Language, Linguistics: Life, Biosemiotics…

Kalevi Kull and Ekaterina Velmezova

Abstract Since mostly human modes of action take on a symbolic aspect, and since there are many semiotic (meaning making) systems without any symbolic signs, the application of purely linguistic models in biology is mostly incongruent. However, there exist many common features between human language and other (non-human) sign systems, and even the developed linguistic universe remains internally connected to pre-linguistic expressive forms. Therefore, at least this role of biosemiotic phenomena and processes in the functioning of human language is worth paying attention to, as manifested by the contributions to this volume.

Keywords History of ideas • Semiotics • Linguistics • Human sciences • Non-human sign systems • Biology

The idea of this book arose during the 12th Gatherings in Biosemiotics (Tartu, July 2012), which included a special session entitled "Language and Life: The double interface".[1] At that time, reading Donald Favareau's review "Twelve years with the Gatherings in Biosemiotics" published in a book describing this series of annual meetings,[2] we paid attention to the fact that he mentioned very few linguists who had given talks in the Gatherings between 2001 and 2011. They are (in the order of joining the biosemiotic gatherings): Tuomo Jämsä, Stephen Cowley, (psycho)linguist Joanna Rączaszek-Leonardi, Natalia Abieva, Prisca Augustyn, and Angelo N. Recchia-Luciani.

Even if the choice of designations (are they "linguists"? or "philologists"? or maybe "philosophers [of language]"?) can sometimes alter the interpretation of facts (*nomina sunt odiosa*), this rather insignificant rate of *linguists* interested in

[1] Cf. Cowley 2012.

[2] Favareau 2012.

K. Kull (✉)
Department of Semiotics, University of Tartu, Tartu, Estonia
e-mail: kalevi.kull@ut.ee

E. Velmezova
Centre for Linguistics and Language Sciences / Department of Slavic and South Asian Studies, University of Lausanne, Lausanne, Switzerland
e-mail: ekaterina.velmezova@unil.ch

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biosemiotics provoked not only the question about the possible reasons for this state of affairs, but also a wish to contribute to the improvement of this situation. In particular, we were inspired not only by the example of Thomas A. Sebeok, a linguist as to his basic education and one of the founders of modern biosemiotic research (his intellectual heritage is discussed in several articles of this book), but also by the idea that, in the future, for biosemioticians it would be of use as well to become more knowledgeable at least in these aspects of linguistics in which the two fields may overlap. Let us also refer to Juri Lotman's words going back to 1990: "I think that zoosemiotics should become part of linguistics, or linguistics part of zoosemiotics; let us not argue about the priority, but it seems to me that a zoologist ought to be a linguist, and maybe a linguist ought to be a zoologist".[3]

This is how the project of the volume "Biosemiotic perspectives in linguistics" was launched. The *general idea* of the book was to try to present new methods, directions and perspectives of studying human language in general and various languages in particular within the framework of biosemiotic models, or of studying language and languages simply with an interest in biosemiotics. In particular, the (potential) contributors to the volume were invited to answer the following questions:

- What can biosemiotics bring to linguistics (and vice versa)?
- What are the biosemiotic implications for language sciences?
- What are the biosemiotic groundings of language and how to study them?
- How has the interdisciplinary union of linguistics and biosemiotics contributed to the reconsideration of some linguistic concepts – such as *language* itself, *language* as *langue(s)* and *langage, syntax, (linguistic) sign, dialect, text, discourse, code* etc.?

Additionally, articles on historical backgrounds and intellectual premises of biosemiotic approaches to the study of language and languages were also welcome.

Several months after the Tartu conference, a letter was sent to around thirty scholars all over the world, with an invitation to write a contribution to this volume.

Per aspera…

Some of the difficulties that we have encountered already from the very outset of the project allow us to ask once again the question about the reasons of this not so intensive cooperation of linguists with biosemioticians.

Of course, *prima facie*, already a difference in the objects of study in the case of linguistics and biosemiotics seems significant. According to Ferdinand de Saussure's classical work, linguistics (even in his seemingly narrow definition) is a part of

[3] Cf. Kull 1999b, p. 125.

semiotics ("semiology"). Charles S. Peirce would not disagree. And if biosemiotics studies signs and sign systems in regard to all living organisms (including human pre-linguistic semiosis), it may come very close to providing a general theory of semiotics.[4] In this case, the very objects of biosemiotics and linguistics, in all their diversity, would correlate as general and specific. It explains that linguists can feel more easy staying in the "comfort zone" of their own object of study,[5] but hardly justifies the rather limited interest of biosemioticians in linguistics. Though, of course, the proper focus of biosemiotics lays at non-linguistic semiosis, so they therefore have an excuse. After all, biosemiotics can even be defined as pre-linguistic or non-linguistic semiotics.

But in our specific case, linguists had other reasons for being reserved. In particular, if at the beginning several colleagues were very enthusiastic about the whole project (proposing, for instance, such titles of contributions as "Biosemiotics of the nineteenth century? A view from the 'pre-Saussurean' linguistic tradition", or "German philosophy of nature as a source of inspiration for structuralism and biosemiotics" etc.), their enthusiasm did not find sufficient support from the current level of biosemiotic methodology, which, obviously, has not yet made itself clear enough in order to remove all fears of biologization (like those caused earlier by social darwinism, sociobiology or evolutionary psychology). One of the arguments was that drawing analogies between cultural phenomena and those going back to natural sciences would hardly constitute a reliable method leading to important *discoveries*.

Even if this criticism is hardly sound, it concerns a noticeable image of the biosemiotic community, and that is why it seems important to explicate its origins.

… (per historiam)…

To a certain extent, the roots of this criticism go back to the history of ideas, and even though so many works have already been written on the problems of relations between linguistics and biology that their simple enumeration would need a book, to recall some tendencies does not seem unnecessary even in this short foreword. In particular, certain modern linguists consider the ideas of late eighteenth and early nineteenth century Romanticism to have been forever left behind – specifically the ideas emphasizing the union of nature and culture (and therefore, also that of biology and the humanities). However, still not so long ago such ideas had their right to existence and seemed fruitful for linguistics; moreover, some "biologico-linguistic" ideas have not lost their value at present. Even if with the corresponding conceptions we are still not in the field of biosemiotics as such, it can be useful to bring to

[4] Cf. also Kull et al. 2009, p. 171 about biosemiotics aiming at general semiotics.

[5] Cf. the following observation of one of the participants of our project: "Linguists attending the biosemiotic *Gatherings* conferences always run the risk of being perceived as naïve or uninformed about the many layers of language and communication that the inadequate abstractions in the field of linguistics cannot address" (Augustyn 2012, p. 185).

mind some of these reflections, providing here only two striking examples and referring to the articles of this volume for other illustrations of the corresponding tendency: the history of an eternal dialogue between linguistics and biology is repeatedly reviewed in the contributions we publish.

From Biology to Linguistics

One of the best known attempts to establish an analogy between linguistics and biology on the *object* is immediately associated today with the so-called linguistic naturalism and the name of August Schleicher, Darwin's admirer for whom, at first glance, languages living organisms. This conviction resulted in the conclusion that linguistics is a natural science and its *methods* are, **in general outline**, almost the same as in other sciences of life. Other scholars working within the framework of the naturalist "paradigm" (as Max Müller) also shared this point of view. Languages could be considered as living organisms, among other things, in virtue of the belief that language evolution follows the laws which men cannot influence. The notion of *law* was transposed into linguistics from biology (even if Schleicher was convinced that Darwin's theory could be only in a very general way applied to the study of languages, the latter being too different from both plants and animals). From the above it appeared that the "life" of languages could be analogously divided into the same phases as that of living organisms (hence Schleicher's evolutionary typology), that both struggle for existence and natural selection are possible among linguistic phenomena (words, morphological constructions), etc. All this witnesses that these scholars moved, indeed, from analogy on object to analogy on *method*, trying to study the evolution of languages by analogy with the evolution of living organisms as understood by Darwinians.[6] Despite their visibly naïve character, some of these views have survived in linguistics until today (though in a less "literal" state). The image of the language family tree, worked out within the framework of the naturalist current, is still widely spread in linguistics, even if now it is completed by other models.

One of these "supplementing" models is connected with a similar analogy on method between the humanities and sciences of life which was drawn later. A manifest anti-Darwinian example of such analogy goes back to the 1920s in Russia. In the book *Nomogenesis; or, Evolution Determined by Law* (1922),[7] biologist and geographer Lev Berg set out a conception of evolution which was an anti-Darwinian one. Among other things, his idea of evolution was that of convergence of non-related species on the same territory, as opposed to Darwin's conception of evolution by divergence. This point of view has much influenced scholars who transposed Berg's model into linguistics; in the 1920s–1930s, Nikolai Marr, Roman Jakobson, Nikolai Trubetzkoy and others spoke (with different degrees of reliability in their discourses, and either completely rejecting the divergent model of language

[6] Cf. Velmezova 2014.

[7] English edition Berg 1969.

evolution [Marr] or only completing it correspondingly [Jakobson, Trubetzkoy]) about languages evolving by convergence, hence the idea of not only lexical but also morphological loans, of language unions, etc.[8]

Therefore as concerns the relations between the humanities and life sciences, or more precisely between linguistics and biology, even the method of "drawing analogies" used to be fruitful.[9]

However, the whole situation will receive a different light if one takes a position that both biosemiotics and linguistics are parts of semiotics which share the principal processes of meaning making as to their objects. Therefore there could also be much in common in their methodologies. Biology as seen from this perspective would not belong to natural sciences (at least in the earlier sense), and accordingly, the regularities that linguistic and biosemiotic descriptions may share will not be of the same kind as "natural laws".

Anyhow, already in the examples discussed above, the influence of biology on linguistics was not irreciprocal: both Darwin and Berg discussed linguistic examples in their works. But it is nothing in comparison with the interest of biologists in semiotics (and linguistics as a part of it) during several past decades.

From Linguistics to Biology

It was in the 1970s that application of linguistic principles in biology became particularly frequent among theoreticians.[10] In the decades that followed, simple language metaphors (like "DNA language" or "cellular language" of life, etc.) have become widespread in biology. Such linguistic metaphorics have been characterised as "spontaneous semiotics" in biology.[11] However, a more profound understanding of the relations between biology and linguistics yet has to be developed.[12]

Early attempts to redefine the relationship between linguistics and biology on a semiotic basis were made already in the 1970s. Conrad H. Waddington stated: "It is language […] that I suggest may become a paradigm for the theory of General Biology".[13] Howard Pattee[14] spoke about linguistic and dynamic modes of description of living systems. Applying explicitly semiotic terminology, Belgian biochemist Marcel Florkin wrote: "We believe that in future develop-

[8] Cf. also Sériot 2014; Velmezova 2007.

[9] Cf. also Auroux (ed.), 2007.

[10] Jakobson 1971; Marcus 1974; Pattee 1972, etc.

[11] Hoffmeyer 2008, pp. 360–364; cf. also Markoš and Faltýnek 2011.

[12] Cf. Kravchenko 2013.

[13] Waddington 1972, p. 289.

[14] Pattee 1977.

ment, linguistic semiology will become based on molecular biosemiotics of the activities of the brain. We shall therefore use in the perspective of this subject several general concepts elaborated by de Saussure such as significant and signified, synchrony and diachrony, syntagm and system with the special meaning they have in molecular biosemiotics. It must be noted that in the mind of F. de Saussure these concepts arose from the consideration of existential (not psychological) aspects of natural science. […] It is therefore fitting to situate these concepts in the most general context of semiotics, the general science of signification, of which linguistics and biosemiotics are special aspects".[15] Further, on February 1–2 1978, a conference "Biology and linguistics" was organized in Tartu, with the participation of several leading scholars in the fields of both semiotics and theoretical biology who worked at that time in the Soviet Union.[16] One of the conference sessions was titled "Biosemiotic research abroad". In addition, in the Tartu-Moscow semiotic school some projects relating linguistics and biology were carried out (works on aphasia, studies of relationships between neurobiological and semiotic brain asymmetry, etc.).[17]

In parallel, discussions on the applicability of linguistic models in animal communication were carried out within the framework of zoosemiotics.[18] A remarkable crystallization of biosemiotic ideas took place in the 1990s, particularly due to Thomas A. Sebeok's and Jesper Hoffmeyer's work.[19]

Overall, since only human modes of action take on a symbolic aspect,[20] and since there are many semiotic (meaning making) systems without any symbolic signs, the application of purely linguistic models in biology is mostly incongruent. However, there exist many common features between human language and other (non-human) sign systems, and "even the fully developed linguistic universe of expressive sounds remains internally connected to those pre-linguistic expressive forms".[21] Therefore, at least this role of biosemiotic phenomena and processes in the functioning of human language is worth paying attention to, as manifested by a number of contributions to this volume.[22]

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[15] Florkin 1974, p. 14.

[16] The conference was organised by three research groups, starting to work in the direction of establishing connections between biology and semiotics. They were from St. Petersburg (leaded by Sergei Chebanov), Moscow (Alexander Levich, Alexei Sharov), and Tartu (Kalevi Kull with colleagues) (cf. Kull 1999b, p. 122).

[17] Cf. for instance Ivanov 1978; articles on these problems in Minc (ed.), 1983, etc.

[18] Cf. a review about the history of zoosemiotics in Maran et al. (eds.), 2011.

[19] Sebeok and Umiker-Sebeok (eds.), 1992; Hoffmeyer 1993 [1996]; for reviews of this tendency cf. Favareau 2010a; Kull 1999a.

[20] Cf. in particular Deacon 1997. It corresponds to Th.A. Sebeok's usage of the term *language* as referring to the sign system which is almost uniquely human.

[21] Hoffmeyer 2008, p. 274.

[22] Some earlier works on the relations between linguistics and biosemiotics were reviewed in the anthologies on biosemiotics (Favareau [ed.], 2010) and zoosemiotics (Maran et al. [eds.], 2011). In addition, we may mention the work, e.g., by Alexander Kravchenko (2006 and 2013), Terrence Deacon (2003), Stephen Cowley (2006), etc.

…ad astra

In this volume are presented contributions of both young researchers and eminent professors from several countries and continents, many of whom know each other personally and/or by research work. One third of the articles in this book are those written in collaboration, and in many contributions, there are references to the works (including the latest ones) of other participants of our project. Therefore the volume could be considered as a fruit of collaboration between researchers belonging to a very dynamic and rapidly developing international community of scholars; the variety of subjects discussed here[23] reflects different aspects of their activity.

The book contains four parts; articles within each of them are united by common subjects and/or problematics, even if this division is certainly relative.

The first part ("Theory and Theoretical Models") opens with an article by Donald Favareau and Kalevi Kull about "biosemiotics and its possible relevance to linguistics". This text can be considered as a general *theoretical* introduction to our volume, with its emphasis on the idea of meaning-making as one of the most important phenomena studied in both biosemiotics and linguistics. The question of the extraction of meaning as possible via semiosis and narration is discussed in the text written by Anton Markoš and Dan Faltýnek who at the same time remind us of a blurred nature of some central concepts in linguistics and biology – such as *language*, in the first place. The notion of *language* remains central also in the article by Susan Petrilli and Augusto Ponzio, where "language as primary modelling" and "natural languages" are confronted in a biosemiotic perspective. Morten Tønnessen's contribution deals with language and umwelt. In this article, relations between these two "entities" turn out opposite in comparison with a "traditional" view. In Jamin Pelkey's paper, the evolutionary aspect of language is emphasized with a particular insistence on a "deep congruence between linguistic and biotic growth".

From multifarious theories to *empirical and observational* work: that is how the following part of the volume could be described, in which we decided to put only one contribution: Stephen Cowley's article seems particularly important for our book because of specific case studies which are discussed in this text in the light of its author's theoretical theses.

Indispensable for our volume was the question of relations between biolinguistics and biosemiotics, to which the third part of the book is dedicated. In fact, what has often been labeled as biolinguistics[24] manifests mostly a quite separate approach from biosemiotics: biolinguistics studies the biological preconditions for (largely a computational model of) language, while biosemiotics focuses on the pre-linguistic

[23] Let us specify from the very beginning that some theses discussed in the contributions of this volume, or conclusions to which their authors come, were not always shared by the three editors of the book (whose views also sometimes diverged). We also gave (relatively) free hand to our authors as to their own right for spelling the words and terms with non-established orthography (*Umwelt* or *umwelt*? etc.), for putting (or not) into References works which they only mention (without quoting) in their contributions, etc. Likewise, each author could choose either British or American spelling for her/his contribution; among other things, this allowed us to avoid potential inconsistencies in quotations, etc.

[24] Berwick and Chomsky 2011; Di Sciullo and Boeckx (eds.), 2011.

sign processes. A major difference between these approaches lies in the view to biology: authors of works that use the label *biolinguistics* usually do not accept meaning making processes at the biological level.[25] In our book, biolinguistico-biosemiotic problems are taken up in three articles. Embracing both fields, biolinguistics and biosemiotics, Winfried Nöth discusses their common points and their differences in a meticulous overview. With a particular insistence on the history of the corresponding disciplines, major problems of relations between biology, linguistics, biolinguistics and biosemiotics are examined by Prisca Augustyn. Finally, turning from historical problems to those of current research, Piera Filippi discusses the evolutionary continuity between animals' communication systems and human language in light of the general question about the "evolutionary roots of human language".

In the fourth part of this book are gathered contributions on the history of biosemiotic and linguistic ideas in their interrelation. Being last, this part is far from being least not only as to the number of contributions it contains, but also because of the fact that historical questions are discussed, in one way or another, in the majority of texts presented in this book. It appears therefore that history and historiography of sciences provoke today much more enthusiasm from those interested in linguistics and biosemiotics than, for instance, any empirical research. *Quae sunt Caesaris, Caesari*: the first contribution of this part, that of Sara Cannizzaro and Paul Cobley, puts forward Thomas Sebeok's transition from linguistics to biosemiotics. The works of such "classical authors" as Ferdinand de Saussure (for linguistics) and Charles Darwin (for natural sciences) are discussed in the articles of Jui-Pi Chien, and Thomas Robert and Deana Neubauer, correspondingly. At last, we publish Ekaterina Velmezova's text about the Bakhtinian notion of *dialogue*, which is sometimes referred to in the context of biosemiotics studies. Without claiming any biosemiotic orientation of her work, E. Velmezova offers an overview of Mikhail Bakhtin's references to this concept, complex and evolving with time.

We hope that this book will offer an opportunity to look at numerous phenomena in a new way, therefore allowing their original interpretation. If one of the purposes of biosemiotics as an interdisciplinary research consists in bridging the gap between natural sciences and the humanities, as well as in redefining their relationship, this volume could be considered as a step in this noble direction. We hope to continue our work in the future, organizing a series of events and publications on the corresponding passionate problems and in this way favoring a cross-disciplinary exchange, a dialogue between specialists in several conventionally separated fields of knowledge.

[25] Asked about the definitions ("biolinguistics is the study of biological preconditions of language; biosemiotics is the study of pre-linguistic sign systems"), one of the current leaders in the field of biolinguistics, Cedric Boeckx, responded with the following: "Regarding your definitions, they seem fine to me, as far as definitions are concerned, and I believe the two fields have lots to teach to one another" (letter from Cedric Boeckx to Kalevi Kull [July 19 2013]). Cf. also Cowley 2006 about the differences between biosemiotic and biolinguistic approaches.

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