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## **Dimensions of zoosemiotics. Introduction**

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**Abstract.** This introductory paper of the zoosemiotic issue of *Semiotica* gives an insight into the history of zoosemiotics and into contemporary developments of the field. Temporal distance allows taking a fresh perspective on Thomas A. Sebeok's zoosemiotic writings, periodization of his works and their relations to other studies of animal semiotics. In the present time, zoosemiotics can provide a necessary space of dialogue between biosemiotics and general semiotics. It is claimed that for contemporary zoosemiotics, a pluralistic approach is the most suitable, for the purposes of historical description, object-level studies and paradigmatic theorisations. It is also relevant to see zoosemiotics as contextualised within recent developments of environmental humanities. In this paper the classical era of zoosemiotics is contrasted with the more recent post-linguistic zoosemiotics, with special attention paid to the synthesis between zoosemiotics and cultural and literary criticism, to zoomusicology, and to the inclusion of semiotic arguments in animal ethics. Several practical methods and applications of zoosemiotics are discussed.

**Keywords:** zoosemiotics, history of zoosemiotics, post-linguistic zoosemiotics, Thomas A. Sebeok, Jakob von Uexküll

50 years have passed since zoosemiotics — a novel discipline combining methods and subject matters of semiotics and ethology — was launched by Thomas A. Sebeok (1963). This occasion is very suitable for looking back at the history of zoosemiotics but also forward at the future perspectives of the discipline. It is true that most publications in zoosemiotics were published during the first two decades of the discipline's history and that Thomas A. Sebeok himself shifted to using “biosemiotics” as a general term in the 1990s. But does this mean that we should speak of zoosemiotics in the past tense? My answer to this question is a firm no. On the contrary, zoosemiotics as a general discipline of “the study of signification, communication and representation within and across animal species” (Maran et al. 2011: 1) appears now to be more promising than ever before. This claim is based on several grounds. First, in the last decade we have witnessed

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the fast development and institutionalization of biosemiotics marked by the establishment of International Society for Biosemiotic Studies and of the journal *Biosemiotics*. But when we think of a possible ground of dialogue between biosemiotics and general semiotics (or anthroposemiotics), this would lie exactly in the semiotic processes on the level of animal organism. In addition, contemporary general semiotics has started to pay attention to the biological body as such, largely owing to the influences of cognitive studies, evolutionary approaches and embodiment theories. Second, the last decade has seen a rapid development of animal studies in the humanities under several names (anthrozoology, critical animal studies, posthumanism, environmental humanities, ecocriticism etc.). The subject matter of those research programs often overlaps with that of zoosemiotics, creating thus a potentially dialogic situation. To give just one example: Donna Haraway, in her recent book *When Species Meet* (Haraway 2008), reflects extensively on interspecific communication as well as makes several friendly references to semiotics. Third, biological sciences themselves have changed. The initiation of the zoosemiotic research program in the 1960s was largely inspired by the studies of Karl von Frisch on the “dance language” of bees and by the works of other authors of classical ethology. But at that time, classical ethology itself was losing ground to the emerging Neo-Darwinian paradigms. Today the landscape in biological sciences is much more diversified and many disciplines focus on ontogenetic and environmental processes. From contemporary paradigms, a supportive context for zoosemiotics is formed foremost by cognitive ethology (see also Allen, this issue), systems biology and evolutionary developmental biology, but also in conservation biology an awareness of the importance of animal culture and communication has risen significantly. The necessity to include semiotic approach in conservation biology can be exemplified by the Tasmanian devil (*Sarcophilus harrisi*): it is a case of the whole species being endangered because of the contagious devil facial tumour disease (DFTD), which spreads with the help of the Tasmanian devil’s specific communication strategy that relies on tactile contacts (Siddle et al. 2007; Eisenberg and Golani 1977). A rising awareness of semiotic processes in animals could help in many issues of species protection.

Looking now back at the development of Sebeokian zoosemiotics, temporal distance allows us to treat this as a very special but still one dimension of thought in the wider sphere of animal semiotics. Sebeok’s works, at least in their early stage (distinction can be made between communicational period 1963–1972, philosophical period 1972–1990 and late biosemiotic writings 1990–2001, see Maran 2010b; Kull

2003; Copley this issue) centre on animal communication and its linguistic aspects, with a special emphasis on code and coding. Zoosemiotics in the wider sense, as understood in the context of this special issue, includes all semi-

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otic studies of animals, occupying thus between endosemiotics and ecological semiotics a middle level in the hierarchy of biosemiotics. Many authors in this special issue prefer the concept of biosemiotics to that of zoosemiotics, the practice that is consistent with the view that zoosemiotics is biosemiotics dealing with semiotic processes at the organismic (or inter-individual) level (and the underlying principles and processes at these levels do not need to be principally different as shown by Hoffmeyer, this issue). Also, taken in its wider sense, zoosemiotics can be said to have been born already in 1961 (two years before Thomas A. Sebeok actually introduced the term) when Peter Marler published an analytical paper “Logical analysis of animal communication” (Marler 1961) in *Journal of Theoretical Biology*. In this paper Peter Marler develops the first truly semiotical approach to animal communication by building on the classical works of Charles Morris, Colin Cherry, Charles Kay Ogden and Ivor Armstrong Richards and making use of Morris’s distinction between identifiers (signs that signify a location in space and time), designators (signify characteristics of the objects or environment), appraisors (signify the preferential status or situation) and prescriptors (signify the specific responses that are required) in describing a specific animal communication system (the song of the chaffinch).

Looking back at the development of zoosemiotics, it appears that previously separate influences and trains of thought tend to gain relevance and come together at certain points of the discipline’s history. Thus, in the early Sebeokian zoosemiotics, there are reverberations of behaviourist methodologies proposed by Charles Morris as well as echoes of works of Julian Huxley, Konrad Lorenz and other ethologists who had studied ritual behaviour in animals. In the mid-1970s Thomas A. Sebeok started popularising Jakob von Uexküll’s legacy, and elements of Uexküll’s theory of meaning began to appear extensively in zoosemiotic writings. In the last decade we have witnessed the encounter of zoosemiotics with environmental humanities and the development of anthropological zoosemiotics, to use the term popularised by Dario Martinelli (2010: 121). The diversity of zoosemiotic views can also be exemplified by the question: what are the basic research objects of zoosemiotics? Are these signs, meanings, or acts of communication that would be among the most natural choices for a semiotician? Or perhaps these are expressions of animals as proposed by

zoobiologist Heini Hediger (1961), advocating the view that brings zoosemiotics close to the study of symptoms — diagnostics? Or are these appearances — the animal forms, should we choose to follow and elaborate the zoological philosophy of Adolf Portmann, as it is excellently done by the scholars of Charles University in Prague (Kleisner 2008; Markoš et al. 2009: 175–177)?

Because of the heterogeneity and diversity of zoosemiotics, a pluralistic view is adopted in this special issue. In historical perspective, this means seeing

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zoosemiotics as contextualized within the development of both semiotics and biological sciences. On the object level this means proceeding from the Uexküllian view and emphasizing the difference and diversity of *Umwelten* of animal species, and regarding the diversity of species itself as a potential object of study. On the paradigmatic level this means a wide conceptualization of zoosemiotics that includes semiosis, communication and representation in and between animal species. The inclusion of representations even means that the line between semiotic processes in animals and their representation in human culture cannot be a defining border of zoosemiotics (an example of such case is presented by Schmauks, this issue). Zoosemiotics clearly benefits from an understanding of typological differences between semiotic processes (as excellently discussed by Kull, this issue), but this needs to be supplemented by specific approaches that focus on chains of semioses and on the dynamics of semiotic processes, in particular when considering social or ecological aspects of semiotic processes. The necessity for this becomes well evident in the study of hybrid environments of human–animal communicative relations (Lestel 2002), but also in the study of hybrid physical environments, such as zoos and nature parks (Turovski 2000; Lindahl Elliot 2006).

In the context of this special issue but also of the first international zoosemiotic conference “Zoosemiotics and animal representations” held in Tartu, Estonia 4–8 April 2011, it can be said that Jakob von Uexküll’s legacy has remained a central organizing theoretical axis of zoosemiotics. Uexküll’s *Bedeutungslehre* has given the general principle that the communication and semiotic activities of every organism should be interpreted in the context of the *Umwelt* of this particular species. Uexküll’s work provides also robust and effective methodological devices, as the analysis of meaningful conjunctions of different *Umwelten* by describing correspondences of physiology and behaviour between different animal species as points and counterpoints (c.f. Uexküll 1982: 53–58). Uexküll’s works also appear to inspire ethically accentuated semiotic studies (see Martinelli 2010; Tønnessen 2011;

Beever, this issue), where the existence of Umwelt or involvement in semiotic processes are taken as general criteria for valuing animal life. For the future developments of zoosemiotics, it is promising to see that Uexküll's legacy is not treated as purely historical material, but it is put into use in practical applications, developed and critically interpreted. Here we can point to Almo Farina's and his colleagues' concept of ecofield (Farina, Belgrano 2006; Farina 2008) that develops Uexküll's theory into a practical methodology of landscape semiotics; to Morten Tønnessen's dynamical and temporal interpretation of Uexküll's terminology (*Umwelt transition* [Tønnessen 2009b], *Umwelt trajectory* [Tønnessen, this issue]); and to Riin Magnus's discussion of semiotic and communicative processes in Umwelt theory with reference to dog training methods

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(Magnus, this issue). The revival of Uexküll's legacy appears to be a wider shift in the contemporary intellectual landscape, taking place also in cognitive ethology (Burghardt 2008), postmodern philosophy (Buchanan 2008), and several other disciplines. (Due to the diversity of views, also the usage and spelling of Umwelt and Uexküll's other central concepts by different authors have not been unified in the present issue.)

The development towards a wider understanding of zoosemiotics can be characterized by the emergence of a new stage that could be called a post-linguistic era of zoosemiotics. The initial research program of Thomas A. Sebeok appears to have been largely influenced by the works of his teacher Roman Jakobson, especially by his model of the communication functions of language (Jakobson 1981). Being a linguist by training himself, Sebeok's understanding of language was based on syntactic organisation and related to that, his view on the possibility of animal languages remained critical. At the time, language-centred views of animal communication were widespread, as can be exemplified by the popularity of Charles F. Hockett's (1960) comparative list of design features of communication systems with many revisions and elaborations. It is impossible to overemphasise the importance of Thomas A. Sebeok's organising work in zoosemiotics — his endeavour to bring people together and to publish several large edited collections and books (Sebeok 1968, 1972, 1977, 1990, 2001; Sebeok, Ramsay 1969). Looking back, his most valuable theoretical results seem to have been working out a comparative perspective on semiotic processes in humans and other animals, creating several formal typologies in zoosemiotics, and describing the dynamics between the primary Umwelt-bound and the secondary language-bound modelling systems (also discerned

in the artistic behaviour of humans and other animals (Sebeok 1979), and in other semiotic phenomena). At the same time it is hard to avoid an impression that the involvement in animal language debates in the 1980s with the ensuing confrontations with several research groups of animal communication studies, e.g. cognitive ethologists (see Maran 2010b), were at least partly caused by the linguistic roots of zoosemiotics, in which the concepts of code and coding were focused on, and human language remained (although for the most part not explicitly) a central unit of measure for other communication systems.

Post-linguistic zoosemiotics can be characterised by shifts in both theoretical underpinnings and chosen research objects. Several authors have in recent papers questioned the suitability of the transmissional communication approach for zoosemiotics or proposed theoretical alternatives (see Lestel 2002, 2011; Weible 2012). For instance, interspecific communicative relations such as symbiosis tend to require a different approach than intraspecific relations, since assumptions about shared repertoire, code and similarity of bodily structures are not

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valid in the latter. Here we can also recall the writings of Gregory Bateson, who has argued that in mammals, communication is mostly about relations and that common references to external objects are rather a specific feature of our species (Bateson 1966). For Bateson, the closest resemblance to non-human mammalian communication can be found in human dreams since both lack a metalevel and use analogies for making reference (Bateson 1969). May it be that transmissional communication models and the strict distinction between communicative functions bring along an inevitable anthropomorphism into descriptions of animal communication? In post-linguistic zoosemiotics the diversity of animal *Umwelten* needs to be taken in a much deeper sense, by building awareness of the ways that the communication systems of our own species bias our understanding of other animals. The shift towards post-linguistic zoosemiotics can also be characterized by an emergence of research objects that are far from ordinary communication and where the shortcomings of traditional approaches become especially apparent: artistic behaviour in animals (see Mandoki, this issue), tracks and traces (Vladimirova, Mozgovoy 2003), play behaviour (Tønnessen 2009a), mimicry resemblances (Maran 2010a), domestication (Kleisner, Stella 2009), etc. All such objects raise the need for new concepts and thus motivate future theory development in zoosemiotics.

Special attention should be reserved for the development of zoosemiotics in the last decade, namely for the emerging synthesis between zoosemiotics (understood

in the wide sense as explained above) and cultural or literary criticism. Such synthesis could be built upon several approaches such as common ancestry of humans and other animals, human-animal communicative relations, corporal and endosemiotic aspects of humans related to linguistic activities, and analogies between semiotic processes in humans and other animals. An example of such synthesis would be the development of semiotically accentuated zoomusicology, mostly thanks to the research and organising work of Dario Martinelli (2002, 2009), who has been the most vigorous proponent of zoosemiotics in the 2000s. Among other things, Martinelli develops a list of zoosemiotic universals in music and discusses the problematics of etic and emic approaches to animal expressions. Another example of such endeavour is the incorporation of semiotics of animals into ecocritical studies that either focus on general premises (Wheeler 2010; Maran forthcoming) or on specific case studies, for instance, the zoosemiotic bases of depicting birds in field guides and nature writing (Tüür 2009). Such synthesis may pave the way to new theoretical insights such as the issue of narratives and narrativity in zoosemiotic material, or the application of Sebeok's distinction between zoosemiotic and linguistic modelling to literary texts. The third emerging approach of that type, mentioned before, is the inclusion of semiotic arguments into animal ethics.

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A measure of an academic discipline's viability is the number of possible practical studies and outcomes. In contemporary zoosemiotics there exist such applications that can be taken as a positive sign of the future perspectives of the field. To mention just a few: a study made by Alenka Hribar and colleagues (this issue) on chimpanzee pictorial competence, skilfully employing general semiotic theory and visual semiotics; research by Almo Farina and colleagues on bird vocal communication and soundscapes (see Farina et al. 2011, this issue) that specifies the role of animal vocal communication in relation to physical environment and develops what could be considered an ecological dimension in biosemiotics. Another promising direction has been taken by Karel Kleisner (2011) and colleagues who employ image analysis and other modern technical means for analysing the communicative value of appearances in humans and various animals. All these applications entail the necessary synthesis between qualitative approaches to semiotic material and quantitative methods of analysis.

This special issue includes eleven articles on different zoosemiotic topics by authors of diverse backgrounds: from historical analysis of the discipline to ethical applications of animal semiotics, from contextualising zoosemiotics in biosemiotic

groundwork to analysing representations of animals in human language. The inciting event for compiling this special issue was the first international conference of zoosemiotics held in Tartu, Estonia on 4–8 April 2011 (both the conference and this special issue were supported by Estonian Science Foundation grant 7790 and by the European Union through the European Regional Development Fund (Centre of Excellence CECT, Estonia)). Publication of this issue can be considered as part of the new wave of interest in zoosemiotics, marked also by the recent special issues of the journals *Biosemiotics* (Tønnessen, Lindström 2010) and *Sign Systems Studies* (Martinelli, Lehto 2009), several books and collections dedicated to zoosemiotics (Maran et al. 2011; Martinelli 2007, 2010) or discussions of zoosemiotic issues in separate chapters (Hoffmeyer 2008; Hailman 2008). The diversity of approaches and terminology used both in this issue and elsewhere also appear to indicate a new stage of zoosemiotics, where conceptual and disciplinary grounds are not yet settled but ideas are in development and borders are blurred. Thus, interesting times.

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