the role of semiotics as that of modeling modeling.

distinction between langue and parole. From this division we then assume the following: that capital-L Language is the cognitive system of representation, and that lowercase language is but a part of it.

MST is, at its core, linguistic and representational, or rather, these are the fundamental properties of a primary MS. That is, it assumes that capital-L Language *is* the system of thought, and that it is used to represent the world.[7] In our rereading of Lotman, we add that *because* primary MS is linguistic and representational, it is *propositional*. That is, we assign propositional forms to linguistic expressions.

From this, we can build a simplified propositional account of a two-level MST.

4.1 Propositionality in primary MS

If our focus sticks to capital-L Language, and we assume thought to come in this particular flavor, then we should assume that thought is formed in some way. This may seem controversial for the semiotically minded, but it falls in line with linguistic accounts of thought and mental functions we can find in large swathes of the literature.[8] Primary modeling in MST is easier thought of as corresponding to mental representations, and their theorized linguistic nature lends itself to this.

For instance, though we use a linguistic account of, say, *an apple* to refer to an apple, we can easily grasp the conceptual nature in the expression. In this sense, what language does, when referring to things, is express *cognitive referentials*. That is, an expression that is referential mirrors the structure of a referential proposition in thought. In this case, a cognitive referential [*x*] is simply a cognition referring to some such in the world. Here, [*apple*] simply picks out the reference we understand in the noun. Primary modeling refers in this case then to propositions in thought that can be expressed in referential language – the language that *models* the world.

4.2 The semantics of a secondary MS

A secondary MS, on the other hand, is not referential. Instead, its semantic content is appended to the cognitive referential without regard for its referentiality, in the form of [*x*{*y*}], where *y* stands in relation to *x* as an added semantic value. In this case, for instance, from [*apple*] we can derive [*apple*{*sin*}]. A secondary MS is formed thus

7 Tarasti (2015) notes the infrequency with which *representation* is used in the semiotic literature – and although I agree, our view here greatly differs with regards to his concerns. We refer here to Lotman (2011, 2.2) as mentioned earlier.

8 Examples of different accounts along similar lines can be found in, for instance: Chomsky (1965); Fodor (1980); Jackendoff (1987); Russell (2009).

by *secondary semantic objects*. The building of the relation between *x* and *y* does not compete with MST insofar as it is explained by other aspects of the cultural dynamics of Lotmanian semiotics. Instead, MST explains the difference between propositional semantics and cultural semantics by appealing to two different levels, one of referentiality and one built on but disconnected from it.

Cognitive referentials in a primary MS should allow for compositionality. For instance, *sharp cookie* may be expressed in some propositional form *Sc* or [*sharp*]+[*cookie*], but a secondary semantic object may be built upon this compositionality, in the form of [[*sharp*]+[*cookie*]{*smart individual*}]. This allows for a number of other constructions beyond referential language. One thing to keep in mind is that both MS are *expressed* linguistically, but they do not need to be taken literally as such, as we will later see.

4.3 Incompatibility of the Sebeok interpretation

If thought is propositional – and we believe this to be a fair interpretation of Lotman's notion of language – the point of MST is to show that culture is *not* bound by a direct referential modeling of the world, that the semantic field of expressions – linguistic and cultural – is infinite in possibilities because of its unboundedness. The Sebeok–Danesi challenge to Lotman's MST is, in this interpretation, a step too far removed from the semantics expressed in the theory proper. Sebeok's usage of Uexküll to abstract language to a secondary level is not warranted in that when we identify the Lotmanian notion of language at the primary level with that of propositional expressions in thought, we do not need to appeal to the Uexküllian Umwelt – propositional thought does the same job without being expressed as a perceptually bound system. Moreover, it is immaterial whether language of thought and expressed language are at different levels, which I foresee as an objection to this interpretation. For instance, the semantics of *apple* will still pick out the same thing, so even if the propositional thought *apple* and the expression /*apple*/ appear to be different, they express the same – a primary expression of semanticity picking out something in the world.

The Sebeok–Danesi proposal for MST relies, at the same time, on equating each level to a type of sign from a Peircean perspective. In a way, the argument is that if we allow that language does not have a fundamental cognitive property in modeling the world, then we can assume that the fundamental activity of cognition is given to us in a non-linguistic way. This becomes equated with iconicity – modeling on the basis of similarity. This particular idea, however, requires us to accept that perception gives organisms *similar forms* to those in the world. What this similarity is, we're not particularly sure. However, if we are to accept this, now we have a blueprint for

fitting the other two sign types that abound in Peircean interpretations of semiotics. The movement to a secondary level becomes indexical – language becomes referential of the entities that exist in cognition, which in turn are similar to the entities that exist in the world. But that natural language is indexical to the iconicity that is assumed to exist in perception may also mean that natural language is somehow caused by its perceptual objects. The usage of symbols in the Peircean conceptualization as tied to the tertiary MS makes sense in this regard, but it is only by virtue of retrofitting indexicality and iconicity as separate and discrete categories into Lotmanian thought that the proposal can work. Indeed, there is no particular need to impose this terminology, because a primary MS in the sense that I have been arguing for does not require specific modes of presentation. Instead, by being referential and propositional, the perceptual aspect is already baked into it.[9] In other words, the appeal to iconicity and indexicality muddle how we can think of language with Lotman: MST doesn't take recourse to invoking sign types in order to work *nor* does it require this, because one of its core assumptions is that thought – whatever this may be – comes in a linguistic (thus propositional) form.

Lotmanian semantics, that is, the treatment of MST in this way, is, in fact, a simple treatment of linguistic expressions as referential and decouplable from their reference. Considering the earlier notion of model as a "perceptually efficient realized reference to a referent," the primary MS implies that our base linguistic expressions in thought refer to the world, not that we model them in a specific way. This does not need to be taken as iconic in the sense that the percepts do not need to bear resemblance to the referents; they only need to represent them in a potentially truthful way. In fact, the Peircean synthesis becomes so incompatible in this sense that we would have to ascribe *symbolic* and *indexical* value to even the primary MS, which seems to contravene the way the Sebeok–Danesi proposal is constructed.

5 Concluding remarks

It is undeniable that the Sebeokian synthesis of Lotman, Peirce, and Uexküll has been both profoundly influential and productive for semiotics. What this paper aims to show is that there are ways to retain the usefulness of MST without relying on the synthesis. And there may be good reasons to doubt the synthesis itself: The appeal to sign types in this capacity makes the case that sign types are unidimensional despite the plethora of different perceptual systems across organisms. If perception is at the base of modeling, it has to be given to the organism in some capacity. Iconicity, when

9 This speaks to a larger issue regarding how semioticians cash out iconicity, but that is a different discussion altogether.

understood as similarity, precludes different bases for how perception is processed and directly relies on a processing mechanism to state that the percept [*apple*] is somehow similar to the object *apple*. MST, when freed from this constraint, does not need to stipulate anything of the like. It instead relies on making the perception of an apple able to be expressed propositionally. This leads to a reduction of problems in terms of what counts as one sign type or another, a crucial problem to deal with particularly in biosemiotics when considering that we have no reportability in non-linguistic organisms.

That is not to say that this rendition of MST is incompatible with Peirce.[10] For instance, Stjernfelt (2014) makes the case that protolinguistic capabilities may include common noun predicates (73), and that the usage of *Dicisigns* may satisfy the requirement of representing thought in non-linguistic organisms. A thorough examination of this parallel could indeed shed more light on how a more formal approach to MST can be carried out while also admitting forms of interpretation that emerge from the Peircean synthesis that exists in current semiotics.

This presentation of MST has, as a potential upside, its formalizable nature. The abductive nature of secondary MS can also be advantageous in that it allows us to find where potential semantic unknowns can be found, as in the assumption that, say, [[*apple*]+[*pie*]] may contain an unknown {*x*} semantic value. Although post-hoc knowledge of the secondary MS is necessary to bring full accounts of significations in this form of MST, the Sebeok–Danesi interpretation falls prey to the same issue in that tertiary modeling is not derivable from either primary or secondary modeling.

This interpretation comes, of course, with a number of shortcomings. Namely, we still need to answer what the scope of a primary MS is. Can we account for emotions or abstract objects within a primary MS, for instance? We may find answers to these questions through experimental means, one would hope. For example, Piantadosi and Cantlon (2017) show that numerical perception appears in wild baboons, and that numeral cognition is performed similarly between humans and non-human primates. However, this may only allow us to make generalizations about specific features of MST in primates. This does not mean, however, that we cannot generalize with this flavor of MST, but we may be cautious in ascribing the same generality of propositions to all forms of living beings. In any case, this issue is one shared across all interpretations of MST, for what is an icon in perception may be a function of the perceptual system itself.

Another issue – which is a much more general issue in semiotic views of cognition – is the reliance on representations, which makes this flavor of MST incompatible with radical embodied accounts of cognition insofar as it makes claims

10 Though, to be absolutely fair, it is also compatible with the Hufordian account of animal thought as logical form (Hurford 2007).

about thought in a propositional manner. Uexküllian theory is still compatible, though, as the formalization of perception in Umwelts may still be given in propositional form.

Lotman's MST as expressed originally has been a springboard for thinking about semiotic cognition. Our proposal here has tempered some of its reliance on Peirce while retaining the strength of the original proposal, bound by a reinterpretation of the concept of language as used by Lotman. Although much work would have to be done on formalizing the expressions admitted in a primary MS – and this was beyond the purview of Lotman's work – our interpretation retains the form of the original proposal, grounding it on cognition within the scope of language. As mentioned earlier, this interpretation does not say anything about the other aspects of Lotman's thought, but it can be seamlessly integrated within it without recurring to conceptual resignifications or the integration of incompatible philosophical positions. The strength of the interpretation lies then in its simplicity and applicability to both levels of modeling, opening a number of research avenues on the semiotic logic of thought and creating fruitful questions, such as what cultural mechanisms exist to bind a secondary semantic object to a primary reference. In that way, we retain the original structure, simplify the assumptions made on modeling, and propose an expanding, formalizable way to look at MST.

References

Birnbaum, Henrik. 1990. Semiotic modeling systems, primary and secondary. *Language Sciences* 12(1). 53–63.

Chang, Han-liang. 2003. Is language a primary modeling system? On Juri Lotman's concept of semiosphere. *Sign Systems Studies* 31(1). 9–23.

Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.

Danesi, Marcel. 2014. The concept of model in Thomas A. Sebeok's semiotics. In Kristian Bankov (ed.), New semiotics: Between tradition and innovation (Proceedings of the 12th World Congress of the International Association for Semiotic Studies [IASS/AIS]), 1495–1506. Sofia: IASS Publications & NBU Publishing House.

Fodor, Jerry A. 1980. *The language of thought*. Cambridge, MA: Harvard University Press.

Gramigna, Remo. 2013. The place of language among sign systems: Juri Lotman and Émile Benveniste. *Sign Systems Studies* 41(2/3). 339–354.

Hurford, James R. 2007. *The origins of meaning: Language in the light of evolution* (Oxford Studies in the Evolution of Language). Oxford & New York: Oxford University Press.

Jackendoff, Ray S. S. 1987. *Consciousness and the computational mind*. Cambridge, MA: MIT Press.

Kull, Kalevi. 1999. Towards biosemiotics with Yuri Lotman. *Semiotica* 127(1–4). 115–131.

Kull, Kalevi. 2010. Umwelt and modelling. In Paul Cobley (ed.), *The Routledge companion to semiotics*, 43–56. Oxford: Routledge.

Lotman, Juri. 1977. *The structure of the artistic text*. Ann Arbor, MI: University of Michigan Press.

Lotman, Juri. 2001. *Universe of the mind: A semiotic theory of culture*. London: I.B.Tauris.

Lotman, Juri. 2011. The place of art among other modelling systems. *Sign Systems Studies* 39(2/4). 249–270.
Lotman, Juri. 2019. The symbol in the system of culture. In Marek Tamm (ed.), *Juri Lotman – culture, memory and history: Essays in cultural semiotics*, 161–173. Cham: Springer International Publishing.
Lotman, Juri, Vjacheslav Ivanov & Aleksandr Pjatigorskij. 2013. Theses on the semiotic study of cultures (as applied to Slavic texts). In Silvi Salupere, Peeter Torop & Kalevi Kull (eds.), *Beginnings of the semiotics of culture* (Tartu Semiotics Library 13), 53–77. Tartu: University of Tartu Press.
Nöth, Winfried. 2001. Semiotic foundations of iconicity in language and literature. In Olga Fischer & Max Nänny (eds.), *The motivated sign* (Iconicity in Language and Literature 2), 17–28. Amsterdam: John Benjamins Publishing Company.
Piantadosi, Steven T. & Jessica F. Cantlon. 2017. True numerical cognition in the wild. *Psychological Science* 28(4). 462–469.
Russell, Bertrand. 2009. *The philosophy of logical atomism*. London & New York: Routledge.
Sebeok, Thomas A. 2001. *Signs: An introduction to semiotics* (Toronto Studies in Semiotics and Communication), 2nd edn. Toronto: University of Toronto Press.
Sebeok, Thomas A. 1991. In what sense is language a "primary modeling system"? In Myrdene Anderson & Floyd Merrell (eds.), *On semiotic modeling* (Approaches to Semiotics 97), 327–340. Reprint, Berlin: De Gruyter Mouton, 2014.
Sebeok, Thomas A. & Marcel Danesi. 2012. *The forms of meaning: Modeling systems theory and semiotic analysis* (Approaches to Applied Semiotics 1). Berlin: De Gruyter Mouton.
Semenenko, Aleksei. 2016. *Texture of culture: An introduction to Yuri Lotman's semiotic theory*. New York, NY: Palgrave Macmillan.
Shukman, Ann. 1977. Jurij Lotman and the semiotics of culture. *Russian Literature* 5(1). 41–53.
Stjernfelt, Frederik. 2014. Dicisigns and cognition: The logical interpretation of the ventral–dorsal split in animal perception. *Cognitive Semiotics* 7(1). 61–82.
Tarasti, Eero. 2015. Representation in semiotics. In *Sein und Schein: Explorations in existential semiotics*, 54–69. Berlin: De Gruyter Mouton.
Velmezova, Ekaterina & Kalevi Kull. 2022. A paradox of the "semiotics of life": Juri Lotman's later works. *Lexia. Rivista di semiotica* 39–40. 89–99.

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