Funktionskreis and the biosemiotic signifieds: Towards the integration of semiotics

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Abstract. The following is a brief synopsis of the 2021 summer Semiosalong event titled "*Funktionskreis* and the biosemiotic signifieds", held at the Karl Ernst von Baer House, Tartu, Estonia, with presentations by the authors of this review. The included talks revolve around the idea of a 'second major turn in biosemiotics' following the more 'Peircean inspired biology' turn of the last few decades of the 20th century, and reconciling its findings with other theoretical foundations of general semiotics, such as structural semiology. The aesthetic and textual concerns of the latter invite commentary from the biosemiotic perspective.

Semiosalong is the afterhours Tartu semiotic salon, active since 2011.[2] Semiosalong went fully online in autumn of 2020, but as conditions allowed, it returned for a fully in-person special session in the summer of 2021. The event titled "*Funktionskreis* and the biosemiotic signifieds" was held on 13 July, 2021, and was intended as a pre-gathering seminar for the Stockholm Gatherings in Biosemiotics 2021 that took place on 26–29 July. The impetus for the summer Semiosalong was to interrogate the application of biosemiotics to social science and the humanities, to strengthen the case for using biosemiotics as the foundation for general semiotics, and to assert the abiding relevance of structural semiology at the same time. The theme for the event was described as follows, on the event page:

> The prize of the object of biosemiotic interest, when properly understood, is coveted across disciplines. It promises answers to questions whose relevance goes beyond biology. What if biosemiotics could prove the utility of the arts and

humanities in the same way as the utility of science, technology, engineering, and mathematics are proven? The biosemiotic signifieds, however, are mostly non-formalizable – the method is always changing. Biosemiotic findings can even be brought to bear upon issues today in digital humanities and media ethics, in identity politics and critical theory, and in stylistics and design for example. The only way toward these answers is through the dense knot of theory! The session is a pre-seminar for the upcoming Gatherings in Biosemiotics 2021, focusing on applications of biosemiotics to related fields, and inquiring minds from all backgrounds are encouraged to attend.

The event was held at the Karl Ernst von Baer House in Tartu. It was an exceptionally hot summer in Estonia and the event happened at the peak of the heat wave, so all the windows and doors of the wooden house stood open, and Kalevi gave his talk from the backyard as we watched him from the large porch steps. Most of the attendees were Masters or PhD students at the Department of Semiotics, University of Tartu. The audience was modest.

As the modern-day version of the old parable goes: "If a tree falls in the woods, but it is not streamed online, did it really even happen?" Notwithstanding the old-fashioned vibe of our meeting, we did manage to record it for the Semiosalong YouTube archive, and we hope that the following summaries of our talks will explain our feeling of the importance of the event as a marker for the second turn in biosemiotics. Additionally, it can also be seen as an illustration of the main point of Paul Cobley's book (Cobley 2016): that biosemiotics may change the humanities even more than it changes biology (an idea developed also in Favareau *et al*. 2017, and Kull 2016).

Notes on the natural history of ideology – Tyler James Bennett

Tyler's presentation was part of the ongoing dissemination of the contents of the recently published *Detotalization and Retroactivity: Black Pyramid Semiotics* (Bennett 2021a). One ambition of the work is to establish a newly general semiotics that spans from deconstruction all the way to biosemiotics, on the basis of a theoretic construction called the Peirce-Hjelmslev hybrid (see also Bennett 2021b, 2022). This effort importantly entails showing the relevance of biosemiotics for the humanities and social science, and serves to assert its social commitment. Regardless of the area of application – natural science, literary studies, sociology – semiotics utilizes specific textual strategies for managing ideological ossification at the level of discourse, which is just as much a problem for biology as it is for the

other fields. Semiotics has lost some of its currency because of its association with deconstruction and other "postmodern" approaches that allegedly invite moral and epistemological relativism. Among some exponents of the semiotics of Peirce, the solution to this problem is to divorce semiotics completely from its postmodern extensions in structural semiology (Short 2007), but general semiotics cannot so easily amputate its critical branch.

Terry Eagleton (1991) paints the picture similarly, but in the context of leftist politics.[3] He says that Marxist ideology critique has lost its currency also because of its association with deconstruction and Saussure, as the relativism of semiology erodes all possibility for solidarity in class struggle: forget Derrida and Lacan, and adopt a more realistic orientation to the world. This answer is a mistake because, regardless of the problem of relativism, the legacy of semiotics is too strongly rooted in these critical approaches, and there is too much powerful insight and great writing from that tradition for it not to remain integral to the basis of general semiotics; but the problem of relativism remains pressing: the solipsistic position that there is "nothing outside the text" offers no concrete answer to social problems. Worse yet, it offers no viable interface with contemporary science. For this reason, a different solution must be found, in order for a new school of really general semiotics to be securely established. This is why biosemiotics and the sign theory of Charles Peirce are necessary, and why dialectics and other vocabulary from the New Left (Gare 2021) are also needed in order to specify the method of this interface and to clarify the social commitment of semiotics generally. The major proposed solution is the schema of the Peirce-Hjelmslev hybrid (Bennett 2021a), which is not discussed here in detail, but one of its direct consequences is just this cross-theorization of biosemiotics with ideology critique.

As for the mutual area of interest between biosemiotics and dialectics, more important than the notion of dialectics itself is the notion of ideology, because the Peircean biosemiotic framework affords unique descriptive insight into the cognitive reality and specific nature of ideology. The mal-adaptive consequences of the over-reliance on symbolic tools, described by Deacon (1997), are the *sine qua non* of ideology as it was originally conceived. Deacon's *cognitive penumbra* (Deacon 2006: 26–27), *golems* (Deacon 2012: 89), and the so-called *inertia of mental content* (Deacon 2012: 518) together constitute an already robust beginning

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3   This parallel is constructed polemically: the milieu of eastern European theoretical biology could not be more distant from leftist politics, because for them the latter remains synonymous with communist totalitarianism; but following Stephen Jay Gould (1996), Stanley Salthe (1993), and Arran Gare (2021), biosemiotics may borrow from the tools of ideology critique without concern for its historical stigma, as long as certain modifications are made, and qualifications kept in mind, which are detailed in the following.

for Peircean ideology critique, and the expressed interest by some biosemioticians in the de-growth movement[4] has undeniable overtones of the critique of the neo-liberal ideology specifically. The potential of Deacon's emergent dynamics for theoretical synthesis with ideology critique has also been noted by Žižek scholar Adrian Johnston (2015).

To pursue these aims without utilizing the notion of dialectics is to throw out the proverbial baby with the bathwater, but the link between totalitarianism and Marxist thought must not be downplayed. The untenable essentialism of mainstay Marxist oppositions like base/superstructure and use value/exchange value must be thoroughly deconstructed, as per the advances of the New Left (Gare 2021). These problems are also confronted in Bennett (2021a: 39–85). The conclusion drawn there is that, when the necessary modifications to dialectics are performed, the result bears so little resemblance to classical Marxism that it would be misleading to characterize this dialectics as "Marxist" at all. Regardless of what we call it, the dialectics that is propounded by *late* Marxism is just this modified version that is suitable across the board for general semiotics.

This is why Frederic Jameson's *Late Marxism: Adorno or the Persistence of the Dialectic* (2007[1990]) was the focus of the remainder of Tyler's presentation. There, he made the argument that the theory of ideology can provide crucial protection against the bad relativism of the postmodern by upholding this seemingly essentialist claim: there are such things as *non-ideological* concepts, there *is* a difference between good ideas and bad ideas, and it is possible to describe this difference at a formal level. But what is a good idea today may be a bad idea tomorrow and, equally frequently, what fell into disfavour and was turned into a straw man last year should sometimes be recuperated this year. This is the closing thought of the presentation and the final instruction from Jameson for a dialectical biosemiotics. One should recall that in Immanuel Kant's day the boogeyman was *empiricism*; for the early Frankfurt School, the enemy was *logical positivism*; for the postmoderns, the bad guy is *enlightenment rationality*; among humanists it is common today to blame *analytic philosophy* for all of the world's problems; *vitalism* remains the dirty word of contemporary biology; in biosemiotics, the bad idea is *Neo-Darwinism*; Marxists tend to still use the word *capitalism* to define their enemy and, on some parts of the continent, *communism* is still the specter haunting Europe. Late in his book, Jameson more carefully names the enemy *business as usual*. The style of ideology critique promoted here does not hesitate to name its targets, even as these names change over time, and this is how we can be sure that it is *not* relativist, while still remaining *relational*. Adopting this

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4   https://biotoopia.ee/speakers/timo-maran-2/.

relational approach as a foundation for general semiotics will catch the attention of more researchers in social science and the humanities, if they see that it does have concrete social commitment, that it does not reject the linguistic tools of structuralism and semiology, and that it also offers a non-reductive solution to the deadlock of relativism. These tools show up in the styles of biosemiotics already – they are not mere deviations from what should be strict scientific writing; they are indispensable strategies of modelling incompatibility and code duality at the level of the living, and are applicable across the board in general semiotics.

Law of nature, phaneron, and relational logic: Form and substance in Peirce as the first semiologist – Ľudmila Lacková

Ľudmila argued against the general polarization of semiotics into structural semiology on the one hand and Peircean interpretive-triadic semeiotics on the other hand. Émile Benveniste (1969: 1) for instance talks about "*deux génies antithétiques*", referring to Ferdinand de Saussure as "the exact opposite of Peirce" (Benveniste 1969: 3). The argument that the presumably "closed" dyadic approach is incommensurable with the triadic approach allowing for unlimited semiosis does not hold if we consider that semiologists had other strategies for the description of unlimited interpretive process, such as connotative chains for instance in Barthes, inspired by Hjelmslev.

To demonstrate the reconcilability of structuralism with Peirce's interpretive semiotics was the overall aim of Umberto Eco. Ľudmila went even further than Eco and presented the idea that Peirce was to some extent more "structuralist" than the semiologists themselves. She documented this approach with compatibilities between Lucien Tesnière's (2015[1959]) syntactic theory (verbal valency) and Peirce's Logic of Relatives. The main argument was that structural linguistics is not necessarily dyadic, while Peirce's sign doctrine is perfectly structural. As a result, she introduced Peirce as the first structural semiologist.

The talk was centred around the notions of form and substance. These notions are the keywords of structural linguistics as a kind of formalism – and every formalism is based on the dualistic presupposition that there is an inherent division between form and substance. As the leader of the Danish structuralist school, Louis Hjelmslev (1957[1943]) elaborated the theory of the linguistic sign by Saussure and he added the terms of form and substance to the Saussurean terminology of signifier and signified. The division between form and substance represented the core of the structuralist movement in linguistics as the abstract form which constructs the language and not the material substance, according to orthodox

structural linguistics. Peirce did not use the notions of form and substance in his sign doctrine. This may also be why he is so often put in contradiction with the structural movement. Nevertheless, Peirce did use the terms 'form' and 'substance', mostly in his manuscripts on biology. More concretely in the manuscripts on evolution and on what he called 'The Law of Nature'. According to Peirce, structure is the basis of all individual and species evolution. He focused on forms as related to growth in relation to the aspects of organic development. The morphogenesis of a plant, for example, corresponds to becoming the forms which are scaffolded by the structures that are already present in the seeds.[5]

For Peirce, matter (substance) is dyadic (it acts by the brute force, it is a pure index), while form is triadic: "Form, in the sense of structure is of far higher significance than the Material" (MS 1334). Thus, for Peirce, form has the clear precedence over matter, but his understanding of form is surely not Platonic, the forms are not predetermined and never-changing. First of all, biological growth is defined as becoming a given biological structure, but the structures are not Platonic ideas, they are embodied in matter:

> Platonic idea […] was supposed to be […] the more perfect for being freed from matter which this scholastic nature had [previous] to embodiment not being at all except in the sense that it was about to become embodied in short, a mere being in future a being about to be. (MS 870)

To understand what Peirce means by forms in biology, it is necessary to review his metaphysical position on real possibilities in nature, present in the majority of Peirce's papers on pragmaticism (recall the famous argument about the hardness of a diamond) and his statement on realism. Potentialities in Peirce (Stjernfelt 2007) are different from potentialities in Aristotle. In the natural philosophy of Aristotle, the potential being, the being *in futuro*, is related to the future structure to which an organism is growing. In the natural philosophy of Peirce, on the contrary, the potential being is not necessarily related to the future, or better, is more focused on the undecided state in the present. This difference is crucial and also important for Peirce's concept of chance, or tychism.

Thus, Peirce stated explicitly the primacy of the form over the matter and he also defined Phaneron in purely formal terms. Moreover, he defined a kind of continuity between micro molecular organic structures and the structure of human mind, that is, proteins and phaneron, called by Peirce himself as "Proteid Analogy":

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[5]   For Peirce, such 'ends' are always *generals* and not singular forms – e.g. CP 5.312, and 5.432 (Don Favareau's comment).

> [...] but whatever I may conjecture as to those vast super-molecules, some containing fifteen thousand molecules, whether it seems probable on chemical grounds, or not, that they contain groups of opposite polarity from the residues outside those groups, and whether or not similar polar submolecules appear within the complex inorganic acids, it is certainly too early to take those into account in helping the exposition of the constitution of the phaneron. (MS 1334)

Phaneron and proteins share, according to Peirce, structure. This is another example of Peirce's relational thinking: not only has form precedence over matter, it is also *universal*: shared among mind (Phaneron) and the smallest molecules of our bodies (proteins). Peirce assumed, even though in his times it was "too early" because of the lack of knowledge about proteins, that proteins might help understand our mind (Phaneron) because of the analogy in their physical and chemical composition.

The formalist approach in biology is often put in relation with Platonic idealism, or in modern science, with vitalism (Markoš, Švorcová 2019). If we want to avoid vitalist or creationist theories and at the same time keep forms in the description of biological phenomena, the only way to approach forms in biology is in reversing the order between form and substance. Some of the structuralist thinkers in linguistics and semiotics presented a reverse order between the form and substance. The topic was brilliantly and minutely analysed in the dissertation thesis by Tyler Bennett (2021a). As Bennett points out, we can find such reversed order in the works by Greimas and Courtés (1982) under the term 'reciprocal presupposition'. Bennett uses the term retroactivity.

This discussion about substance is extremely relevant for biology, regardless of the fact that there are forms in biology and, as Peirce described them, these forms *are not* Platonic forms. But it is important to add here that forms are only possible in relation to substances (see CP 1.220). Above all, in the Century Dictionary, of which Peirce is one of the authors, biology is defined as science of substances.[6]

On the biosemiotic fundamentals of aesthetics – Kalevi Kull

Kalevi's talk was a proposal to solve the age-old misunderstanding of beauty as an implication from biosemiotic theory (Kull 2022). Semiotics is searching for answers to very complex questions, and "what is beauty?" is obviously one of those. The problem was central for Umberto Eco and Juri Lotman. The problem of aesthetics is important, for it concerns the ways in which culture changes the Earth. When

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6   Entry 'Science', page 5397. Cited from online digital archive of Texas Tech University: http://www.global-language.com/century/.

people attempt to make their surroundings beautiful, they usually replace the natural with the cultural, by which nature is turned into culture, and the richness of life very often is violated or destroyed, which now means that protection of biodiversity is largely dependent upon shifts in aesthetic preferences.

There exist several works on semiotic bio-aesthetics by Katya Mandoki, Andreas Weber, Dario Martinelli, Tommi Vehkavaara, Peter Harries-Jones, Mark Reybrouck, Tim Ireland, etc. The solution proposed by Kalevi stems from how we currently understand semiosis.

Two assumptions from general aesthetics are used. Firstly: aesthetic values are not universal, they are relative and depend on a particular culture; there are also individual differences; so it is obvious to conclude that aesthetic preferences are also species-specific. Secondly: an object is considered aesthetically more valuable if it is valuable in many aspects, if it has a plural meaning.

Semiosis has the following definition: *semiosis, or interpretation is the collapse of multiple possibilities via choice.* At any moment, interpretation takes one from an area of possibilities and leaves others out. In that sense, this is a collapse of possibilities which happens in any semiosis: there are simultaneously various representamens, and then there is *one interpretant.* What occurs is a choice, which means a collapse of possibilities, which is semiosis. There are of course other definitions, but this one deserves attention here.

Semiotic memory (understood as *a trace from the choice that influences or frames the further choices*) is the memory whose source is semiosis. Semiosis solves incompatibilities; it resolves oppositions and contradictions; it solves problems. Karl Popper (2014) has said that life is not natural selection, life is problem-solving. Possibilities interfere with each other; semiosis removes that interference, at least for one period of the functional cycle. As Uexküll says, the functional circle[7] is working until it deletes its source, because the functional circle is self-rewarding, it carries out self-supervised learning, and so, stepwise, semiosis after semiosis, choice after choice, semiosis leads to semiotic fitting.

Semiotic fitting can be defined *as the agents' capacity for making and preserving the local semiotic bonds in the agents' functional and communicational niche* within its surroundings. What this tendency consists of varies remarkably. It is just a very general tendency. It is not a one-step process because there are many different interactions the agent has, and these cannot be realized all at once. The agent has to be fitted to many different areas of many different interactions, in all modalities which may prevail, and semiosis is what is driving those interactions. Thus, Kalevi suggested that semiotic fitting is the fundamental aesthetic process.

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[7]   On 'cycle' versus 'circle' as *Funktionskreis* in Uexküll, see Kull 2020.

Note that semiotic fitting is system-dependent. It does not require the human eye if humans are not part of the particular living system. Semiotic fitting is a common process in ecosystems and biological communities, where there are very many relations that should semiotically fit between many different organisms and species. The longer a community develops, the more relations and aspects of fittedness it can achieve, which implies that the older communities such as old forests, old meadows, old villages, etc., are generally richer, better fitted, and more beautiful, from the *system's own* perspective.

Importantly, the aesthetic process includes both perception and morphogenesis; moreover, the aesthetic process is realized both by morphogenesis and by perception, and the tendency for semiotic fitting is what they share. Both are involved in aesthetic processes. One way to approach this connection is the way of Christopher Alexander (2002).

Jakob von Uexküll made the very radical claim that every species is perfectly fitted to the world. Since they all do their best, they are also equal in fittedness. Being perfectly fitted implies contrasting neo-Darwinism, because it does not require evolutionary time – the organic decision-making is rather quick.

It is important to make a distinction between the artistic and the aesthetic. The artistic is the *willful* aesthetic. When defined this way, the artistic belongs to humans, and we would not use the term for other species. Therefore, we need an additional typology of aesthetic forms. Since semiotic choices modify memory, memory in the process of semiosis is what defines learning, which is why that typology can be related to the main types of learning. We can imagine a very obvious typology: *vegetative* aesthetic, in case of which it is imprinting which assimilates patterns; *animal* aesthetic which is the association which assimilates correlations; next, *empathic*, or emotional and emonic, which probably belongs to all vertebrates, and in that case imitation is the type of learning that assimilates analogies; and the *human* aesthetic, with deliberate assimilation of whatever (even inconsistencies), because conventions have no boundaries. Therefore, human art may deviate from beauty, as the human aesthetic includes a wilful play with values. This means that in some relations it may also be deliberately *against* fittedness (not that it should, but it may); while the animal aesthetic process proceeds strongly toward beauty, this need not be the case with humans.

An important value of ecological design is polysemy, as we see it in old, local natural communities. Thus, in order to be able to live in a truly rich and valuable world we should follow the biosemiotic aesthetic. The task of art in the ecological era is to discover the aesthetics of the biosphere and their indigenous communities in every place – to observe the animal and vegetative beauty, the intrinsic beauty of life.

Kalevi's conclusion proposed an answer to the question "what is beauty?" – beauty is a perfect semiotic fitting. In non-humans, fittedness is always multi-contextual, while in humans it is often approached in a decontextualized manner. Beauty is species-specific and includes all modalities. We should try to take this into account when learning the melodies by which we can permanently live with all other species, which would direct us when interfering into their lives and modifying ecosystems, for if our song does not fit theirs, we will destroy the symphony of the ecosystem.

A biosemiotic model of alloanimal episodic memory – Oscar S. Miyamoto Gómez

Oscar's talk considered episodic memory (EM) in different species. Consider: some corvids (Kort, Dickinson, Clayton 2005) and rodents (Panoz-Brown *et al.* 2018) remember the what-where-when of their subjective (lived) past. What is more, based on such long-term retrospection, they are able to anticipate future (absent) scenarios and act accordingly in the present. The leading hypothesis (Dere *et al.* 2006) currently accounts for this fact in terms of episodic memory, the same memory type responsible for autobiographical memory in human beings (Tulving 2005).

The above is relevant from zoosemiotic and biosemiotic points of view if we take into account two implications. Firstly, experimental evidence (e.g. Martin-Ordas 2016) shows that EM is a cross-species memory system with analogue and homologue neural substrates, which have undergone evolution, meaning that a wide range of untested mammals, birds, and even reptiles, likely possess EM (Allen, Fortin 2013). Secondly, despite species-specific features, behavioural tests show that animal EM consistently displays an irreducible *combination* of 'flexibility' (how the memory is contextually updated), 'structure' (how the memory is recollected as an integrated what-where-when), and 'content' (what events the memory is about) (Crystal 2018).

Oscar's presentation focused on the latter implication, making emphasis on the interdisciplinary need for a semiotic model that explains the underlying phenomenology of animal EM in terms of meaning-making and choice-making. A preliminary version of such a model was presented as a follow-up to Miyamoto 2021.

Against this background, his main claims made during this Semiosalong session were (1) the distinctive behavioural expression of animal EM is necessarily caused by a subjective experience accompanying episodic recollection; but (2) the temporal phenomenology of retrospection and prospection can pragmatically be

understood as semiosis, a natural meaning-making mediation (e.g. the logical influence between interpretants, representamens, and objects).

Consequently, Oscar also introduced three evidence-based categories he called 'interpreter', 'experiencer', and 'actor', which are relational parts of a broader concept of his 'episodic self'. The latter is an ontological attempt to (re)define animal EM beyond its behavioural outcomes, in terms of an intentional self-interpretative process. This irreducible cognitive approach, in a manner of speaking, could be thought of as the 'existential graphs of memory', or the 'functional cycle of memory'.

When it comes to the 'experiencer', Oscar defined it as a phenomenological category that accounts for the behavioural expression of 'structure'. This representamen-oriented category refers to the fact that animal EM would be impossible without the subjective capacity to attend simultaneous sensations during the ongoing present. This category is supported by evidence on the transient relation between working memory and sensory memory. In short, the 'experiencer' was introduced as the perceptive potentiality to elicit memories as a contemporaneity of qualia. Thus, episodic imagery ('structure') may iconically stand for a 'present' as a simultaneity of sensations (a potential formal cause).

The 'actor' was defined as a neurophysiological category that accounts for the behavioural expression of 'content'. This object-oriented category accounts for the fact that animal EM would be meaningless without the bodily necessity of acting upon environmental time constraints. This claim was supported with evidence on the task-oriented relation between procedural memory and self-performance memory. In short, the 'actor' was introduced as the agential capacity to act upon the world. Thus episodic behaviour ('content') may indexically stand for a 'past' as a succession of actions (an actual efficient cause).

And finally, the 'interpreter' was defined as a metaphysical category that accounts for the behavioural expression of 'flexibility'. This interpretant-oriented concept deals with the fact that animal EM would be deterministic without the habit of anticipatory choice-making. Oscar supported this idea with evidence on the long-term declarative (conscious) relation between semantic memory and episodic memory. In short, the 'interpreter' was sketched as the teleodynamic ability to make reinterpretations. Thus, virtual habits (West 2017) or 'flexibility' may symbolically stand for a 'future' as the precedence of optional courses of action (an optional final cause). The rest of the presentation, and discussion, explored how to better convey and diagrammatically represent the triadic irreducibility of the three spheres of the 'Episodic Self'.

In the light of the current review, it is worth briefly reflecting on the value of this presentation (also as an aftermath to "*Funktionskreis* and the biosemiotic signifieds", and its subtext Gatherings in Biosemiotics 2021). In the bigger

philosophical picture, the concept of 'episodic self' may eventually evolve into a fully-fledged semiotic theory of EM, where Peirce (semiosis), Uexküll (umwelt), and Tulving (memory) coincide through a pluralistic *phenomenology*. Such a theory could outclass computational models that currently limit our understanding of animal EM to a Cartesian dichotomy between a measured bodily behaviour and some sort of untranslatable alien mental life.

The lack of cross-species models of memory leaves us without (bio/zoo)semiotic tools that explain why alloanimals are not some sort of illiterate hippocampal amnesiacs "stuck" in the phenomenal present (Zentall 2005). Such narratives exist not so much because other beings (e.g. great apes) are genetically "different" species, but because verbal language operates as some sort of a hegemonic sign system that, more often than not, is used as a biopolitical parameter to speak about 'consciousness', 'awareness', and other phenomenological complex traits that are linked automatically with human culture. Thus, this not only hinders ethical research in alloanimals, but also in "silent humans" that do not possess "normal" cultural competences or "full speech" (e.g. patients with language impairment, young children, and hippocampal amnesiacs). It is yet to be discovered how the humanities may benefit from understanding EM beyond the man-made, through biosemiotics.

Between biosemiotics and general semiotics: On Luis Prieto's *sémiologie* – Eugenio Israel Chávez Barreto

Israel's talk presented a possible way to build a general semiotics that includes biosemiotics taking Luis J. Prieto's theories as a starting point. Israel's doctoral research (Chávez Barreto 2022b) is centred around the works of Prieto, thus the stress on the ideas developed by the Argentinean linguist and semiotician. The primary aim of Israel was to show the heuristic potency of Saussurean semiology as developed by Prieto, while trying to overcome the dichotomy often posed as existing between the Peircean and the Saussurean approaches;[8] i.e. to insist on the fact that both approaches are valid and legitimate for a general semiotic theory and that they are both necessary for a better description of semiosis as such. This aim, along with a constant effort towards reevaluating structural semiology, has been a constant in Israel's work, especially as it touches upon the regular events of Semiosalong. Indeed, both he and Tyler have been co-organizing

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[8]   This dichotomy is often posed both by Saussureans and by Peirceans, but notice that the latter often accuse Saussure, and Saussureans, of basing his thinking on reductive dichotomies.

the last four editions of Semiosalong[9] with the explicit premise of re-vitalizing a side of semiotics, or even a way of doing semiotics, that was popular during the 1960s and 1970s, but which moved to the background with the advancing of Peircean and Sebeokian orientations in the field. The very title of this special event, "*Funktionskreis* and the biosemiotic signifieds", succinctly captures these efforts.

As for the talk itself, the main idea was to present a definition of semiotics that characterizes the discipline as "the study of the necessary consequences of a contingency". The argument presented was basically as follows. Firstly, it was stated that all meaning is arbitrary. This was shown to be true by assuming a definition of meaning according to which meaning is fundamentally plural, and it only appears as determined in some respect when such plurality is considered from one particular point of view. Now, proceeding from this view, meaning is arbitrary simply because it is relational; whatever concrete meaning is the case, such concrete meaning is not independent from the relations from which it arises, and thus meaning as such is not reducible to the correlates that can be associated with the object to which such concrete meaning might be ascribed. Neither is it reducible to the correlates that can be associated with the subject for which the object means a given concrete meaning: such concrete meaning inheres precisely in the very relating of a concrete subject and a concrete object. Yet, crucially, if all meaning is arbitrary and no object is more or less prone to be ascribed any given meaning: how can there be sign systems? From where does their systematic character derive? A nuance was then appended to the starting statement: all meaning is arbitrary, but not to the same degree. To this effect, Saussure's distinction between absolute and relative arbitrariness was brought into the argumentation (Saussure 1995[1916]: 181). Relative arbitrariness was portrayed as the effective "mechanism of sign systems": its function is to limit absolute arbitrariness. Arbitrariness, in this sense, thus turns into the source of what can otherwise be termed as 'scaffolding' (Hoffmeyer 2015) or 'semiotic learning' (Kull 2018), but what in the structural tradition has often been referred to as 'articulation' (cf. Chávez Barreto 2022a). The arbitrariness of all meaning was furthermore supported in Israel's talk by the fact that while a given thing can appear as a meaning carrier of a given kind for a given subject using a given sign system, the very same thing can appear as a different meaning carrier for a different subject using a different sign system. To this extent, then, arbitrariness can be equated with primary choice making (cf. Kull 2018, i.e. meaning arises precisely when, faced with multiple, and often conflicting, options,

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9   Namely "Semiotics in Latin America" in autumn 2020, "Transmutation and other semiotic mechanisms" in the spring of 2021, "Mythokatalysis" in the autumn of 2021, and "Synecheia" in the spring of 2022.

a subject decides in favour of one of them and not of the others. It was precisely this concept of choice that was equated with absolute arbitrariness in Israel's talk).

Secondly, it was stated that, given that all meaning is relational: no meaning can exist in isolation; if a given meaning is recognized, then this is only to the extent that there is something else that is not meaningful. This principle is, in real sign systems, realized in two parts: first, by establishing *classes* and then by establishing *concepts*[10] – it is important to notice that this part of Israel's talk mostly reproduced some of Prieto's theoretical claims. Following Prieto, a given concept is only so to the extent that it is recognized as bearing a certain difference to all the other possible concepts that can be recognized by a subject using a given sign system. Yet, the identity of the concept depends upon the fact that the class is logically previous to the concept.

Effectively, a class defines a given practice. A class is thus "construed" by a subject only to the extent that the subject has a given need, and this need forces the subject to exert a given practice upon its environment. To the extent that the subject recognizes that several concrete means can be used to reach the end that is the aim of the practice, the subject seeks to establish the concept (by determining it in extension and intension) that is realized in a given concrete means. But the establishing of concepts is involved in both of the identities at play in the class (i.e. the identities realized, respectively, in the concrete means and the concrete end of a practice, cf. Prieto 1990) to the extent that semiotic subjects operate with categories, and not simply with concrete things. Thus, for Prieto, a class is made up of two sets, a set of means and a set of ends. These two sets belong to two different universes of discourse (or two planes), and the relationship between these two universes of discourse is not symmetrical: the set of ends is not defined by the set of means, but the set of means is indeed defined by the set of ends. In actuality, thus, to recognize an end supposes that the subject always operates with two classes: the class to which the aimed end belongs, and the complementary class (i.e. the class including all the other ends that cannot be achieved by using the same set of means). Thus, a further nuance was added to the preceding section on arbitrariness.

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[10] These terms are taken from Prieto 1990. A concept is a predicative function of the type "x is y" with only one free variable (e.g. x is white). A class is a predicative function of the type "x signifies y" or "x produces y", again, with only one free variable (e.g. x signifies "first person singular"). The difference between class and concept is that the predicative function defining a concept supposes that the set constituting its extension and the relative complement of that set is equal to the universe of discourse that acts as one of the planes of a sign system; a concept is a monoplanar relation. A class, however, is a biplanar relation, linking thus two universes of discourse, i.e. the two planes of a sign system.

We saw that primary choice-making could be equated with absolute arbitrariness; rudimentary sign systems in which a small number of classes – at least two – are needed can be good examples of this equation (e.g. the *Escherichia coli* example discussed in Stjernfelt 2007: 205–209). However, more complex sign systems often involve a vast number of classes, and for these cases, absolute arbitrariness alone would not work. A complete lack of articulation would render sign systems possessing a vast number of classes too difficult, if not impossible, to manage. The manageability of sign systems with a vast number of classes is mostly due to relative arbitrariness: if absolute arbitrariness is a primary choice-making, relative arbitrariness consists in building upon the consequences that derive from primary choice-making (understanding "primary" in between its two senses of "rudimentary" and of "earlier"). By saying that absolute arbitrariness is the source of scaffolding, scaffolding was thus equated with articulation and via it with relative arbitrariness.

Finally, the main statement put forward by Israel was that, theoretically, we could think of sign systems as a succession of choices. All the choices following the first choice that inaugurates a sign system are working against the absolute arbitrariness from which the given sign system begins.[11] The first choice is a contingency – being a choice, it disrupts the order imposed by physical causation, a kind of causation that would be merely efficient: in principle, a true choice does not necessarily follow from anything, at least not in the sense that effects *follow from* causes in the physical realm, but this contingency does not cease to exist after it is first enacted; rather, it influences all the successive events, and it shapes them in a given direction that would be otherwise, if that first decision would have had a different outcome. While it is true that a rose would smell as sweet by any other name, it is also true that whatever there is in a name cannot be wholly accounted for without looking at the transformations of the name, the relations it entertains with other names, with the surrounding adjectives, with its determinants, with prepositions: whatever there is in a name, or in any other sign, cannot be accounted

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11   Evidently, to talk about a "first choice" is but a figure of speech. The so-called "first choice" is, in practice, merely the precondition for there being semiosis at all (i.e. it has to be assumed that there is such a first choice, granted we accept that meaning is fundamentally plural), and that is why it is equated with absolute arbitrariness. In the lower threshold zone of semiosis, this "first choice" is a form of agency that is often assumed by biosemiotics to exist – indeed, the main practical task for biosemiotics is to demonstrate that there are signs in the realm of nature that falls into the lower threshold of semiosis. Within a theory of anthroposemiosis, this "first choice" is simply the result of reading Saussure's absolute arbitrariness as, indeed, *le libre arbitre*. This "first choice" is thus constantly re-instantiated in every act of semiosis, for it precedes every act of semiosis: it is the source of the movement in which semiosis itself consists.

for without looking at the way in which the name, the sign, is *made to* act. 'A rose', '*una rosa*', '*une rose*', '*roos*', '*ruusu*', '*arrosa bat*', while the object denoted smells as sweet, is the content, the signified of all those signifiers, of the same scent in all cases?

The idea of sign systems as a succession was exemplified by Israel with the route a person takes when walking from home to work: perhaps one day they decide to take a left at a particular point where they could have taken a right. This will certainly influence the rest of the route: from that left onwards, some options are forever gone, but some new ones have appeared. To take a left where one could have taken a right can be a contingency, but it has consequences. And those consequences are directly linked to there being a contingency in the first place. It is in this way that semiotics as a discipline, Israel concluded, can be defined as the study of all the necessary consequences that follow from there being a contingency.

<p style="text-align:center">*</p>

The discussion following Israel's presentation concentrated on the paradox entailed by this definition. Kalevi proposed to change the definition of semiotics to "the study of all the forms of arbitrariness". Israel's answer to Kalevi's reformulation was that the definition left aside the fact that arbitrariness creates systematicity, and thus the definition should read "*the study of all the forms and all the (possible) consequences* of arbitrariness". Kalevi agreed while insisting on the fact that such a definition was clearly a non-Peircean one, and thus he celebrated the fact that despite the different theoretical orientations of the group, an agreement upon such an important thing could be reached. Ľudmila insisted upon the distinction of two types of arbitrariness, namely syntagmatic arbitrariness and a paradigmatic arbitrariness, invoking André Martinet's proposal of double-articulation.

Postscript

The biosemiotic turn in semiotics was first introduced in the 1980s, as particularly expressed in the collective manifesto, proposed by Thomas A. Sebeok and his colleagues (Anderson *et al*. 1984). The main components of that turn were (a) the inclusion of Peirce and Uexküll as major classics of general semiotics, (b) the statement that organic life is a semiotic process, and (c) the inclusion of some biology-related concepts into semiotics (symbiosis, exaptation, semiosphere, modelling systems).

The second biosemiotic turn in – the 2020s – provides an important next step. Its main characteristics are: (a) extending the integration to Saussurean approaches; i.e. developing a general semiotics which synthesizes Peircean, Saussurean and Uexküllean theories; and (b) grounding aesthetics and ideology in biosemiotics.

The Gatherings in Biosemiotics 2021, hosted by the Bateson Centre in Stockholm, was a hybrid event where a small contingent of representatives oversaw the broadcast onsite, while the majority of speakers gave their talks from abroad. Many of the ideas about the second biosemiotic turn expressed at the Baer House Semiosalong were given fuller expression at the Stockholm Gatherings, the full proceedings of which are available on the Biosemiotics 2021 YouTube channel. Gatherings in Biosemiotics 2022 (27 June – 1 July, for the main programme) marked a return to the in-person format, with over fifty presenters onsite in Olomouc (also recorded). The splendour of the event reminded us of the importance of context, embodiment and environment – the old-fashioned, in-person conference still captivates us in a way that is difficult to fully reproduce online. And yet, the new ubiquity of recording – a result of the pandemic-era shift to mostly online events – is a trend with inestimable pedagogical value. If a great, in-person conference takes place in the woods but is not recorded and available online, *did* it really happen? Either way, it seems that the second turn in biosemiotics is also a commentary on this ongoing (largely absurd) technological transition.

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