



HORTUS SEMIOTICUS

7 / 2020

Special issue | Erinumber:

ZOOSEMIOTICS | ZOOSEMIOOTIKA

ISSN: 1736-3314



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Jakobi 2-302, 51005 Tartu, Estonia

PUBLISHED BY: University of Tartu, Department of Semiotics

ISSN: 1736-3314

ONLINE: www.hortussemioticus.ut.ee



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EDITOR'S FOREWORD

Andrew Mark Creighton

This issue of *Hortus Semioticus*, the seventh, comes after a 10-year gap from the last. When looking through the journal's archive, it is apparent that many of those who published here as students, 10 or more years ago, are now accomplished academics. Moreover, several of whom have taught many of the authors whose articles you will find in the present issue. Therefore, while a decade has passed the intentions of *Hortus Semioticus*, to engage with semiotics, to be creative, and to be thorough in investigations and methods when dealing with the field and subject, have always been present and shaping the attitudes and habits of students.

This issue presents a range of subjects, though all the texts follow a zoosemiotic theme. You will also find an interview conducted by **Pauline Delahaye**, with, zoosemiotician, ecosemiotician, and head of the semiotics department at the University of Tartu, **Timo Maran**, regarding his new book *Ecosemiotics. The Study of Signs in Changing Ecologies*.

The first publication, **Yekaterina Lukina's** article, "A Mongolian coaxing ritual for camels. A zoosemiotic perspective on human-non-human animal communication", analyses communication and relationships between human and non-human animals among Mongolian pastoralists and various ungulates, with a specific focus on camels. Lukina uses a zoosemiotic perspective to analyse how these communities communicate and relate to and understand each other; she also attempts to use this analysis to broaden zoosemiotics' understanding of such interspecies relations. The author notes that that enculturation within these herding communities facilitates, and is facilitated by, herders considering ungulate Umwelt; anthropomorphising and zoomorphising as processes further enforce this relationship.

Jaanika Palm presents a comparison of Umwelts, between the 'biological' fox and the fox as represented within *Pax*, a children's book by American author Sara Pennypacker. Palm's article, titled "Rebase representatsioon Sara Pennypackeri jutustuses *Pax*" (The representation of the fox (*vulpes vulpes*) in Sara Pennypacker's children's book *Pax*)", focuses on the communicative and perceptive abilities and perception of foxes and the corresponding organs, and applies this to Pennypacker's text. This in turn allows her to understand the similarities and



differences regarding perception and communication in comparison between biological foxes and foxes as represented within the children's story. The scholar concludes that Pennypacker was able to realistically portray the fox's *umwelt* regarding inter and interspecies relations, as well as perceptive abilities. However, Palm also notes the *umwelt* of the fox is represented artistically too, and with consideration for the book's audience. This is especially notable regarding the memory and interpretive abilities of foxes.

Rhea Colaso's article "One piggy went to the market: Using economic theory to discover animal rationality" focuses on the application of biological markets theory (BMT) to non-human animal interaction, with the intent of highlighting the abilities for several species – including ants (*Lasius*), butterfly larva (*Polyommatus Icarus*), and cleaner fish (*Labroides dimidiatus*) – to act consciously and rationally with other entities and their environment. Colaso uses BMT and literature, as well as wider scholarship on the subject to argue against the position that non-human animals lack consciousness and rationality; targeted specifically at those following Tim Ingold's late 1980s position. Through these interactions, largely associated with 'trade' – i.e., the case of butterfly larva creating nectar, which they use to 'purchase' protection from ants – Colaso uses BMT and the associated literature to present rationality and self-preservation within non-human animals by focusing on their 'market' choices.

Carlos H. Guzmán's "Pretending to pretend: The trickster's mind in animals", develops his concept of the 'trickster's mind' which relates to the cognitive abilities of human and non-human animals that allow them to deceive in pursuit of a goal or goals. The article argues the concept is constructed from cognitive abilities and characteristics related to narrative figures found throughout numerous cultural contexts. These characteristics relate to those associated with a trickster, including 'playful ingenuity'. Guzmán then uses this concept in a zoosemiotic application to examine human and non-human animals and their abilities to understand falsity and deception. The author continues and reviews literature arguing for and against non-human animals' abilities to knowingly deceive as a means to an end, and contextualises the trickster's mind concept within this debate.

Mirko Cerrone's article, "Second reflexive modernity and non-human animals: A few reflections on the ape language experiments", attempts to build upon Ulrich Beck's risk society. Cerrone focusses specifically on the concept of second reflective modernity, and the blurring or loss of borders between nature and society. He relates this to the ape language experiments, which are used as an example to demonstrate further influences of risk society, mainly relating to the reflexivity of modernity and the resulting anxieties of losing borders. The semiotician notes that the ape language experiments within the context of second reflexive modernity marks the loss of qualitative differences between humans and non-human animals concerning language abilities.

Siiri Tarrika's article "Ritualiseeritud käitumine ja loovus loomade kommunikatsiooni" (Ritualised behaviour and creativity in animal communication), takes an interest in creativity among non-human animals. Specifically, the scholar focuses on ritualisation in comparison to creativity, and how these types of behaviours contribute to



meaning making processes. The author also examines the neglect of studying creativity within academic literature, as well as the relevance this topic holds in today's climate. Tarrikas concludes that interaction with others and the environment facilitates creativity, and she notes that this raises questions on how much content is required to maintain the validity of ritual behaviour.

Delahaye's interview with **Maran** regarding his book *Ecosemiotics. The Study of Signs in Changing Ecologies* brings about numerous interesting insights regarding ecosemiotics, semiotics, and academia as a whole. Maran discusses the future of ecosemiotics, its relationship to wider semiotics, and research methodology within the field. Moreover, Maran also shares his views on the popularisation of academics for the general public, and his experiences supervising PhD students.

As I noted above, each of these articles follow a zoosemiotic theme, however, when viewed together, the versatility of zoosemiotics for wider academics can be seen. For instance, literature (Palm), relationships (Lukina), cognition (Colaso, Guzmán, and Tarrikas) and societal change (Cerrone) are all examined in this issue. It is then, perhaps, not a coincidence that Maran mentions the increasing popularity of biosemiotics within semiotics while being interviewed by Delahaye. If this journal issue is regarded as a marker for wider zoosemiotics, and if zoosemiotics can be taken as a marker for wider biosemiotics, the versatility the study allows its scholars in their choice of research object – and it should be noted transdisciplinary potential as well, i.e., Lukina draws from anthropologists, and Colaso draws from economics – means the field is likely to continue to be one where innovative research is constructed, and scholarly debate and dialogue are fruitful. I hope that this seventh issue of *Hortus Semioticus* can contribute to this innovation and dialogue, not only by presenting academic findings and research, but by also convincing new scholars to enter the community and research process.





A MONGOLIAN COAXING RITUAL FOR CAMELS.

A zoosemiotic perspective on human–non-human animal communication.

Yekaterina Lukina

Department of Semiotics, University of Tartu

Abstract. Over thousands of years of co-evolutionary domestication with herds, Mongolian pastoralists have developed profound awareness of the ungulate herds' sensitivity and subjectivity. This present study, drawing on the particular example of the traditional coaxing ritual for camels, aims to examine how this living practice can provide a broader overview and fit into the larger framework of the non-human-human relationship experienced in Mongolian herding communities from the zoosemiotic perspective. Reconstructing the herd-herder relationship via the notions of umwelt, semiotic competence and ontological niche, this research provides insights into the Mongolian co-domestic environment, established on the principles of mutual trust and respect, as well as an effective interspecies communication system developed through the complex and subtle process of the enculturation of co-domestic herders and herds.

Keywords: umwelt, semiotic competence, ontological niche, enculturation, zoosemiotics, Mongolian coaxing ritual

Kaamelite peibutusrituaal Mongoolias. Zoosemiootiline vaade inimeste ja mitte-inimeste suhetele.

Abstrakt. Kaamelite kodustamisega kaasnenud koevolutsioon on teinud Mongoolia kaamelipidajad väga teadlikuks ja tähelepanelikuks oma kariloomade tundlikkuse ja subjektiivsuse suhtes. Antuds töö uurib traditsioonilise peibutusrituaali näitel ja zoosemiootilisest perspektiivist, kuidas selline elukorraldus võib pakkuda laiemat vaadet inimeste ja mitte-inimeste suhetele Mongoolia karjakasvatajate kogukondades. Rekonstrueerides karja ja karjapidaja suhet läbi selliste mõistete nagu omailm, semiootiline kompetents ja ontoloogiline nišš heidab käesolev töö pilgu Mongoolia elukorraldusele, mis põhineb karjapidaja ja kariloomade vahelisel vastastikusel usaldusel ja austusel ning keeruka enkulturatsiooniprotsessi käigus välja kujunenud efektiivsel liikidevahelisel kommunikatsioonisüsteemil.

Märksõnad: omailm, semiootiline kompetents, ontoloogiline nišš, zoosemiootika, Mongoolia peibutamise rituaal



Introduction

The Story of the Weeping Camel, the narrative documentary released in 2003, chronicles quite an extraordinary living practice of Mongolian pastoralists – a traditional coaxing (*khuuslukh*) ritual for new-born Bactrian camel colts and their mothers. The season of spring, when the female camels give birth to their young, in the Gobi Desert appears to be a time of harsh weather conditions, characterised by bitter cold, strong winds, dust storms, and increased dryness. Such unfavourable circumstances may result in high mortality rates among both mother and baby animals or cause the female camels to reject their progeny. The rejected or orphaned colt has poor chances for survival, and, in order to encourage the female camel to accept her own baby or to adopt an orphan, the Mongolian herders utilise an elaborated chanting technique – a specific rhythmic song, accompanied by the gentle stroking of the mother camel and playing the *morin khuur* – a traditional horse-head fiddle – or, sometimes, a flute (ICH 2015; Tumurjav 2015).

During the coaxing performance the colt is placed close to the mother camel, the singer starts intoning a melodic passage, chanting repeatedly *k-h-u-u-s*, *k-h-u-u-s* and modulating her voice in accord with the camel's behaviour. Simultaneously, she tries to appease the often anxious animal by tenderly stroking her hair. The musician follows the singer, playing a slow soothing motif on the *morin khuur*. The ritual is held at dawn or dusk and can take up to several hours. It requires exceptional skills in handling camels, singing as well as playing the fiddle. As a rule, members of the herding family enact the coaxing ritual themselves, but experienced singers and musicians might be invited when such professionals cannot be found among members of the local community. Upon completion of the ritual, as a sign of relenting and accepting the colt, the mother camel is said to shed tears in response to the gentle sounds of the human voice and musical instrument. In 2015 the coaxing ritual was inscribed by the UNESCO committee on the *List of Intangible Cultural Heritage in Need of Urgent Safeguarding*, since the number of herders practicing this tradition is rapidly declining due to various changes within Mongolian pastoralist communities, including increased migration from the Gobi area to urban centres, and the integration of new technologies into husbandry (ICH 2015).

At first glance, the coaxing ritual may come across as an act of performing magic and casting spells on animals. However, considered from the zoosemiotic perspective, this practice may provide a vivid illustration of the profound awareness of camel sensitivity and subjectivity developed by the Mongolian pastoralists over thousands of years of co-evolutionary domestication with herds (Fijn 2011: 241; Tumurjav 2015: 100). Reconstructing the herd-herder relationship via the notions of *umwelt*, semiotic competence, and ontological niche, I will demonstrate how the coaxing ritual is embedded in a broader pattern of what Fijn considers as the enculturation of co-domestic herders and herds (2011: 114, 124). First, I will examine how Mongolian pastoralist communities relate to their herds and what attitudes they project upon their animals in general. Second, I will consider the ways herders and herd animals communicate with



each other. Particular attention will be paid to the role music and songs play in the interspecific communication. In the final section, drawing on the observations and findings of the previous parts, I will analyse the processes and effects of the coaxing ritual.

Animal as subject

The way we perceive other non-human animals largely defines the essence of our relationship with them. In Western capitalist societies, predominantly informed by the Cartesian dualism of mind vs. body and culture vs. nature (Roepstorff 2001: 207), domesticated farm animals have been considered as senseless objects or mindless bodies, existing beyond the boundaries of human ethics and culture (Plumwood 2012: 79) and treated as mere economic resources exploited for human benefits (Fijn 2011). In line with this objectifying attitude, it has become morally acceptable to deny animals' capacity for expressing feeling and emotions and suffering from pain; to confine them to unliveable cages and sheds for controlled exploitation, and to organise an inhumane systematic animal slaughter on a mass scale (Masson 2003; Morgan, Cole 2011; Plumwood 2012). The same perception is identifiable in the traditional anthropocentric definitions of domestication. Thus, for Ducos domestication takes place when "living animals are integrated as objects into the socio-economic organisation of the human group" (1978: 54). However, the concept of domestication in the Western scholarship tradition has recently undergone considerable transformations with more attention being paid to the mutual impact of animals and humans (see, e.g., Leach 2003; O'Connor 1997).

The way Mongolian nomadic communities perceive and relate to their herds is remarkably different. Natasha Fijn, having conducted etho-ethnographic¹ research on herding life in Mongolia (2011), provides an insightful account of the complex interspecies relations between humans and ungulate herds (horse, cattle, sheep, goat, and camel). Deliberately contrasting these relations with the intensive Western farm husbandry approach, she defines them as 'co-domestic' implying "the social adaptation of animals in association with human beings by means of mutual cross-species interaction and social engagement" (Fijn 2011: 19). Fijn's term of *co-domestication* chimes with and enriches the notions of co-evolution, introduced by Haraway (2003) and mutual domestication, introduced by Lestel (1998).

Fijn (2011: 36, 47) observes that Mongolian pastoralists view herd animals as subjects, capable of expressing emotions and actively involved in a process of co-domestic interaction based on mutual trust and respect. This attitude towards animals, also characteristic of arctic hunter-gatherer societies (Fienup-Riordan 1990; Roepstorff 2001), originates in an animist perspective of the world, in which other living entities are regarded as sensing persons (or agents) treated with respect (Fijn 2011: 35, 47).



Observing their herds in everyday interactions, herders have accumulated an extensive body of knowledge about animal social behaviour. They implement this knowledge in order to effectively carry out necessary activities, such as pasturing, riding, or milking. However, instead of forcefully modifying or constraining animal expressivity, the herders assume the lead positions as members of the herd and adjust their own behaviour in accord with that of the animals. The animals are free to express their autonomy in relationships with the environment, humans, and other species of the herd alike (ibid, 55–80).

Considering ungulates as agents with distinct personality, Mongolian pastoralists are able to distinguish individual animals by their appearances (*zūs*) and behavioural traits. Based on these peculiar characteristics (e.g. coat colour, age, agility) animals are given proper names and regarded as unique members of the herd rather than a faceless mass of objects (ibid, 95–97, 103). An animistic belief in reincarnation and continuity also has a crucial impact on attitudes regarding killing animals. Animal meat is an important part of the herders' subsistence, especially during cold winter periods; yet, only those animals that are deemed unlikely to survive through the winter, due to some infirmity or ailments, are slaughtered for food. The act of killing an animal is realised according to a set of specific traditional rules ensuring minimal suffering of the animal, and is performed with a high degree of respect (ibid, 197–198, 224–226). The herders perceive the animal's death as a necessary link in the chain of life. As Fijn notes, supporting Ingold's (2000: 114) observations on animist practices: "Instead of dichotomous division between human and non-human animal, herders include themselves and herd animals in a constant struggle for balance in the cycle of life and death" (Fijn 2011: 47).

When analysing the herders' relationship and attitude towards their herds within the framework of zoosemiotics, it is appropriate to emphasise that, unlike Western industrial farmers practicing intensive forms of animal husbandry, Mongolian pastoralists acknowledge and actively engage with other species' *umwelten*. The concept of *umwelt* was introduced by Baltic-German scholar Jakob von Uexküll in order to describe a living organism's subjective universe or phenomenal world, in which the neutral objects of the environment acquire unique meaning pertinent only to the organism involved (Uexküll 1982[1940]: 26–33). The area occupied by an organism in its *umwelt* (or phenomenal world) at a particular moment is defined as an ontological niche – a set of the organism's relations at a given point of natural history. Though it is impossible to fully grasp the other's *umwelt*, through the ontological niche the organism's *umwelt* interweaves with the *umwelten* of other organisms (Tønnessen 2003: 288), thus allowing for the interactions between species to take place.

The herders engage with non-human animals' *umwelten* on multiple layers. For instance, by giving meaningful names to the animals, the herders recognise their individuality and ability to relate to the world in a unique subjective way. By fostering natural social behaviour patterns, the herders allow the ungulates to utilise their semiotic competence (or freedom)² (Hoffmeyer 2014: 98) and live through their subjective reality in relation to the environment and other species (including humans). At the same time,



within the borders of the herd-herder ontological niche, the herders adjust their own behaviour to acquire the meaning of a conspecific (Sebeok 1990: 107) in the animals' umwelten. This allows the humans to secure a leading position within the herd and, while maintaining respect-based relations, use the animals' semiotic competence for their own needs. By understanding the meaning of suffering within the ungulate's subjective universe, the herders try to minimise that suffering during the act of killing.

Animal as interlocutor and emotional being

The herders' active engagement with ungulates' umwelten has also shaped the communication patterns developed in the co-domestic environment of Mongolian herding communities. Thomas A. Sebeok notes that in order to communicate with each other, a human and non-human animal have to learn the key elements of each other's communicational codes (Sebeok 1990: 45). Dominique Lestel adds that during the process of communication, alongside mastering each other's codes, human-non-human animal communities rely on a shared rationality defined by their scope of semiotic abilities to produce and interpret signs (Lestel 2002: 56, 59). The effectiveness of communication between ungulates and herders in particular, to a considerable extent, also depends upon their reciprocal ability to anthropomorphise and zoomorphise each other respectively (Walther 1991: 11³, cited in Fijn 2011).

Ungulates communicate via a variety of channels, including vocalisations, scents, physical interactions, and visual displays. Over thousands of years of co-existence with their herds, Mongolian pastoralists have grown to recognise which stimuli acquire meaning in the species' Umwelt and have learned to adjust their behaviour within the animal's ontological niche in line with those meanings. They are also well aware of the ungulates' sensory abilities unavailable within the range of human perception. Thus, understanding the importance of olfactory signals, herders don't wash their working clothes in order to preserve the herd's smell or, relying on their horse's sense of direction; they allow her to find the way to the camp by herself (Fijn 2011: 106, 108).

Having been exposed to the ungulates' vocal signals for multiple generations, Mongolian herders developed a special verbal code to communicate with their co-domestic animals. Fijn compares this language with "transspecies pidgin" described by Kohn (2007) as a means of communication between the Runa of Amazonia and their dogs (Fijn 2011: 115). In the Mongolian version of pidgin the herders utilise a variety of animal sounds to construct words according to the principles of the Mongolian language, which, at the same time, creates meaning for the animals addressed. The herders use species-specific vocabulary that also varies in relation to the age, sex, context, and number of animals. Verbal communication, as a rule, is often accompanied by diverse bodily movements (ibid, 115-118, 123). Thus, by constantly anthropomorphising-



zoomorphising each other's signals, the herders and herd animals get create in a mutually effective communication process. The efficiency and effectiveness of herd-herder communication is also reinforced by a common rationality developed by the members of the co-domestic community over time – in each generation both a herder and an animal starting from birth learn to convey and respond to each other's signs (ibid, 118).

Music and songs hold a special place in the communication system of herding communities. For centuries Mongolian herders have used a wide array of whistles, calls, chants, and melodies to placate or coax herd animals; to encourage them in releasing milk; to direct their movements; or simply to praise the animal's beauty, strength, and power. (Fijin 2011; Pegg 2001). The name of one of the musical instruments, used by Mongolians in communication with animals, *iki*, is believed to originate from *ih hel* – “large language” – the language that transcends the boundaries of human language and can be used in reaching out to the animals, the environment, and the gods (Pegg 2001: 235). By considering animals as persons, the herders identify with them as emotionally responsive beings. They often refer to the ungulates in their everyday communication as “sensitive” (Fijn 2011: 106) and utilise music to elicit emotive reactions from them. They say that singing is “a sound that touches the heart of the animal” (ibid, 111). Obviously, active engagement with animal umwelten, acknowledging their abilities to express feelings and emotions, and carefully observing their behaviour throughout centuries of co-evolving have allowed herders to recognise the profound effects music may have on the psychological well-being of herds and the benefits of apply this knowledge in communication with them. Moreover, the herders have also learned to select sounds, melodies, and rhythms that matter in the subjective worlds of each particular species. Thus, for instance, while encouraging female animals to release milk to their young, a herding woman will vocalise a chant based on the ‘*zu*’ sound to address a goat, on the ‘*toig*’ sound to reach out to a ewe, and on the ‘*guurii*’ sound to communicate to a horse. The songs are also accompanied by physical touches and stroking (ibid, 109).

It is curious to note that, in contrast to Mongolian pastoralists, the Western academic world (especially ethology and comparative psychology scholarly circles) has long been hesitant to consider animals as capable of feeling and expressing emotions in general. The animal's emotive responses to music in particular have been subject to doubts and overt suspicions as well (Bekoff 2013; Fijn 2011: 111; Kaplan 2009). Yet, in recent years, a growing number of research studies has provided empirical evidence that animals do develop complex emotions in response to various stimuli (Bekoff 2013; Dawkins 2006; Morell 2013). Obviously, the paradigm is gradually shifting, and what has been known to Mongolian herders for centuries as an inextricable part of animal existence, now also becomes common thinking among Western academics.

As has been demonstrated in this section, interspecific communication of Mongolian co-domestic ungulates and herders reveals a vast array of complex mechanisms, approaches, and social practices, and appears to be based on numerous vocal, bodily, and emotive stimuli. Fijn (2011: 114, 241) suggests considering this communication system as part of the enculturation process, whereby both herders and



herd animals learn and adjust to each other's culture via reciprocal observation and social use of species-specific vocalisations and body language.

Coaxing ritual as part of enculturation

Drawing on the analysis conducted in the previous sections, it becomes clear that a seemingly magical camel coaxing ritual appears to be in fact a manifestation of the larger phenomenon of multispecies enculturation occurring within the Mongolian herding communities.

Throughout generations of co-existence with camels, acknowledging their subjectivity, and actively engaging with their *umwelten*, herders have learned to understand animal behaviour, emotive responses, and communicative preferences. Tumerjav (2015: 102) reports camels to be very sensitive and willing animals, which are believed to be able “to love, cry and sense joy”. Through careful observations and trials, they may have singled out vocalisations, tunes, and rhythms as well as elements of body language that became the most meaningful in the female camel's subjective world and produced the desired psychological effect. Thus, in the coaxing chant addressing a female camel among a wide range of sounds only the word ‘*khuus*’ is utilised, which is vocalised following a particular rhythmic pattern and accompanied by sounds of the *morin khuur* and specific stroking gestures. All these manipulations together appear to have a soothing therapeutic effect on the animal, allowing her to accept the abandoned or orphaned colt.

A female camel, in her turn, while having been reared in the atmosphere of trust and respect over centuries, expanded her semiotic competence and learned to read and interpret human signals in the process of social interaction with herders. During the evolutionary process some vocalisations, melodies, and gestures, encountered by the female camel within her herd-herder ontological niche, might have happened to become more valued than others and were incorporated as meaning-carriers into the camel's own *umwelt*.

Another important point to consider is the meaning of tears reportedly shed by the female camels at the end of the ritual. From the perspective of the Mongolian pastoralist, the tears undoubtedly come across as an emotional response to music and song. From the perspective of the Western scholar, the emotional aspect of animal tears remains questionable (Bekoff 2013). On the one hand, it is a confirmed fact that camels produce tears as a result of the adaptation to a dry environment (Gauthier-Pilters, Dagg 1981; cited in Fijn 2011). The coaxing ritual usually takes place in spring, a season characterised in Mongolia by increased dryness and dusty winds. It is most likely that this type of functional tear should be observed in camels during springtime quite regularly. On the other hand, traditional knowledge about animal behaviour accumulated by



Mongolian pastoralists should not be discarded as irrelevant, and the tears shed by the female camel at the end of the ritual might well be directly associated with the emotional experience of the animal. Hopefully, further research on the relations between tears and emotions in animals will help to clarify this issue.

Concluding remarks

This present study aimed to examine how the traditional coaxing ritual for camels fits into the broader framework of non-human-human relationships experienced in Mongolian herding communities. During the analysis it was revealed that Mongolian herders and ungulates exist in a co-domestic environment, established on the principles of mutual trust and respect. In this environment humans perceive animals as agents, capable of expressing feelings and emotions, and actively engage with their umwelten in their everyday interactions. It was also demonstrated how through the complex and subtle process of enculturation herders and herds have developed an effective communicational system, and learned to read and interpret each other's signals and movements.

At the same time, the study identified some possible directions for further research. Thus, e.g., it might be interesting to investigate the usage of herding pidgin from the zoosemiotic perspective, compare communicational strategies used with different herd species, or investigate the application of music and songs in other herding activities.

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Notes

- 1 Etho-ethnology "seeks to describe and understand how humans and animals live together in hybrid communities sharing meaning, interests and affects, articulated around jointly negotiated significations" (Lestel *et al.* 2006: 173).
- 2 The level of semiotic competence or freedom can be understood in the sense of "increased capacity for responding to a variety of signs through the formation of (locally) 'meaningful' interpretants" (Hoffmeyer 2014: 98).
- 3 Walther, Fritz R. 1991. On herding behavior. *Applied Animal Behaviour Science* 29: 5-13.



REBASE REPRESENTATSIOON

Sara Pennypackeri jutustuses *Pax*

Jaanika Palm

Tartu Ülikool, semiootika osakond

Abstrakt. Artikli eesmärgiks on uurida, kuidas esineb rebane Ameerika kirjaniku Sara Pennypackeri jutustuses *Pax* (2016, eesti keeles 2019), millised on seal kujutatud rebase erinevused ja sarnasused bioloogilise rebasega. Uurimusküsimustest tulenevalt jaguneb töö kaheks osaks. Esimeses antakse ülevaade bioloogilise rebase käitumismustritest ja kommunikatsioonist, mida kirjeldatakse Jakob von Uexküll'i maailma teooriast lähtudes. Teises osas tutvustatakse Sara Pennypackeri teost *Pax* ning tuuakse esile erinevused ja sarnasused representeeritud ning bioloogilise rebase vahel. Uurimistööst selgub, et teoses esitatud rebase Paxi maailmal on palju sarnasi bioloogilise rebase maailmaga. Reaalsusele vastavalt on kirjeldatud rebase kommunikatsioonikanaleid (visuaalne, auditiivne, olfaktoorne, taktiline), eluviisi, liigisisest ja liikide vahelist suhtlemist. Jutustuse autor on liigist adekvaatse ülevaate saamiseks konsulteerinud ka zooloogiga. Samas aga on *Pax* ilmselgelt ilukirjandusteos, millel oma ideestik. Seepärast on ka mõistetav, et representeeritava rebase maailm on allutatud kohati ka kunstilistele võtetele. See kehtib näiteks rebaste mälu kirjeldades või rebase maailma mitte kuuluvaid objekte ja sündmusi tõlgendades. Osaliselt on bioloogilise ja ilukirjandusliku rebase vaheliste maailmanihete põhjuseks ka teose implitsiitne adressaat – 10-14-aastane laps. Siiski ei vähenda need erinevused maailmades teose rolli noortele lugejatele looduse tutvustamisel ja selle vastu huvi äratamisel.

Märksõnad: zoosemiootika, lastekirjandus, maailm, *Vulpes vulpes*

The representation of the fox (*Vulpes vulpes*) in Sara Pennypacker's children's book *Pax*

Abstract. The aim of this article is to find out how the fox is represented in the Sara Pennypacker's children's story *Pax* (2016, in Estonian 2019), what are the differences and similarities between the fictional fox and the biological fox. For this I studied fox's communicative abilities, what perceptual and effectual organs it uses, how they work, and how they convey information from the environment and the animals in it for the fox. The article is divided into two main parts. The first provides an overview of the behavioral patterns and communication of the biological fox, which is described through Jakob von Uexküll's umwelt theory. The second part introduces Sara Pennypacker's book *Pax* and highlights the differences and similarities between the represented and the biological fox. It turns out that *Pax*'s umwelt has a lot in common with the biological umwelt of the species. The fox's communication channels (visual, auditive, olfactory, tactile), lifestyle and intra- and interspecies communication are described very realistically. The author has used the



help of zoologist. Nevertheless, *Pax* is undoubtedly a book of fiction with a certain set of ideas. Because of this, it is understandable that the represented fox's Umwelt has been molded in an artistic manner. This is apparent in the description of the fox's memory and in interpretation of objects and events not belonging to the biological fox's Umwelt. Partly, the shifts between biological and fictional are caused by the implicit addressee of the book – a 10-14-year-old child. Still, differences in Umwelts do not diminish this book's ability to introduce nature to young readers and make it alluring to them.

Keywords: zoosemiotics, children's literature, Umwelt, fox (*Vulpes vulpes*)

Kuna inimene on ikka olnud osa loodusest ja elanud teiste loomadega kõrvuti, pole imestada, et vastaval temaatikal on märkimisväärne koht ka kirjanduses. Juba alates rahvaluulest (regilaulud, muinasjutud, kõnekäänud jmt) võime tekstides kohata loomi, märgata paralleelide tõmbamist inimeste ja loomade käitumise, eluviisi, maailmatunnetuse jmt vahel. Kirjanduses peegelduvad ajastu suhtumised, tõekspidamised ja arvamused igasuguste elunähtuste, sealhulgas ka loomade kohta. Kui keskaegne maailm nägi inimest kui looduse krooni, kedagi, kelle jumal on pannud valitsema ülejäänud loomade ja lindude, aga ka maastike ja taimede üle, siis renessansiperioodil sai puutumatu loodus millekski ihaldatuks ja lapsepõlv millekski, milles kultuuri tekitatavaid kahjusid võis veel ennetada. Looduslik ja loomulik elu oli siis ideaaliks. Järgnenud valgustusaeg tõi kaasa inimliku mõistuse ülistamise, millega kaasnes tööstuslik revolutsioon. Loodus ja loomad olid siis käsitletud millenagi, mida sai ja tuli ära kasutada, teiste ressursside vastu vahetada.

Kahel viimasel kümnendil on aga humanitaar- ja sotsiaalteadused kogenud nn. loomalist pööret (*animal turn*), mis on toonud enam tähelepanu loomadega seotud eetilistele ja moraalsetele aspektidele, juhtinud tähelepanu mitte inimese ülemvõimule, vaid pigem kooseksisteerimisele teiste liikidega (vastandudes nõnda antropotsentristlikule maailmakäsitlusele) ning arvestab üha enam loomade representeerimisel asjaoluga, et ka neil on oma toimevõime ja isiksus (Armstrong, Simmons 2007: 1). See pööre kajastub ka kirjanduses.

Käesoleva artikli eesmärgiks on uurida, kuidas esineb rebane Ameerika kirjaniku Sara Pennypackeri jutustuses *Pax*, millised on seal kujutatud rebase erinevused ja sarnasused bioloogilise rebasega. Selleks uurin, millised on rebase kommunikatiivsed võimed, milliseid taju- ja mõjuorganeid ta kasutab, kuidas need töötavad ning teabe keskkonnast ja selles leiduvatelt loomadelt rebasele toovad.

Uurimusküsimustest tulenevalt jaguneb töö kaheks osaks. Esimeses neist vaatlen bioloogilise rebase käitumismustreid ja kommunikatsiooni, mida kirjeldan Jakob von Uexkülli maailma teooriast lähtudes. Teises osas tutvustan Sara Pennypackeri teost *Pax* ning püüan tuua esile erinevused ja sarnasused representeeritud ning bioloogilise rebase vahel. Analüüsi käigus otsin vastust, miks kirjanik on valinud just sellise viisi looma esitamiseks, millist rolli mängib liik sellises representatsioonis, kuidas on valikut determineerinud süžee ja ideestik, kuidas on see mõjutatud teose implitsiitset adressaadist.



Bioloogilise rebase omailmast

Jakob von Uexküll võttis 20. sajandi algupoolel kasutusele mõiste omailm (*Umwelt*), millega ta tähistas elusolendi subjektiivset maailma, seda osa keskkonnast, mis loomale vastavalt tema kehaplaanile, meele- ja toimeelunditele ning elutsüklile tähenduslik on ning mis tema jaoks olemas on. „Iga omailm on suletud üksus, mille kõikides osades valitseb subjekti jaoks tähendus. Vastavalt sellele, milline on nende tähendus looma jaoks, hõlmab elulava kas laiema või ahtama ruumi, mille kohtade hulk ja suurus sõltuvad täielikult vastava subjekti meeleelundite eristusvõimest“ (Uexküll 2012: 11). Omailm jaguneb tajuilmaks ja mõjuilmaks, neist moodustuvad lakkamatud organism-keskkond ja organism-organism ahelad, mida nimetatakse funktsiooniringideks (Uexküll 2012: 88).

Rebase elukeskkond

Rebane (*Vulpes vulpes*) kuulub koerlaste (*Canidae*) sugukonda rebase (*Vulpes*) perekonda. See on üks laiema levilaga liike, rebaseid leidub peaaegu kõikjal põhjapoolkeral: Euroopas, paljudes kohtades Aasias, aga ka Põhja-Ameerikas (Kanadas ja Ameerika Ühendriikides), kuhu rebane introducteeriti 17. sajandil. Mõned rebaste populatsioonid on ka Põhja-Aafrikas. Austraaliasse on rebane introducteeritud 19. sajandil. (Sillero-Zubiri et al. 2004)

Kuna looma levila on ääretult lai, sõltub konkreetse isendi omailm suuresti teda ümbritsevast keskkonnast. Nii näiteks sõltub erinevates maailma geograafilistes punktides elutsevate rebaste omailm märgatavalt nende paikade taime- ja loomakooslustest, paikkonnas valitsevatest ilmaoludest (näiteks temperatuurist ja niiskusest) jne.

Rebase välimus

Rebase karvastiku värvus ja tihedus oleneb nende elukeskkonnast ja liigist. Punarebastel on see tavaliselt seljapool roostepunane, punakaskollaste tumedamate karvadega selja keskosas, kõhupool on tuhkhall või valge. Käppade alaosa on tavaliselt must ja sabaots valge.

Täiskasvanud rebase kehakuju ja mass on väga varieeruvad. Nende kerepikkus võib ulatuda 455–900 millimeetrini, kusjuures saba on 300–555 millimeetrit pikk ning nad võivad kaaluda 3–14 kilogrammi, kusjuures isasloomad on tavaliselt raskemad kui emased (Sillero-Zubiri et al. 2004). Rebase väga kohev karv jätab sageli mulje, nagu kaaluks ta rohkem.



Rebase taju- ja mõjuelundid, rebaste kommunikatsioon

Rebasel on väga hea haistmine. Tema koon on kitsas ja piklik, nina tumepruun või must. Selles on rohkelt tundlike haistmisretseptoreid. Ka kuulmine on rebastel tundlik. See kehtib eriti kõrberebaste ehk fennekite kohta, kelle suured kõrvad on kohanenud kuulmaks toidu liikumist kõrbes sügaval maa all (Britannica s.a. sub: Fennec). Ameerika ja Euroopa rebastel on kõrvad väljastpoolt pruunid või mustad kõrvad, samuti liikuvad ja helide püüdmiseks hästi kohanenud.

Täiskasvanud rebasel on vertikaalse lõikega kollased silmad. Võrreldes kuulmis- ja haistmismeelega on nägemine tal kehvem. Samas aga erinevalt paljudest teistest koerlastest näeb ta pimedas hästi.

Nagu enamikul koerlastel, on ka rebasel mõjuelundiks sabanääre, mis eritab skungiga sarnast lõhna, mille abil edastatakse erinevaid teateid. Üks neist on näiteks seksuaalne peibutuslõhn. (Sillero-Zubiri et al. 2004)

Territooriumi märgistamiseks kasutab rebane uriini, kusjuures isasloomad tõstavad selleks jalga, emased aga kükitavad.

Nagu paljud teisedki loomad, kasutavad rebased liigisiseks ja liikidevaheliseks kommunikatsiooniks ka oma keha. Näiteks on oluline suhtlusvahend saba. Joostes ja nn tavameeleolus asetseb saba maaga horisontaalselt, kuid erinevate ärritajate korral on võimalikud ka teised asendid. Saba on abivahendiks ka poegadele, kes võivad ema märgata eemalt just saba kaudu ja siis selle järgi orienteeruda.

Liikidevahelises ja liigisiseses kommunikatsioonis on suur roll ka rebase kõrvade asendil (kikkis, peadligi jne), karvkattel, mida rebased on võimelised erinevate ärritajate korral turri ajama, ning keha asendil (küürusolek, ringutamise, hüppevalmidus jne). Tundlikud ka rebaste käpapadjandid, nendega tajuvad nad näiteks liikumist ja temperatuuri.

Suurt rolli liigisiseses ja liikidevahelises kommunikatsioonis mängivad rebastel hääliitsused. Rebastel on tundlik hääleaparaat, mis võimaldab mitmekülgset häälerepertuaari, samuti nende esitamist mitme erineva valjusastmega (näiteks hüüdes või sosistades) sõltuvalt vestluspartneri distantsist ja sellega arvestades.

Michael Bright (1984: 206–207) toob oma raamatus *Animal Language* esile neli levinumat rebaste hääliitsust:

1. Võrgutushüüd (ingl. k. *wa-wa-wah call*) on mitmesilbiline kiire ja terav hüüd, millele oodatakse vastust.
2. Võitlushääliitsus (ingl. k. *kekking*) meenutab joonlauaga aialippide tõmbamisel tekkivat heli.
3. Vinguv hääliitsus, mida kasutatakse teise isendi ülemuse tunnustamiseks.
4. Alarmhääliitsus, mis kujutab endast lühikest, ühekordset nn *staccato* haugatust, mida kasutatakse vaenlasest või sissetungijast teatamiseks, et liigikaaslaste ettevaatlikkusele kutsuda.



Erinevate isendite häämitsused erinevad tonaalsuse, sageduse ja kõrguse poolest, nõnda et loomad on võimelised üksteist nende järgi identifitseerima ning saatma ja vastu võtma sõnumeid sellest lähtuvalt (Bright 1984: 206–207).

Rebase toitumine

Rebane on kõigesööja. Nõnda võib öelda, et ses osas on rebase omailmal kattuvusi põhiliselt näriliste, jäneseliste ning teiste väikese ja keskmise suurusega selgroogsete loomadega nagu jänesed, oravad jmt. Rebased söövad ka linde ja putukaid, nad ei põlga ära ka taimset kraami, mille nad võivad soodsa tuule korral tuvastada meetrite kauguselt. Nad söövad aedades maha kukkunud puuvilju, vahel aitab suuremast näljast üle ka rohi, pähkliid või terad. Menüüsse kuuluvad ka lindude, põhiliselt partide ja kanaliste munad. (Imetajad 1987: 231–233)

Rebane on erakordselt kiire loom, kellel plahvatuslik startimis- ja suunamuutmisvõime, mis tuleb talle kasuks saagi püüdmisel. Rebane on võimeline pidama ka varitsusjahti ja teesklema tukkumist urusuudme ees, kust saakloom väljub. Kui see juhtub, siis rebane ründab. Rebane ei jahi lõbu pärast, vaid ainult kõhutäidet otsides.

Päevas vajab rebane pool kuni kilogramm toitu. Kui saak on suurem, kui korraga kõhtu mahub, matab rebane ülejäänu maha, et see siis kehvematel saagipäevadel üles kaevata. Tal on hea mälu üleliigse toidu peitmistagavarade meenutamiseks. Rebane pole kitsi saaki ka teiste liigikaaslastega, eriti perekonnaliikmetega jagama. (Sillero-Zubiri et al. 2004: 144)

Rebase eluviis ja territoorium

Üldjuhul on küll rebane solitaarne, üksildust armastav loom, kuid teatud tingimustel võib ka suurem arv rebaseid ühist territooriumi jagada. Enamasti on sel juhul küll tegemist ühe isase ja mitme emasega, kuid vahel on karjas ka nõrgemaid isaseid. (Sillero-Zubiri et al. 2004)

Täiskasvanud rebase territooriumi suurus sõltub palju elupaiga kvaliteedist. Heades piirkondades, kus on rohkem sobivat ninaesist, on territoorium väike (nt linnarebased), piirkondades, kus toitu on raskem leida, näiteks mägedes või kõrbetes, võib territoorium ulatuda kuni 40 ruutkilomeetrini. (Sillero-Zubiri et al. 2004)

Rebase vaenlased

Rebasel pole palju looduslikke vaenlasi, mõnikord võivad nendeks olla teised kiskjad, nagu hundid või ilvesed, aga ka suured linnud, nagu kotkad. Suurimaks ohuks on inimene, kes



teda kütib. Palju rebaseid hukub ka autoteel ning sureb erinevatesse haigustesse (marutaudi, kärntõppe vmt. (Sillero-Zubiri et al. 2004)

Rebase omailmast Sara Pennypackeri teoses *Pax*

Autor ja teos

Sara Pennypacker (s. 1951) on Ameerika laste- ja noortekirjanik. Tema jutustus *Pax* ilmus originaalis 2016. aastal, eestikeelne tõlge (tõlkija Karel Allikas) nägi trükivalgust 2019. aastal. Teose implitsiitne adressaat on laps vanuses 10-14 eluaastat.

Raamatu sisekaanelt leiame autori märkuse: „Rebaste omavaheline suhtlemine on hääliitsuste, žestide ja näoilmete keerukas süsteem. Paxi-peatükkide kaldkirjas “dialoog” püüab tõlkida nende väljendusrikast keelt“ (Pennypacker 2019). Siin viitab Pennypacker asjaolule, mida põhjalikumalt kirjeldavad Kalevi Kull ja Peeter Torop, nimetades taolist erinevate liikide omailmade vahendamist biotõlkeks (Kull, Torop 2011). Kuna jutustuses *Pax* on autor tõlkinud rebaste keele inimeste keelde (ameerika inglise), hiljem on see vahendatud ka eesti keelde, võib teost pidada mitmekordselt tõlgituks. Lisaks sellele tuleks arvestada ka vanuselise tõlkega, st täiskasvanud autor on teksti kirjutades arvestanud peamiselt lapsest adressaadiga.

Teose lõpposas viitab autor New Yorgi osariigi bioloogile ja eluslooduse uurijale Matthew Walterile, kes on pikki aastaid pühendanud rebaste uurimisele nende looduslikus keskkonnas, ning kelle teadmisi ta raamatu kirjutamisel kasutas. Samas aga möönab kirjanik ka seda, et kui ta seda teinud pole, on ta nii otsustanud loo vajadustest lähtudes. (Pennypacker 2019: 280)

Teoses on kasutatud teksti kirjastiili. Rebaste omavaheline suhtlus on esitatud kaldkirjas, samas kui kirjeldused, inimekõne ja inimeste mõtted on esitatud püstkirjas. Viite sellele leiab lugeja teose impressumist.

Teoses kasutatav kujutuslaad on pigem realistlikkust taotlev. Kuigi tegevuspaigana pole nimetatud konkreetseid realiteete ega määratletud tegevustiku toimumise aega, on autori suundumus rebaste omavaheliste ja rebase-inimese suhete võimalikult tõetruu kujutamisele. Sellele viitab ka rebaste kommunikatsiooni uurimine ja selleks teadlaste abi kasutamine. Eksplitsiitselt see aga väljendatud pole, mistõttu tuleks autori positsiooni fiktsionaalse ja faktuaalse suhtes käsitleda pigem ebamäärasena.

Sündmustik

Raamatu sündmustik on paigutatud fiktsionaalse sõja karmidesse tingimustesse, tegevusaeg pole täpsustatud, seda võiks käsitleda kui umbmäärast olevikku. Koht on samuti määratlemata, kuid on tuletatav nimetatud taimede (pekaanpuu, virsikud jmt),



loomade (koiotid, piisamrott, varesed, rongad jmt), toitude (*hot dogid*, maisijahuga pannkoogid jmt) ja hobide (pesapall) järgi. Tegevustik toimub kevadel, mõne nädala jooksul, kuid viiteid ja mälupilte leiame sealt ka varasemast ajast ja erinevatest aastaegadest.

Raamatus on kaks peategelast – poiss ja rebane, tegevustikku esitatakse läbi nende kahe silmade nn vahelduva jutustusena, mis markeeritakse peatüki alguses vastavalt poisi või rebase pea varjumärgiga.

Sündmustiku algpunktiks on see, kui 12-aastase Peteri isa otsustab sõtta minna. Kuna poisi ema on aastaid tagasi autoõnnetuses surnud, peab poiss selleks ajaks minema mitmesaja kilomeetri kaugusele vanaisa juurde sõjapakku. Et aga vanaisa juurde ei saa kaasa võtta lemmiklooma, orvuks jäänud ja poisi poolt üles kasvatatud rebast Paxi, sunnib isa Peterit looma loodusesse laskma. Poiss muretseb, et inimestega harjunud ja saagi püüdmises kogenematul loomal puudub oskus metsikus looduses hakkama saada. Poiss tunneb, et ta vastutab oma rebase eest, kuid hirm isa ees saab võitu. Vanaisa juurde jõudnud, otsustab ta tehtu heaks teha, ning asub oma elu pikimale ja ohtlikumale rännakule.

Peteri ja Paxi elud on põimunud hetkest, mil poiss mõnenädalase rebasepoja leidis. Teose kulust selgub, et poiss leidis surnud emarebase pesa, milles kolm poega, kaks neist samuti surnud. Ta tõi just silmad pähe saanud (kahenädalase) rebasekutsika koju, hakkas tema eest hoolitsema. Kuidas täpselt esimesed päevad möödusid ning kuidas kuue-seitsmeaastane poiss teadis, mida ja kuidas teha, on looritatud kirjandusliku salapäraga. Reaalsuses on hüljatud loomade tehistingimustes üleskasvatamisel ja nende sotsialiseerimisel tegemist väga tundliku ja keeruka protsessiga, mis nõuab eelnevaid teadmisi ja kogemusi (Kiiroja 2014). Oskamatul hooldusel pole ka fataalsed tagajärjed ebatavalised. Vangistuses viibival loomal on kerged tekkima igasugused probleemid, tavalisim neist on stress, mis võib kaasa tuua toidust keeldumise ja tahtmatuse liikuda või siis vastupidi hüperaktiivsuse ja agressiivsuse. Mitmendat põlve tehistingimustes viibivatel rebastel on näiteks tuvastatud koguni kolju väliskuju muutusi (koonu lühenemine) ja ajumahu vähenemist (Hediger 1964: 40–41).

Omailmad

Paxi elu jaguneb kahte üksteisest kardinaalselt erinevasse ajajärku: elamine vangistuses Peteri juures ja vabana looduses. Keskkonna muutusega kaasnevad muutused ka Paxi omailmas.

Vaadeldgem kõigepealt rebase omailma Peteri juures kasvamise perioodil. Tekstist selgub, et rebasel on aedik, mille suurusele pole viidet. Küll aga selgub, et poiss toob sinna kogu aeg värsket põhku ja rebane tunneb, et tema eest hoolitsetakse hästi. Aedikul on betoonist ääred, et Paxil ei õnnestuks end seal välja kaevata, kui ta poisi järele, eriti viimase koolis oleku ajal, igatseb. Lisaks aedikus viibimisele käib poiss temaga (rihmaga?)



jalutamas, aeg-ajalt viibib rebane ka tubastes tingimustes (nimetatud on külmemaide perioode).

Rebase maailma dominant on kahtlemata Peter, nende omavaheline suhtlus on ennekõike sügava tunnetuse küsimus, häälitsemist, haistmist, nägemist jne kirjeldatakse peamiselt läbi selle. Peterile on Pax olnud aga kui teraapiaaloom, kes on aidanud tal ema surmast taastuda, pakkunud vaimset tuge ja lasknud tema pehmemal poolel esile tulla (omadus, mida Peteri karm ja vihakontrolliprobleemidega isa ei talu). Budistliku mitteduaalsuse idee „Kaks, kuid mitte kaks“, mida teoses mainib küll Peter (Pennypacker 2019: 187) näikse kehtivat aga mõlemapoolselt, nii poisi kui Paxi vaatepunktist.

Looma ja poisi sideme loomisel mängib olulist rolli suhtlus kehakeele abil ja läbi puudutuste. Kirjeldatakse mängimist pesapalli ja pesapallikindaga, plastmassist mängusõduriga ning niisama müramist. Tehistingimustes on rebase maailmaga tihedas seoses ka elekter, mille rikkeid ta näikse tajuvat. Toidu tähendusandjateks on kröbinad ja toidujäänused, nagu maapähklivõi, *hot dogid*, grilliha, köögilaualt näpatud munad jne. Kokkupuuteid teiste loomadega ei kirjeldata, nagu ei viidata ka rebase soovile loodust lähemalt uurida, poisi juurest vabasse loodusesse põgeneda. Näib, et Pax suhtleb ainult inimestega, tema maailma ei kuulu teised loomad.

Metsa viidud rebase maailm aga avardub märgatavalt. Tema maailma hakkavad nüüd inimestele lisaks kuuluma metsataimed ja loomad, nii oma liigikaaslased kui ka saakloomad (hiired), vaenlased (koiotid). Samuti rikastub Paxi tegevuste maailm. Tal on võimalik esimest korda vabalt joosta nii kiiresti kui käpad suudavad, maastik võimaldab talle ujumist, puuokstel ronimist, ise saagi püüdmist jne. Olulisemaks kui miski muu saab aga suhtlemine teiste rebastega. Metsaosas kirjeldatakse Paxi kommunikatsiooni nii keskkonna, liigikaaslaste kui ka teiste loomade-lindudega.

Rebase ja keskkonna vahelist kommunikatsiooni on kirjeldatud peamiselt kui suhtlust haistmise, nägemise, maitsmise ja tunnetuse teel. Näiteks: „*Rebane tajus, kuidas auto hoogu maha võttis, juba enne kui poiss seda tundis, nii nagu ta alati kõike esimesena tajus. Käpaaluste padjandite kaudu, piki selgroogu, käppade tundlikes karvades. Vibratsioonist sai ta aru ka, et tee oli muutunud konarlikumaks. Ta sirutas end poisi süles kõrgemale ja nuusutas läbi akna immitsevaid lõhnu, mis andsid talle teada, et nad liiguvad nüüd metsamaastikul*“ (Pennypacker 2019: 1).

Keskkonna osas väärrib eraldi mainimist rebase suhe elektriga. Päriselu rebaste suhe elektriga ei leia teaduslikus kirjanduses palju käsitlust, küll on aga uurimusi selle kohta, et elektriliinid mõjutavad rebaste maamagnetvälja suuna tajumist. Raamaturebastel toimub elektris ohu tajumine intuiitiivselt, nagu inimesega koos olleski. Kuna metsaäärele paigutatakse sõjas õhkimismaterjali, mis ühendatakse elektriga, siis loomad tunnetavad ohtu (särinat) ja hoiatavad teisi.

Rebaste ja teiste loomade-lindude suhete kirjeldamisele pole teoses just palju ruumi jäetud. Küll aga võib märgata, et teiste liikide esindajad pole individualiseeritud ja esinevad enamasti gruppina. Nii näiteks on moodustatud vareste, ronkade, hirvede, hiirte ja inimeste grupid. Linnud, nagu varesed ja rongad, on teadete toojad, neutraalsete loomadena esinevad suured rohusööjad, vaenlasteks on koiotid ja inimesed (välja arvatud



Peter Paxi jaoks), väikesed saakloomad on märgistatud kui kõhutäis. On oluline tähele panna ka asjaolu, et saakloomadeks on üldjuhul negatiivse konnotatsiooniga liigid, nagu hiired ja rotid, samas kui linnud, keda ka rebased reaalses elus sageli püüavad, siin selles kontekstis mainitud ei saa. Lindude mune söövad aga raamaturebased küll.

Erinevalt teisest loomadest on liigikaaslased individualiseeritud ja ka nimetatud. Paxi peas saavad samas piirkonnas elavad loomad nimed nende välimusest johtuvalt. Nõnda nimetab Pax temperamentse emase rebase Särtsuks, Särtsu aasta võrra noorema venna Jupatsiks ja vanema isarebase Halliks. Liigisisest kommunikatsiooni ongi kirjeldatud põhiliselt nende vahel. Sara Pennypacker kirjeldab loomade kehakuju (saba asend, kõrvad, küürus, sirge, maadligi jne), saagi jagamist, mängu ja müramisi (kuna Jupats on veel noor). Lisaks sellele pöörab autor tähelepanu ka rebaste siseilmale, tundmustele, igatsustele ja mälestuspiltidele.

Metsaolustikus, nii nagu poisi kodus tehistingimustes viibideski, jõuab teave Paxi maailma läbi järgmiste kanalite:

1. Akustiline kanal (kuulmine): „*Hetke pärast kostis vana rebase haukumine. Sõda liigub lähemale.*“ (Pennypacker 2019: 137)
2. Visuaalne kanal (nägemine): „*Ta nägi, kuidas tema poiss midagi maast üles tõstis. See paistis nagu mingi pulk, kuid ei olnud seda. Midagi karvast ja katkist.*“ (Pennypacker 2019: 270)
3. Oflaktoorne kanal (haistmine): „*Pax möödus urgudest, mida omavahel jagasid Särts ja Jupats. Seal haistis ta pehmesse mulda kaevatud peidikuid jahisaagiga, kuid need olid tugevate hoiatuslõhnadega märgistatud, seepärast ei kaevanud ta neid üles.*“ (Pennypacker, 2019: 109)
4. Taktiiline kanal (puudutus): „*Pax raputas endalt tosinast pindmisest kriimustusest voolanud vere ja puhastas seejärel Halli haavad. Hammustusjäljed olid sügavad.*“ (Pennypacker 2019: 136)

Raamatus on rebase meeli iseloomustatud sarnaselt bioloogilisele liigile. Nõnda on nagu looduseski teravamalt esil haistmine ja kuulmine, samas kui nägemismeel on nõrgem. Siiski tuleb arvestada, et neid kirjeldatakse olukorrapõhiselt.

Kui vaadelda, millised valdkonnad kommunikatsioonist, mis iseloomulik bioloogilisele liigile, jäävad raamaturebase puhul mainimata, siis jõulisemalt torkab silma paljunemise küsimus. Kuigi Pax elab Peteri juures mitu aastat, pole tema tungidele või kihkudele viidatud. Teine asjaolu, mis samuti kirjeldamata jääb, on territooriumi märgistamine uriini ja väljaheidetega. Metsa sattunud Pax tunneb küll territooriumide lõhnu, kuid teda ennast ega teisi loomi seda tegemas ei kujutata. Samuti pole mainitud, millised need markeerivad lõhnad on. Mõlemad juhtumid on ilmselt seotud teose adressaadi küsimusega.

Rebase maailma allutamist sündmustikule võib märgata eredaimalt situatsioonides, mis kirjeldavad loomade pikaajalist mäletamist. On tõsi, et rebastel on hea mälu erinevalt näiteks oravatest, kes peidetud toidutagavarasid hiljem leida ei pruugi,



kuid mõned mälupiltidena esitatud seigad ei tundu bioloogiliselt pädevat. Nii näiteks jutustab Särts Paxile, miks ta inimesi ei salli. Ta jutustab, kuidas ta vanemad tema silme all tapeti, kui need suures toidupuuduses lõpuks kanafarmi toitu hankima otsustasid minna (Pennypacker 2019: 91–94). Teine selline juhtum on vana isarebase Halli lahkumine. Pax pikutab siis tema kõrval ja tunnetab ilma rääkimatagi kogu Halli elulugu (Pennypacker 2019: 158–159). Samuti tundub võõrana, kui rebased räägivad omavahel sõjast vm asjadest, mis nende bioloogilise liigi maailma kuidagi kuuluda ei saa.

Kujutusviisi põhjendatus

Miks sellised kõrvalekalded teoses esinevad? Peamiseks faktoriks on see, et tegemist on selgelt ilukirjandusliku teosega, milles domineerimas ennekõike kunstilised aspektid, nagu ideestik, intriig, karakteriloomed, süžee jne. Seega on siin bioloogilisele rebasele omistatud kirjanduslikule karakterile vajalikke jooni. Sellele, et teos pole belletriseeritud aimeraamat, vihjavad ka teose illustratsioonid (Jon Klassen), milles ilmneb kunstniku peegeldus rebasest, mitte bioloogiline liik. Vastasel juhul oleks kasutatud näiteks fotosid või realistlikumat joonistuslaadi. Julgen väita, et jutustusele kui kunstiteosele on selline mugandamine abiks tulnud. Need, kes päris-rebaste vastu rohkem huvi tunnevad, saavad teavet otsida teatmeteostest või internetiallikatest.

Kuigi jutustuses *Pax* on erinevusi bioloogilise rebase ja selle representatsiooni vahel, ei mõju need fantaasiakirjandusega harjunud (laps)lugejale üleliia võõrastavalt. Jutustuse suurimateks plussideks on laste ja loomade vahelise sideme tugevdamine, nende empaatiavõime arendamine. Teosest ilmneb kenasti, et iga loom on väärtus ja kõige paremini tunneb ta end loomuomases keskkonnas. Sümpaatne on ka see, et jutustuses saab mitmel puhul kummutatud ka loomade hierarhiate teema, nii et leiab ikka rõhutamist, et metsloomad pole kehvemad kodus peetavatest lemmikutest (rebane pole ainult rebane). Samuti juhitakse teoses tähelepanu olulistele looduskaitselistele aspektidele (jaht, maaparandustööd, tööstus jne). Sara Pennypackeri teosest jääb mulje, et rebane on väga nupukas, kiinduv, ettevõtlik ja sõbralik loom. Teose käigus kujuneb temast rahu (*pax* on ladina keeles rahu) ja vabaduse sümbol.

Kokkuvõte

Käesoleva töö eesmärgiks oli uurida, kuidas esineb bioloogiline rebane (*Vulpes vulpes*) Ameerika kirjaniku Sara Pennypackeri jutustuses *Pax* (2019). Selleks vaatlesin rebase maailma Jakob von Uexkülli maailma teooriat kasutades ning võrdlesin seda raamatus esitatuga. Selgus, et teoses esitatud rebase Paxi maailmal on palju sarnast bioloogilise rebase maailmaga. Reaalsusega vastavalt on kirjeldatud rebase



kommunikatsioonikanaleid (visuaalne, auditiivne, oflaktoorne, taktilne), eluviisi, liigisest ja liikidevahelist suhtlemist. Autor on adekvaatse pildi saamiseks kasutanud zooloogi abi. Samas aga on *Pax* ilmselgelt ilukirjandusteos, millel oma ideestik. Seepärast on ka mõistetav, et representeeritava rebase omailm on allutatud kunstilistele võtetele. See kehtib näiteks rebaste mälu kirjeldades või rebase omailma mitte kuuluvaid objekte ja sündmusi tõlgendades. Osaliselt on bioloogilise ja ilukirjandusliku rebase vaheliste omailmanihete põhjuseks ka teose implitsiitne adressaat. Siiski ei vähenda need erinevused omailmades teose rolli lastele looduse tutvustamisel ja selle vastu huvi äratamisel.

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ONE PIGGY WENT TO THE MARKET: Using economic theory to discover animal rationality

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Abstract. The main aim of this article is to use the theory of biological markets to showcase that non-humans possess rationality and the ability to think through their actions without the usage of language. The framework of the theory of biological markets is based on human economic market theory and its principles, thus allowing us to view interactions of animals as an exchange of goods, where the animal makes a choice to act based on rationalising and communicating with itself, and its group members. The objective of this paper is to counter Tim Ingold's 1988 position on animal thinking, where he believes that animals are conscious, but lack the ability to think about their actions as they lack a linguistic faculty allowing for discursive abilities. The results of this paper highlight animals as rational thinkers, sometimes more so than humans who act and communicate based on furthering their own self-interest. Through the unique interactions in the markets of the *Lasius* ants and *Polyommatus icarus* butterfly larvae, *Polistes dominula* wasp, and *Labroides dimidiatus* cleaner fish we are able to conclude that animal choice making is not pre-programmed, but situational, and each interaction is an intricately rationalised choice made for the benefit of an individual or its whole community.

Keywords: animal rationality; theory of biological markets; umwelt; economic market theory; free-riding; collective action problem; zoosemiotics

Üks põssa läks turule: majandusteooria kaudu loomade ratsionaalsust avastades

Abstrakt. Käesoleva artikli peamiseks eesmärgiks on kasutada bioloogiliste turgude teooriat, näitamaks, et mitte-inimesed ratsionaalsed ja võimelised mõtlema läbi oma tegevuste ja ilma keeleta. Bioloogiliste turgude teooria on raamistu, mis põhineb majandusturgude teoorial, võimaldades seega vaadelda loomade interaktsioone kaubavahetusena, kus loom teeb käitumisvalikuid enda ja oma grupikaaslastega kommunikeerides ja ratsionaliseerides. Artikli eesmärgiks on vastata Tim Ingoldi 1988. a. positsioonile loomade mõtlemisest, st vaatele, et loomad on teadlikud, kuid neil puudub võime mõelda oma tegevustest, kuna neil puudub keelevõime, mis on diskursiivsete võimete aluseks. Käesolevas töös tuuakse esile loomad ratsionaalsete agentidena, vahel isegi ratsionaalsematena inimestest, kelle tegevuse ja kommunikatsiooni aluseks on isiklike huvide edendamine. Läbi *Lasius* sipelgate ja *Polyommatus icarus* liblikavastsete, *Polistes dominula* herilaste ning *Labroides dimidiatus* kalade turgudel toimuvate unikaalsete interaktsioonide võime järeldada, et loomade valikud ei ole etteprogrammeeritud, vaid



olustikulised, ning iga interaktsioon on peenelt ratsionaliseeritud valik, mis tehakse indiviidi või kogukonna hüvanguks.

Märksõnad: loomade ratsionaalsus, bioloogiliste turgude teooria, omailm, majandusturgude teooria, tasuta kasutaja probleem, kollektiivse tegevuse probleem, zoosemiootika

Introduction

“Rather than thinking without communicating, an animal communicates without thinking” (Ingold 1988: 95) is the conclusion Tim Ingold reaches in chapter seven of his book *What is an Animal?*¹ Ingold reaches this conclusion by critiquing the theories of Lewis Henry Morgan² and Donald Griffin³, which are based on how animals are capable of rational deliberation but lack an appropriate mode of communication for humans to comprehend. He believes their desires are futile as conversation between humans and non-humans cannot exist, not because of a lack of medium, but because there will be “no intentional exchange of ideas between thinking subjects” (Ingold 1988: 93). Furthermore, Ingold builds on humans⁴ as ‘thinking subjects’ as he distinguishes them based on their ability to “isolate separate intentions from the stream of consciousness, to focus attention of them, and to articulate them in discourse,” through a “discursive consciousness that rests upon the linguistic facility and is uniquely human” (ibid, 96). However, it is important to note that Ingold still believes that animals act as “conscious, intentional agents” (ibid, 96), but their actions and communication are based on “pre-programmed force of an instruction” (ibid, 93). This influences their inability to: (1) consider future outcomes before acting [rationality], and (2) think of their own actions discursively (ibid, 96). Therefore, for animals to display thinking in their communication they must showcase discursive consciousness and rationality. In order to discover if the animal has such capacity, this paper will juxtapose Ingold’s stance on animal thinking and communication through a model that showcases rationality in non-humans.

John Maynard Keynes, the father of modern economics, attributed the irrational choices displayed by human beings to “animal spirits” (Crair 2017), whereas Adam Smith believed that “human beings rationally pursue their economic interests” (Akerlof, Shiller 2009: 3). In both cases the behaviour of rational self-interest was described to be a human trait and could not be found in non-humans. This was the foundation that built the economics we practice today and continues to guide the way goods are exchanged from one individual with another. However, in 1994 the theory of biological markets was formulated by Hammerstein and Noë, which showcased a different outlook on the patterns of cooperation between con-species, and mutualism between different species (Noë 2001). They suggested that human economic market theory and its principles could help understand the interactions of animals as an exchange of goods. Through their theory they sought to explain how non-humans also display rational behaviour and



concluded that sometimes they can be even more rational than human beings (Crair 2017). This paper will leverage the theory of biological markets to contradict Ingold and showcase that animals do think before they act and communicate by breaking down their rational actions based on furthering their self-interest.

For biological market theory to be applied rational thinking must be defined as “a decision-making process that is based on making choices that result in the optimal level of benefit or utility for an individual” (Hayes 2020) or a collective. If an animal were pre-programmed, they would not be able to have such “prior intentions”⁵ that would lead them to make choices amongst alternative options. Also, their choices are then reflected based on their communicative and discursive abilities. Therefore, this paper will follow that line of thinking and assess: (1) if an animal is capable of having a decision-making process, (2) the discursive consciousness of animals leading to their choice, and (3) complexity of thinking in animal communication. Based on the assessment from the aforementioned questions we can gauge the animal’s ability to both think and communicate⁶.

When it comes to the rational decision-making process of non-humans, other approaches such as evolutionary biology suggest that it is simply a behaviour conditioned by natural selection to “maximise individual reproductive success” (Parker, Hammerstein 1985 in Nunn, Lewis 2001: 47). Therefore, it is important to note that this is a zoosemiotic approach, and the economic terms are to assist in a cross-disciplinary study where it is not the terms themselves, but their utility functions that are of importance to the animal. Furthermore, this paper will leverage the concept of *umwelt* introduced by Jacob von Uexküll to analyse the application of animal thinking of different non-humans based on their ‘self-world’ (Uexküll 1934: 319). By doing so we look past animals as mechanical beings and start viewing them based on their subjective experience of not just their physical environment, but also their relationships and ability to make meaning of their surrounding worlds (Uexküll 1934: 319). Therefore, in each example rationality and discursive consciousness in communication and thinking might manifest in different ways for each animal, as what might be in their self-interest may differ from another animal. Utilising *umwelt* theory also allows us to avoid the case of Ingold’s bee example, where the lack of symbols in the waggle dance leads to the conclusion that they “lack concepts to grasp” (1988: 94). Instead, it makes us look for rationality and concepts through their perspective.

Capacity of animals to make decisions

Ingold (1988: 95) suggests that an animal emits signals, but they relate to bodily states and not concepts. Moreover, he suggests it is because animals lack language, which is different than communication, as language is an “instrument of thought” whereas

communication is just a medium (ibid, 94). But it must be questioned why Ingold believes that a lack of language must signify a lack of thoughts. In the case of biological markets, thoughts must include an active decision-making process based on an exchange of goods that must be conducted by deliberating the actions of the market and its players (Noë 2001). In economic terms there must be an understanding of supply and demand with their given costs and prices in a given market where “exchange transaction takes place freely, and the two involved have both acted to fulfil their respective goals” (Kirzner 1963: 1). Therefore, the behaviour of one individual participant must also directly or indirectly be “conditioned by the actions of participating individuals” (ibid, 2).

The natural application of these principles can be demonstrated through the mutualism between *Lasius* ants and *Polyommatus icarus* butterfly larvae (Noë 2001: 99). The larvae produce a sugar-rich solution, called ‘nectar’ from their ‘nectar gland’ and exchanges it with the ants as payment for protecting it against parasites and predators. The amount of nectar produced by the larvae is dependent on the number of ants desiring to protect it, where an increase in ants will decrease the nectar produced, and a decrease in ants will increase the nectar produced — indicating that “the nectar is produced at a cost” (Noë 2001: 99). This is demonstrated in Figure 1 where at an equilibrium E^n there is a quantity of ants Q_E paid with nectar at price P_E .

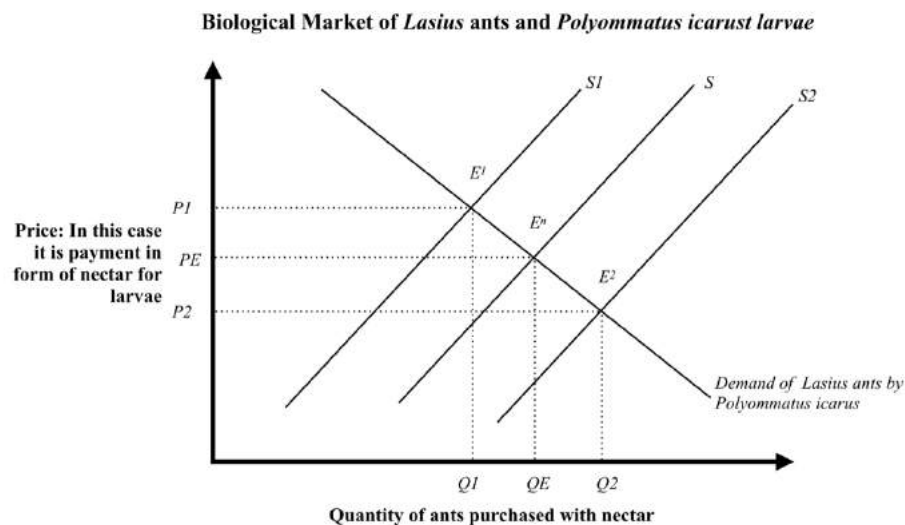


Figure 1: Effect of a change in supply in ants desired by a larvae.
Graph constructed by Colaso with information drawn from Noë (2001).

As we see a reduction in the supply of ants due to the competition in the market with other larvae there is a higher price of nectar required by the ants at P_1 for them to be swayed by an individual larva. However, if the larvae sense there are sufficient amount of ants for its protection at S_2 it will produce less nectar at P_2 for a larger quantity of ants at Q_2 . In this way we see how this biological market follows similar rules of a human economic market that exchanges goods. In this case the larvae and the ants exist in a



market whereas individual members of society they are “aware⁷ of numerous opportunities for exchange and are free to take advantage of them” (Kirzner 1963: 2). This illustrates how an individual ant makes a decision to protect a particular larva at a price they are willing to be bought at, while the larvae decide its nectar production after deciding when it must compete, and when it has provided a sufficient amount. In this example both parties act in a way where they look to improve their position whenever possible – act rationally in their self-interest. Moreover, the manipulation of the nectar decreasing with the number of ants increasing after a certain point showcases an understanding of the ‘Law of Diminishing Returns’ where “the number of ants increases linearly with the amount of nectar produced, the value of protection does not” (Noë 2001: 99). On an individual level each player in this market is affected by another including the ants competing within themselves for the nectar, as they might choose to switch larvae to one that is less competitive and is producing more nectar to attract a larger group of ants.

There are some *Lycaenid* species that live in a community and during their larvae stage produce nectar together to attract ants for communal protection (Noë 2001: 100). During this stage they are able to reduce their total output of nectar and reduce competition for ant protection that exists in individual larvae. Similar to humans when “multiple individuals simultaneously offer the same commodity in order to get some collective benefit” (ibid, 100). By participating in cooperative behaviour, the cluster larvae are actively deciding to work together to exchange commodities for their mutual benefit. This behaviour yields a net advantage in comparison to the solitary larvae who compete against other larvae and must increase their price to gain attraction. Although, biological markets do account for cheaters who actively decide to deceive their species to gain a further advantage by ‘free-riding’⁸ and receiving the protection of ants without producing any nectar themselves (Axén, Pierce 1998). In such cases there is a ‘collective action problem’⁹, and the market finds a way to enact a policing effect to punish the free-riders. For the non-nectar producing larvae, the ants who are meant to protect them from predators make a rational decision to eat them. The decision is based on the thought process that “the body has more value to be eaten than the sugar it will produce in the future” (Noë 2001: 106).

The larvae have tentacle organs that produce pheromones to indicate the presence of nectar to the ants, however it can also be used to manipulate the behaviour of the ants (Noë 2001: 108). Pheromones might not act like human language that “function primarily as symbols rather than signs” (Ingold 1988: 94), however just because the ants and larvae do not use language to communicate, or coin the term collective action problem, does not entirely mean they do not understand the concept of it. Therefore, when Ingold suggests that animals reference an “external world of objects” only and not an “internal world of concepts” it is incorrect (1988: 94). Moreover, ants showcase a rational thought process when eating the non-nectar producing larvae and therefore must have a method of communicating their rational deliberation to do so with each other and other larvae thereby demonstrating a certain discursive consciousness.



Additionally, if the individual larvae did not grasp the concept of price or the cost of production of its nectar it would constantly be producing nectar at an equilibrium price of PE (in Figure 1) without ever finding the need to reduce or increase its price. Therefore, at some level the animal is rationally making decisions to behave in a certain way that we as humans understand and build symbols for as economics and market theory.

Prior intentions & discursive abilities of non-humans

Ingold (1988: 96) argues against Griffin's belief that animal's intentionality comes from them being guided by "mental images of desired future states". He suggests that it is a hypocritical approach to think that animals rationally working toward a plan is a determinant of their consciousness when we as humans often fail to do so. For Ingold animal thinking must demonstrate a rational discursive capacity to think about their thinking before acting, what he terms as 'prior intentions' (ibid). Additionally, planning in advance is not the same as having prior intentions, therefore, to analyse if non-humans can have prior intentions, we must find a situation where the choice is made deliberately and voluntarily in a novel way that breaks from "stock-in-trade habitual patterns" (ibid, 97).

The theory of biological markets reveals a chain of cause and effect that link and coordinate transactions occurring throughout a market that an individual must understand and make a choice amongst all alternative options it has present (Kirzner 1963: 12). In this an animal must utilise a complex rational thought process to weigh all options, including new ones that may be introduced in an experiment and then make a choice. Such a choice might differ from habitual patterns and therefore break from the practical consciousness Ingold boxes animals into. Furthermore, to make such a choice an individual must also be discursive with both itself and other group members in a cooperative society to understand the implications of its decisions. As an example, we can look toward the *Polistes dominula*, also known as paper wasps. The exchange in this market¹⁰ is based on subordinate wasps known as 'helpers' providing goods in the form of foraging and defence efforts (cost), with dominant 'breeders' providing group membership¹¹ as the price (Grinstead, Field 2016).

A dominant female breeder is able to alter her reproductive output based on group size, which means more subordinates will increase the number of offspring produced (Grinstead, Field 2016: 2). In the occasion that there is a decrease of helpers and foraging efforts are reduced, excess larvae and eggs are fed to the larger and more valuable larvae, which means that "every additional helper has an extra value to the dominant" (ibid, 2). In contrast foraging is costly for subordinates as it "correlates positively with individual mortality" (ibid, 3) and will reduce the ability of the individual to reach the position of a breeder. This is important for the creation of a market as the



price the subordinate is willing to pay for group membership is lower than what the breeder wants to accept. During the 2016 experiment by Grinstead and Field the paper wasps were provided alternative options, which challenged the habitual patterns of the subordinate paper wasps.

The experiment was conducted in two stages to understand if there is an entrepreneurial behaviour present in the subordinate paper wasps. A subordinate can increase its social rank or become a breeder itself in the case the dominant breeder dies or if it is challenged, which in this case is the habitual pattern (Grinstead, Field 2016: 2). This ability to change from subordinate to breeder provides a less strict definition of trader classes that was present in the larvae and ant example as their market is simpler and based on the manipulation of the ratios of their trader classes¹². In the first stage of the experiment, only nesting options were created without an increase in the supply of subordinates available, which did not have much influence on the helper market (ibid, 4). However, in the second stage an increase in both nesting spots and the supply of subordinates delivered a decrease in foraging efforts from subordinates in dominant nests as they had now become a pricey commodity (ibid, 5). Another reason was that some subordinates left their position as helpers to become dominant breeders themselves and search for helpers to increase their group size. “Initiating a new nest is a high-risk/high-reward option for a subordinate” (ibid, 4) and therefore showed an insignificant amount of interest in the first stage. But when the subordinate utilised discursive consciousness it was able to weigh its options and break from its habits to start its own nest. Moreover, it must have had to communicate with other helpers to gain their interest in joining its new nest and signify its shift from being a helper to a dominant. Most importantly, the previously subordinate wasp must have to think and have a dialogue with itself about becoming a dominant, and whether it can live up to the task of its new nest. The provision of novel alternate options indicates the ability of prior intentions in wasps and how they must deliberate and choose amongst options. This also contradicts Ingold’s idea that the thought process of non-humans is a “pre-programmed force of an instruction” (Ingold 1988: 93) as the wasps had the ability to change behaviours and choices when faced with new situations that were altered from the ones that had been ‘programmed’.

Complexity of thinking in animal communication

Ingold (1988: 91) states Griffin’s question “Do animals have any sort of mental awareness of probable events, and do they make conscious choices with the intent to produce certain results?” In other words, Griffin questions if animals have the ability to think of the future, read the environment and assess the choices they have and then make a choice they believe will have a desirable result for them. Ingold suggests an experiment where a



model of a bee that can be remotely controlled is placed into a hive where it conducts the waggle dance to send the other bees toward a food source (Ingold 1988: 92). However, he indicates that if the bee would do a dance corresponding to an image in his mind, the bees should theoretically go on a random chase for the food source as he is communicating in their sign language. Although in reality this could never occur in the world of bees because they have no conceptual connotations, and their dance is only “triggered by an internal organic state that was in turn induced by the preceding flight from a food source” (ibid, 93). By using this example Ingold showcases the bee as an animal that cannot lie about a food source and thereby must not have concepts. Moreover, this behaviour of the waggle dance can only be induced by a biological state and therefore does not require any thought or assessment by a bee about its current or future states. However, this example cannot be utilised as the norm for all animal communication and cognitive abilities. What about animals that communicate concepts and are not triggered by internal organic states, but by rational thinking?

Such is the case of the *Labroides dimidiatus* or cleaner fish market (Bshary 2001), which includes sophisticated interaction with other coral fish who act as their clients. The cleaners inspect the body surface, gill chambers and mouths of their clients in search for parasites and dead or infected tissues at their so-called cleaning stations (ibid). Occasionally, cleaners may even take a bite of their client’s mucous, which is more nutritious. Clients also visit the cleaners for tactile stimulation (Losey 1979) whereby the cleaners use their pelvic fins to stimulate specific sites on their clients’ bodies. From a cleaner’s perspective, the client is divided into two classes based on their access to coral stations: ‘residents’ who have access to only one station and ‘floaters’ who can access two or more stations (Bshary 2001: 148). Additionally, the cleaner further divides those classes based on their clients being herbivores or predators, which creates a hierarchy of “predator floaters, harmless floaters, predator residents, harmless residents” (ibid, 150). This hierarchy in turn influences their daily decisions as each cleaner has around two thousand interactions per day (Crair 2017) and must therefore adjust their communication accordingly to provide themselves the higher payoff in every interaction.

In this example both the client and cleaner must communicate in order to fulfil the transaction, which results in both direct and indirect communication. First the cleaner fish must advertise its services by performing the ‘rocking dance’ where it showcases a “side to side motion that holds no locomotive advantage” (Horton 2011: 92). This dance move is performed to indicate the cleaner is open for business, and to attract fish who are not able to see stationary objects as they have poor visual power (ibid, 91). The dance is not pre-programmed as the cleaner is able to judge when it must communicate its services and when not, such as if it already has clients, if it is older and has a loyal base of consumers, or if there are no floaters passing by. Moreover, this dance is performed mostly in the morning when the cleaner knows that clients will have a higher quantity of parasites than later in the day (ibid, 97). On the other hand, the client themselves must respond by communicating what service they would like through special postures – parasite inspection and cleaning or tactile stimulation (Bshary 2001: 146). This



communicative method is referred to as 'posing' (Horton 2011: 91) and is based on gestures. All classes of clients pose in order to receive a service. For predator clients it displays an immense amount of thought as they have to open their mouth and allow a potential food source to clean and then just leave. This also indicates to the cleaner that they will not be eaten, and they can approach to do their job. In some cases, it is possible for a predator floater to cheat and lie to the cleaner fish and get the service provided and then consume it. Therefore, suggesting this whole market interaction is not mindless, but based on simple economics that must be executed at each interaction.

In the duration of the service itself, there can be further communication between the two trader classes. Cleaners utilise their tactile stimulation as a method for conflict management (Grutter 2004) either with predators to showcase how they are preferential clients, or with residents¹³ who have been bitten to influence their decision to stay. This indicates that the cleaner has communicated through the stimulation in regard to its future outcome. In the predator interaction better service is provided as the trade-off is the cleaner's own life that could be under threat if the service provided is bad. But, for the bitten residents the communication is more about reputation management of the cleaner. On the other hand, during a service if the client is bitten then they may show aggressive stances, or even injure the cleaner as a threat (Bshary 2001: 149). By doing so the client, who is usually a resident and faces bad treatment because of an asymmetric payoff in the monopoly created, indicates to the cleaner that it must not be cheated or taken advantage of. If the bitten is a predator, the aggression acts as a reminder of who the prey and predator is in this situation.

There are times when the cleaner is indirectly communicating about its services to other clients, and not the one they are servicing at the time. This usually occurs when a floater is judging the potential of a cleaner as it has access to more than one station and can select between cleaners based on service quality (Bshary 2001: 150). Thus, forcing cleaners to compete with each other with good services to attract floaters. This improves the quality of a service provided on the client being serviced at the moment to indirectly signal to the floaters their reputation as quality cleaners. During occasions where the cleaner notices a floater waiting in line, it chooses to give up cheating a herbivore resident and biting their mucous to show the floater it provides only the highest levels of service (ibid, 167). This suggests that the cleaner can gauge its environment, think about the future outcome of the floater leaving and then intentionally not bite into its less valued customer, because it understands the future value of its investment.

This example demonstrates two distinct trader classes as both cleaners and floaters can exert choice thereby keeping the 'choosing' and 'chosen' in constant flux. It also displays the complexity of thinking of the cleaner and client as they assess short term versus long term rewards and then communicate accordingly. The cleaner assesses each client on the basis of their hierarchy¹⁴ indicating an active choice to provide a certain service level depending on who the client is. Unlike Ingold's bee that depends on the change of its own internal state to depict a food source, the cleaner fish showcases immense rationality and intentionality in the way it approaches its food source.



Furthermore, it communicates through a variety of dances, gestures, stimulations, etc. suggesting that in order to find the cognitive capabilities of the bee we should look further than just one dance.

It can be argued that this is an anthropomorphic force-fit of animal actions into human economic and rational behaviour. However, it is Ingold's position of showcasing animals as cognitively lacking that is anthropocentric because it fails to take into account interactions where the animal displays choices, thinking, and rationality in their communications. The theory of biological markets allows us a new lens in viewing these interactions between species and inter-species to see how rational decision-making is core to their communication, sometimes more so than human beings themselves. The cleaner and its clients, ants, larvae, and paper wasps all display the capacity to think of their actions as demonstrated in this essay through their own unique interactions. This suggests we need further research that focuses on the economic markets present in nature, which could help us develop a better understanding of animal cognitive capacities whether it is through creating methods of communication between humans and animals, or by just simply observing them in their own environment.

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Notes

¹ It is important to note that Tim Ingold repositioned his thoughts on animal thinking in "Building, dwelling, living: How animals and people make themselves at home in the world" (2006: 172-188). Therefore, the quotes in this paper do not adequately depict or reflect Ingold's stance on animal thinking since 2006. However, his thinking in *What is an animal?* is still of great value as it helps in understanding the oppositions in the perception of animal rationality versus that of humans.



- 2** Morgan uses the essence of 'mind,' which he believes all creatures human, and non-human possess and terms it 'Thinking Principle' (Ingold 1988: 87). He believes animals lack the vocal abilities humans have and therefore cannot communicate their internal thinking processes, thereby appearing 'mute' (ibid, 88).
- 3** Griffin suggested that animals had the possibility for rational deliberation, but in order to understand human beings had to learn, develop, and participate with an appropriate mode of communication (Ingold 1988: 91)
- 4** From non-humans whose actions are directed by practical consciousness (Ingold 1988: 96)
- 5** "Intentions formed before the performance of an action" (Ingold 1988:96).
- 6** Rather than thinking without communicating or communicating without thinking.
- 7** Awareness in this context is used when the species is well-informed about a particular situation (Lexico), thereby suggesting it knows the market it is in, the choices it has, and the ability to take actions or non-actions in a given situation.
- 8** Free Riding occurs when a burden is created on a shared resource by members of the group who aren't paying their share (Chappelow 2019).
- 9** Collective Action Problem is a problem created to "discourage joint action by individuals pursuing a common goal" (Dowding 2013).
- 10** The market is based on the relative demand for helpers versus their group membership.
- 11** Through group membership subordinates gain "direct or indirect fitness benefits via inheritance or by helping a relative" (Grinstead, Field 2016: 2).
- 12** Increase in supply of ants decreases the nectar produced by the larvae, and decrease in supply of ants increases the nectar produced by the larvae.
- 13** Residents, especially herbivore residents are most likely to be bitten by the cleaner as they have only one station to visit, and the cleaner has a plethora of other clients. This forces resident clients to accept a relatively bad service in exchange for the cleaner to feed on not just parasites, but also on the client's tissue which is considered a reward leading to a higher energy gain for the cleaner.
- 14** Usually done by distinguishing colour, patterns, and the size of the fish (Bshary 2001).



PRETENDING TO PRETEND: The trickster's mind in animals

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Abstract. The trickster's mind is a notion that I have proposed to present a set of cognitive skills that allow human agents to deceive other human and non-human agents by generating false beliefs that make them behave in ways that contribute to fulfilling the deceiver's agendas. I propose that these cognitive skills have been represented in cultural narratives under the figure of the trickster which, although under different guises, maintains some common elements such as marginality, ambiguity, and playful ingenuity. In this article I analyse how the seeds of this trickster's mind could be observed in non-human animal behaviours. I will also review some ongoing debates about issues such as the ability of non-human animals to understand false beliefs in others, which are the basis for more complex abilities such as creative deception.

Keywords: Trickster, deception, animal behaviour, theory of mind, false beliefs, cognition

Teesklemist teeseldes: triksteri mõtlemine loomadel

Abstrakt. Käesolevad artiklis pakun välja mõiste 'triksteri mõtlemine', millega kirjeldada kognitiivsete oskuste kogumit, mis võimaldavad inimestel petta inimesi ja mitte-inimestest loomi, tekitades valesid uskumusi, mis panevad neid käituma viisil, mis aitab kaasa petja plaani täitmisele. Pakun välja, et neid kognitiivseid oskusi on kultuurinarratiivides esindatud triksteri kuju all, mis, ehkki erinevatel kujudel, säilitab mõned ühised elemendid, nagu marginaalsus, mitmeti mõistetavus ja mänguline leidlikkus. Selles artiklis analüüsin, kuidas selle triksteri mõistuse algeid võib täheldada mitte-inimestest loomade käitumises. Pakun ülevaate ka mõnedest käimasolevatest aruteludest teemadel, mis käsitlevad mitte-inimestest loomade võimet mõista teiste valeuskumusi, mis on aluseks keerukamatele võimetele, näiteks loomingukselisele petmisele.

Märksõnad: Trikster, petmine, loomade käitumine, vaimuteooria, valed uskumused, kognitsioon

The search for signs of awareness and social-cognitive skills in human and non-human animals puts the capacity to develop a functional theory of mind as a key element that must be present for an organism to develop such complex capabilities; although there is



evidence to support the idea that some non-human animals like chimpanzees and elephants have a basic understanding of other agents' actions in terms of underlying goals and intentions (Mitchell, Thompson 1986). When it comes to the point of detecting the ability to understand false beliefs in others there is no experimental data to confirm that non-human animals possess this ability (Call, Tomasello 2008).

In my thesis *The Trickster's Mind* (Guzmán 2017), I propose the idea that the trickster figure, present in most of the cultural traditions around the world, is a way that people have represented and nurtured in new generations a set of cognitive skills that are related to the ability to understand false beliefs; and to intentionally generate false beliefs in others to make them act in ways that advance the goals of the deceiver. This ability leads to the notion of creative deception, that although not observed in other animals is the product of a set of cognitive tools that have been acquired and perfected through evolution.

The use of traps, disguises, distractions, and other deceptive tactics, responds to a biological necessity to provide organisms new ways to survive and prosper in an ongoing hostile environment. This kind of trickster behaviour has introduced a new element in the logic of survival that deeply modifies the relations established, for example, between predators and prey (Guzmán 2017), “trickster feeds himself where predator and prey meet, but rather than entering the game on their terms he plays with its rules” (Hyde 1998: 24).

The main purpose of this article is to propose the existence of a ‘trickster’s mind’ in animals, related to a capability to ‘pretend to pretend’ that in a rudimentary way can generate false beliefs in other agents. For this, I take as a starting point the texts of Donald Griffin on the topic of animal awareness, the perspective proposed by Daniel Dennett in the book *Kind of Minds*, and the critique of Dennett’s ideas by Cary Wolfe from his text about Posthumanism. This approach is an opportunity to refine the ideas that I have presented in my thesis related to the role of deceptive strategies in the emergence of a trickster’s mind.

Can animals lie creatively?

Deceptive animal characters are a common element present in many traditional narratives: Anansi the spider from African folktales, the characters of Raven and Coyote in Native American narratives, Kitsune the fox of Japanese Shinto lore and its counterpart Reynard the Fox from European medieval fables, are just some examples of trickster animal characters. A probable reason for this is that humans have observed, copied, and improved the deceiving behaviours of many animals and have translated these observations and learnings into the narrative figure of the trickster, who is a reflection of the cunning skills that animals, including humans, possess.



In some way humans have recognised a variety of skills for deception in non-human animals, however it is important to have a clear definition of what is understood as deception and creative lying before we can attribute these traits to non-human animals. For this, I start with the definition proposed by Lilly-Marlene Russow on what constitutes deceiving behaviour: “An agent’s behavior is deceptive if and only if the agent intends that, because of its behavior, another organism will come to have (and perhaps act on) a false belief.” (Russow 1986: 48).

Following this definition, the actual position is that non-human animals cannot deceive because that behaviour requires the understanding and intended use of false beliefs for which, as stated before, there is no compelling experimental evidence. This understanding of a false belief is described by Call and Tomasello as:

the special case in which an observer predicts or explains the behavior of an actor based on a judgment of what that actor believes to be the case, not what really is the case as the observer knows it. (Call, Tomasello 2008: 189)

To achieve this level of understanding, the agent must first be able to understand other agents’ goals and intentions, so they can react not only to what others are doing, but also to anticipate what they will do. The big problem, as stated by Call and Tomasello is to discern when an observer is reading another actor’s behaviour and when it is reading the other’s goals.

In this sense the example that Griffin provides about monkeys and apes trying to hide food from more dominant members of the group is difficult to interpret without postulating at least short-term intentions and plans (Griffin 1981: 96). Griffin defies the idea that animals use signs, but they do not know that they are signs, as in the case of dancing bees that devoid of intention cannot use their dance to lie to other bees about the location of a food source. This leads to the notion of prevarication, understood as the intentional use of communication signals to convey information known to be inaccurate, and this notion was added by Thorpe (1974) to the original list of design features formulated by Hockett and Altman (1968) that qualitatively distinguished human language from animal communication.

A simpler explanation for some deceptive behaviour in animals that could be understood as prevarication, is based on the idea that some animals act based on knowledge gathered through the observation of the behaviours of other animals. On this account, we have the example of the dog that lures her master out of her favourite chair by standing by the door as if wanting to go out to steal the spot as soon as the person stands up, presented by Dennett (1978: 274–276). Dennett argues that the dog by repeated observation has learned that standing next to the door makes the human stand up and does not require any intention to generate a false belief in the human.

In this example we can predict that once the human figures out the ruse, it would no longer be effective, and the dog will be limited to repeat this movement till she understands that it is no longer working. If the dog is not able to change its repertoire to



lure out the person from the chair, that would mean, as Hyde explains, that the dog cannot lie creatively (Hyde 1998: 46). But as Russow points out, to accept Dennett's interpretation as adequate, the intention of the dog, that could be expressed as "I want to run to the door to make the human get up so I can sit on the empty chair" must be related to a belief that the dog has come to have based only on the experience acquired by the repetition of random acts. Acts such as going to the door until she finds out that this triggers the response in the human to get up and open the door without ascribing to this behaviour any communicative intention, and that idea, especially for many dog owners, would be very strange.

Following this line of thought, Dennett says that "many animals hide but don't think they are hiding. Many animals flock but don't think they are flocking" (Dennett 2008: 119), and I would dare to add in relation to the dog example the idea that many animals lie but don't think they are lying. This 'intelligent but unthinking' behaviour proposed by Dennett denies the possibility of animals manifesting a 'third-order intentional system', the capability of an agent to want other agents to believe that it wants something, even if that is not true, in other words pretending to pretend.

For Wolfe, Dennett's scheme is problematic on two accounts: first, the idea of 'represented knowledge' that Dennett considers necessary to ascribe conscious thinking to a creature, depends on the assumption that language can provide a user-illusion of intrinsic intentionality, that Dennett has disavowed; and second, this "conceptual and phenomenological restabilization of the subject by means of language [...] forms an ontological specificity that is no different in principle from the Cartesianism Dennett rejects" (Wolfe 2010: 38).

The first problem is related to Dennett's argument that the informational unification required for a human type of consciousness is not part of the organism's 'hard-wiring', in other words, it is not imprinted in our genetic code, but it is mostly a product of our immersion in human culture. Following this argument, Dennett says that "early education produces in us a sort of benign 'user illusion'" (Dennett 1995: 702). New-born humans and non-human animals do not have this illusion because "there's no user in there to be fooled" (ibid, 702).

Going back to the dog example, the lack of a 'user illusion' is what would impede the dog to formulate a thought on the line of "I'm going to run to the door to make my owner believe that I want to go out and then sit on my favourite spot when he stands up". The dog, under Dennett's perspective, doesn't have what it takes to develop second-order intentional systems: beliefs and desires about beliefs and desires, its own or those of others: ("I can express to my owner my desire to go out by standing on the door") much less, to have a third-order intentional system: ("I can make my owner believe that I want to go out, when in fact what I desire is to sit on my favourite chair"). Without this insight, the dog should not be able to come up with new ruses to make his owner stand up from the chair, about this Dennett argues that "such virtuosity in a dog would be highly implausible" (Dennett 1978: 276).



Mitchell and Thompson's (1986) observational analysis of different play interactions between humans and dogs allows us to move from the mere anecdote as related by Dennett's to actual examples where it is possible to contrast his posture with what is actually happening in these dynamics between species.

Among the interactions described in Mitchell and Thompson's study, we can focus on a couple of interactions that involve some deceptive behaviours between a human and a dog. In the first one, a woman pretends that she is going to throw a ball for the dog to catch, as she had done several times before, but without actually throwing it; in the second a dog drops a ball close to the reach of the human but takes it before the human can grab it.

In the first scenario, the woman pretended that she was about to throw the ball far, and the dog predicted that this action would result in the ball's landing somewhere behind him, so the dog turned and waited for the ball to land (Mitchell, Thompson 1986: 197), but the ball never leaves the woman's hand, so the dog was fooled. If we apply Dennett's interpretation to this, we can say that through previous experience the dog has learned that certain movements from the human indicate that the ball will fly and land at a certain distance and he gets ready to catch it. When the expectation is not fulfilled, the dog has no way to understand that he has been fooled because without a second-degree intentional system he cannot have beliefs about the intentions of the woman, including the intention to deceive. Yet, when the woman tries to do the trick again, the dog, instead of turning around, keeps his gaze on the ball. Mitchell and Thompson argue that this behaviour is consistent with an ability to avoid deception by "focusing on aspects of the deceiver's behavior the deceiver cannot fake" (Mitchell, Thompson 1986: 200).

More interesting is the case of the dog as the deceiving actor in the game in the last case described:

Dog moves closer to Woman and shakes his head, letting the ball drop in front of W; D maintains his gaze on the ball. W backs up, and then moves forward to get the ball but, as she does, D moves toward the ball and grabs it in his mouth just as W reaches for it. D runs, with the ball, away from W. (Mitchell, Thompson 1986: 202)

In this example, trying to explain the dog's behaviour by saying that he is just a good behaviourist does not seem to justify the dog's belief that the person will try to grab the ball. The dog is not just dropping the ball he is making an ostentatious display that the ball can be taken by the woman, and here we can find a situation similar to the story quoted by Lacan: "Why do you tell me that you are going to X in order to have me believe you are going to Y whereas you are indeed going to X?" (Lacan 1977: 173). Or in this case, why does the dog pretend that he is not going to take the ball in order to make the woman believe that she can take it if at the last moment he will run away with the ball? The dog seems to be pretending to pretend, something that under Dennett's behaviourist explanation is not possible. To this I would add the element that the dog is not doing this



in response to some basic survival instinct but just for fun, something that would lead to a well-deserved analysis on its own.

For Mitchell and Thompson, this kind of gameplay is evidence that both “dogs and people recognise the directionality of each other’s projects and actions; if they did not, they would not be able to predict each other’s actions” (Mitchell, Thompson 1986: 202). How much of this behaviour can be claimed to be based on an actual intention to manipulate each other’s mental states, particularly in the case of the dog, is a question that the authors leave open until further evidence is found.

What I propose is that there should be a fundamental qualitative difference between the kind of ‘ritual’ behaviour that can be observed in experiments like Skinner’s (1992) ‘Superstition’ experiment with pigeons, where an operant conditioning is produced in hungry animals when food is delivered at regular intervals, and the kind of behaviour described in Mitchell and Thompson’s examples of games between humans and dogs.

Dennett’s position is that even if the dog’s actions look very much like true second-order interacting, meaning that they have “beliefs and desires about beliefs and desires” (Dennett 2008: 121), and if we assume that to the dog his master is just a machine activated by different actions, something very similar as the way the pigeon sees the automatic food dispenser, then “we will have just as good a predictive ascription, more modest but still, of course, intentional” (Dennett 1978: 274). This view contradicts Mitchell’s affirmation that the deceptive actions in the described games between humans and dogs would not be possible unless dogs and people view each other as agents with intentions and not just as machines that react in a fixed predictable way. This also leads to new level related to the issue of social cooperation and social manipulation.

Social cooperation and manipulation in human and non-human animals

The emergence of social behaviours in animal groups is one of the most intriguing evolutionary adaptations, this could include schools of fish that move in patterns with the purpose to disorient predators, insect colonies with clearly established functions for different members, and hierarchical packs of mammals with different strategies to avoid predators or, conversely, to catch prey.

In the case of large fish schools or a flock of birds, the level of communication and understanding between members of the group appears to be simple, but from simple rules of behaviour impressive group patterns could emerge. In respect to insect colonies, as pointed out by Griffin, there is, as in the case of honeybees “a great deal of communication among the members of a hive” (Griffin 1981: 78) who are extremely interdependent and have developed a complex communication system that allows the colony to perform cooperative activities such as looking for food, selecting a new cavity

to migrate to, and regulate the sex and growth of developing larvae. The communication systems used by social insects meet with many of the design features formulated by Hockett and Altman (1968) and Thorpe (1974) including semanticity, arbitrariness, discreteness, displacement, and productivity.

In social mammals, the complexity of communication systems reaches a whole new level, as emerging cooperative interrelations require a continued balance between individual and collective goals.

For Michael Tomasello (2016: 9) a complex social life is based on achieving a balance between cooperation and competition. In animal societies this balance can be represented by two axes (figure 1), “a horizontal axis of cooperation based in individuals’ propensities (high or low) for affiliating with (or even collaborating with or helping) others of their kind, and a vertical axis of competition based in individuals’ power and dominance (high or low) in contesting resources.” (ibid, 9)

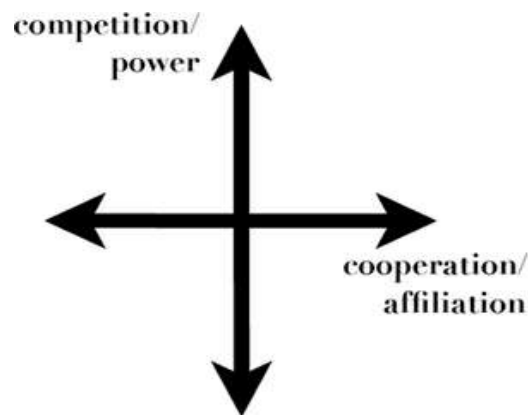


Figure 1. The two dimensions of social life for complex organisms (Tomasello 2016: 9)

This kind of balance can be observed in social groups of chimpanzees and bonobos. Although they are built for competition, they can develop cooperative activities such as foraging for food or defending against attacks from other groups. Yet they still compete for food and even fight for access to females (ibid, 21). In these circumstances, individual chimpanzees and bonobos perceive others as intentional, decision-making agents with whom they must compete (ibid, 22). This leads to different types of deceptive behaviours that could involve communicative gestures used as displays of strength, gratitude, submission, etc., even incorporating objects as part of their communicative efforts as in the case observed by Goodall of the use of kerosene cans by a chimpanzee to generate additional noise with the intention to enhance his dominance display (Griffin 1981: 76).

Cooperative behaviour in animals opens the door to another kind of interaction: social manipulation. The research on this topic, with experimental studies on rhesus monkeys and baboons by Delgado (1963) and Beck (1973) is still inconclusive, but there are observed cases where a chimpanzee can use social skills and some deceiving skills



such as exaggerated displays of pain to gain the support of other members of the group to punish an opponent (de Waal, van Hooff 1981). More recent research has revealed that some primates can develop deceptive tactics when using other species members to look for concealed food, as in the experiment with mangabeys' monkeys by Coussi-Korbel (1994) and the experiment to examine chimpanzee understanding of others' status of knowledge and ignorance in free interactions without human control (Hirata, Matsuzawa 2001).

The trickster's mind between animal instinct and human rationality

After this brief overview of the conflicting ideas about animal intentionality and the capacity or lack of understanding of false beliefs in other agents, I return to my hypothesis that some animals behave as agents with the ability to conceive and enact deceiving schemas in a way that cannot be explained as mere instinct-driven or as a result of a basic capacity for detecting other agent's behaviour patterns. Instead, I propose that this ability for intentional deceiving leads to consideration of the actual possibility that some animals are more than just thoughtless agents that lie without knowing that they are lying. That they can perceive other agents as individuals with particular beliefs and desires that can be manipulated to obtain some kind of advantage.

This points to a different kind of behaviour, in some cases improvised, where the mechanisms of opportunity are not activated as an instinctive program but are selected among a diverse and increasing repertoire and used at will to respond to specific situations and, more importantly, to the actions and responses of other animals. This ability to improvise tricks and manipulate other organisms with a previously established intention is what I have linked to the notion of creative intelligence, a fundamental component for the emergence of a trickster's mind in animals, including humans (Guzmán 2017).

The representation of the trickster as an animal in different narratives can be interpreted as Robert Pelton suggests, as a way to represent the human creative intelligence and the transforming power of imagination (Pelton 1993: 130). Something that humans have inherited or learned by watching other animals, also the animal-human duality of the trickster figure can be a representation of the process leading to the emergence of human culture from the unconscious natural world of animals.



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SECOND REFLEXIVE MODERNITY AND NON-HUMAN ANIMALS:

A few reflections on the ape language experiments

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Abstract. In this paper, we link anthropocentrism's decline, the rise of zoocentrism, and the so-called 'animal turn' in the 20th century to the reflexive modernity and general tensions characteristic of risk societies. In this essay, the ape language experiments are brought up as an example of boundary-blurring typical of risk societies. It is only at the beginning of the 20th century that we have the first scientific explorations into language acquisition in other animal species. The discovery that great apes, among other-than-human animals, could acquire certain aspects of human language has certainly shaken the scientific community, putting into question humans' uniqueness among other living beings. These experiments have effectively blurred the boundaries between humans and other-than-human animals and changed the scientific understanding of what it means to be human.

This paper proposes that the ascription of certain linguistic abilities to non-human animals, the movement advocating for recognizing 'personhood rights' for great apes, and other related phenomena that blur the boundaries between humans and other-than-human animals are all strictly connected to the nature of risk societies. Thus, they can be interpreted as a byproduct of the reflexive modernity conceptualised by Ulrich Beck.

Keywords: risk society, ape language, urban space, zoocentrism, other animals

Teine refleksiivne modernsus ja mitte-inimloomad: mõned mõtted ahvide keele eksperimentidest

Abstrakt. Antud essees seome antropotsentrismi languse, zootsentrismi tõusu ja 20. sajandi nn „loomade pöörde“ riskühiskondade refleksiivse modernsuse ja üldiste pingete tunnustega. Toome esile inimahvide keeleeksperimendid kui riskühiskondadele omaste piiride hägustamise näited. Alles 20. sajandi alguses on meil esimesed teaduslikud uuringud keele omandamise kohta teistel loomaliikidel. Avastus, et inimahvid, teiste mitte-inimloomade kõrval, võivad omandada inimkeele teatud aspekte, on teadusringkondi kindlasti raputanud, seades kahtluse alla inimeste ainulaadsuse teiste elusolendite seas. Need katsed on tõhusalt hägustanud piire inimeste ja teiste loomade vahel ning muutnud teaduslikku arusaama inimeseks olemise tähendusest.



Selles artiklis teeme ettepaneku, et teatud keeleliste võimete omistamine loomadele, liikumine, mis pooldab inimahvide „isikuna“ tunnustamist, ja muud sellega seotud nähtused, mis hägustavad piire inimeste ja muude loomade vahel, on tugevalt seotud riskiühiskondade olemusega. Seega saab neid tõlgendada kui refleksiivse modernsuse kõrvalprodukti, mille kontseptualiseeris Ulrich Beck.

Märksõnad: riskiühiskond, inimahvide keeleeksperimendid, linnaruum, zootsentrisim, mitte-inimestest loomad

Risk society, self-reflexivity, and boundaries loss

Ulrich Beck (1992) introduced the concept of risk society to describe how modern industrialised societies organise themselves around the idea of heightened ‘risks’. This emergence is marked mostly by change in political and economic conditions in the late twentieth century. According to Beck, the problems and conflicts of traditional scarcity societies and risk societies, or second reflexive modernity (Beck 2006: 61), overlap. While in scarcity societies, we are mostly concerned with “making nature useful” and “releasing mankind from traditional constraints” (Beck 1992: 19), in risk societies, we need to deal directly with the problems resulting from techno-economic development. Modernisation has become reflexive, its “own theme” (Beck 1992: 19), inasmuch as it creates itself problems that need to be addressed and solved. Modernisation, of course, characterises both paradigms. In scarcity societies, the distribution of socially produced wealth is put in the foreground as long as there is a material need dictated by scarcity itself. It is believed that problems can be solved with techno-scientific development; however, in Western welfare states, we usually face the opposite problem: overproduction. In a related manner, we must deal with the “hazardous side effects” (Beck 1992: 20) of industrialisation, such as pollution and ecological disasters.

Reflexive modernity is signalled by the transformation from industrial modernisation to the confrontation with the effects of modernisation. In other words, modernity has produced side effects or threats that traditional institutions are unable to deal with, thereby giving rise to public insecurities and anxieties within a risk society. These anxieties and insecurities are reflected differently, for example, by challenging the traditional authority of science and political power. In this context, mass media plays a fundamental role in shaping the definition of ‘risk’ (Beck 1992: 46). Simultaneously, the past loses its power upon the present while the future becomes the shaper of the present-day situation (Beck 2006: 65), meaning that risk societies tend to think about possible terrible future consequences in an almost obsessive way.

The side effects of modernisation characterises risk societies in the first place: the realisation that human activities have a broad impact. Human actions do not only affect other humans, but they have the potential of being disastrous for the whole ecosystem.



It is precisely this realisation that lies at the core of risk societies. In Beck's framework, however, other-than-human animals and other living beings do not seem to play an active role in shaping the relations and their surroundings in risk societies; in Beck's work, other-than-human animals are severely underrepresented; they are mostly victims of human actions. On the one hand, other-than-human animals need to be protected from human destructive activity, and on the other hand, they also may pose health and security risks, for instance, in the case of pests and hazardous animals. As such, they need to be controlled. In their ambivalent position, however, non-human animals remain mostly silent in Beck's work.

On the position of animals in risk societies

Franklin (1999: 175) has argued that modern societies are characterised by a decline of anthropocentrism and an emergence of zoocentrism, the latter bringing with itself implications regarding the semiotic agency of animals (Uexküll 1992) and recognition of 'higher' animals as moral subjects (Hoffmeyer 1993: 172; 1996: 139). Close attention to animals is far from new and can be traced back to Aristotle (1965); however, in the last decades, scholars have understood the role of animals in the "past and present" (Ritvo 2007: 119) and adopted a new perspective that highlights the role of the interactions and mutual influences of humans and other-than-human animals. In this context, it is not a surprise that many speak of an 'animal turn' in science (Salzani 2017; Andersson Cederholm et al. 2014; Weil 2010).

The various problems linked to modernisation are also strictly connected to a more general and wider understanding that human actions affect other living beings. The last few decades are characterised by the rise of animal rights movements (Rollin 2011), ecological concerns such as climate change, and an increase of those questions regarding animals' minds and consciousness and ethical treatment of other living beings (Singer, Cavalieri 1993). Such changes can be interpreted as a response to the growing anxieties characterising risk societies and a by-product of second reflexive societies. Even urban spaces, once the human place *par excellence*, have been stripped away from humans; the recognition of the hybrid nature of cities (Blair 1996; Mäekivi 2016) puts into questions such places as uniquely human spaces, spring-boarding different strategies born to ensure peaceful coexistence of different species. Sharing our daily activities with non-human animals has an impact on the material, and political dimensions of society, since animals have contributed to shaping "the histories, moralities, political subjectivities and places we take as natural and/or devised through human ingenuity alone" (Hobson 2007: 257). The consequences of this paradigm shift are multiple. Risk societies are characterised by a decreased distinction between nature and culture (Beck 2000: 221), although some scholars have argued that there exists no univocal definition of such boundaries in modernist discourse (Tovay 2003: 206). Previously mentioned tendencies, such as animal rights movements and ecological concerns, have been here linked to the



self-reflexive nature of risk societies as described by Beck. Taking a step forward, we propose that the ape language experiments represent an example of boundary loss in contemporary scientific discourse, simultaneously resulting from the reflexive modernity described by Beck.

Ape language experiments and blurred boundaries

Linguistic abilities are conceived as a distinctive factor, the hallmark of humanity. Human language remains for many the marker that separates humans and their higher thinking abilities from other animals, whose cognition is understood as pre-linguistic. Language acquisition has been linked to specific mental structures only present in the human brain (Chomsky 2000). Based on such premises, the ape language experiments have been accused of relying on false scientific premises or being compromised by fallacious interpretations, because language is viewed as qualitatively distant from other animal communication systems (Trask 1995: 19; Sebeok, Danesi 2000: 19; Lenneberg 1980), such experiments have been dismissed.

Following the distinction in the Tartu-Moscow school between primary modelling systems, used to refer to language, and secondary modelling systems, which instead denotes higher-level cultural systems built upon language (Lotman 1977), Thomas Sebeok conceptualised *umwelt*¹ as the primary system, with language and culture as secondary and tertiary modelling systems, respectively. Human language is portrayed as one of the fundamental aspects of diversification in humans, a view also shared by Floyd Merrell (2001: 244). However, the ape language experiments have put the notion of language, as a specific human device, up for discussion. These experiments have shown that other-than-human animals are able to acquire certain characteristics of human language, heavily blurring the boundaries between humans and other animals. This paper does not propose providing an exhaustive analysis of such experiments, which can be found elsewhere (e.g. Cerrone 2018; Martinelli 2010). In this essay, we are merely proposing the idea that testing linguistic abilities in other species from the one hand is a result of the reflexive nature of risk societies; on the other hand, it feeds back to the anxieties and questions arising from the awareness that human actions have repercussions on other beings.

Apart from the well-known criticism against such experiments (Sebeok 1980), some concern has been brought up about the imminent risk that heavily socialised and language-trained animals may lose their 'species identity'. Examples of this sort come from many experiments dealing with apes' sign language acquisition. Nim Chimpsky, Washoe, and Viki behaved as if they belonged to the human species (Fouts 1993: 28–41; Linden 1974: 50). Washoe included pictures of herself among those of other humans in experimental settings and refused to interact with other chimpanzees when she



encountered them for the first time. Concerns regarding animals' loss of species identity due to language training and heavy socialisation can be linked to that deeper realisation that human actions have wide-ranging effects that we have referenced in the previous section.

The blurring of boundaries between what is human and what is not, is simultaneously, an inevitable side-effect of risk societies. In second reflexive modern societies, "there is no wilderness, or perhaps no nature since everything everywhere is subject to human control" (Franklin 1999: 59). This loss of boundary, or more precisely, the effects of human activities on other living beings, has become a repetitive theme in contemporary societies; we only need to think about public concern for genetically modified organisms and animal hybridisation (Macnaghten 2004). The underlying problem seems to lead to the constant anxiety linked to the loss of our sense of humanity and the health risks connected with DNA manipulation. As for the ape language experiments, we believe that such experiments are linked to the reflexive modernisation that characterises risk societies. As a matter of fact, it is only thanks to the fulfilment of material and immediate needs that humans can start questioning their position on this planet and seek similarities, and differences, with other living creatures. Similar experiments would be unthinkable in scarcity societies. At the same time, however, by pushing further the limits of what should be humanly possible and by questioning the uniqueness of humans on Earth, these experiments also represent an invisible risk for the stability of human identity and that of other-than-human animals. Thus, the harsh criticism towards such experiments can also be interpreted as a response to the anxiety originating from boundary loss.

Conclusions

This paper presented the ape language experiments as strictly linked to the modern reflexivity that characterises risk society. We have focused on an often-overlooked aspect of Beck's risk society theorisation, namely the loss of a clear boundary between nature and culture and animals' role in risk societies. The loss of boundary is, simultaneously, characteristic of risk societies and a source of anxiety typical of second reflexive modernity. This loss has been exemplified here by the ape language experiments that have gained great popularity in the second half of the 20th century. With these experiments, researchers have questioned the special place given to humans within the animal kingdom and have shown that certain elements considered exclusive to human linguistic abilities are acquirable by other-than-human animals. We have furthermore sketched the role of animals in contemporary discourse and highlighted how this has significantly changed in the last decades. Future research should focus instead on how the anxiety linked to the perceived boundary loss between humans and other animals,



culture and nature, is mediated in media. After all, it is precisely in risk societies where mass media holds power over knowledge, as wisely noted by Beck.

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Notes

- 1 We follow here the definition of 'umwelt' as "the world around an animal, conceived by it as a perceiving and operating subject, i.e., the subjective world as contrasted with the environment" (Sebeok, Danesi 1994: 1146).





RITUALISEERUNUD KÄITUMINE JA LOOVUS loomade kommunikatsioonis

Siiri Tarrikas

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Abstrakt. Artiklis vaadeldakse kuidas ritualiseeritud käitumine ja loovus on loomade tähendusloomes omavahel seotud ning kuidas loovus saab paljudel juhtudel paremini märgatavaks läbi võrdluse fikseeritud käitumismustritega. Lisaks antakse ülevaade sellest, kuidas loovust loomadel on varem teaduskirjanduses käsitletud. Arutletakse ka selle üle, miks uurijad on seni loomade loovatele kommunikatsioonimomentidele vähe tähelepanu pööranud ja miks sellised momendid on tänapäeva kiiresti muutuvates keskkonnatingimustes olulised. Lisaks näidatakse, kuidas loovus sünnib osalejate koostööna tagasisidestatud kommunikatsiooniolukorras, mida mõjutab ümbritsev keskkond. Tõstatatakse küsimus, kui palju on loomadel võimalik rituaali sisu muuta, ilma et muutuks rituaali terviktähendus osalejate jaoks.

Märksõnad: loomade loovus, ritualiseeritud käitumine, fikseeritud käitumismustrid, zoosemiootika

Ritualised behavior and creativity in animal communication

Abstract. The article discusses how ritualised behavior and creativity are interrelated in the meaning making of animals, and how creativity, in many cases, becomes more noticeable through comparison with fixed action patterns. After giving an overview of how creativity in animals has been addressed in the scientific literature, the article also discusses why creative moments of animal communication have received little attention from researchers and the importance of such moments in today's rapidly changing environmental conditions. It is shown that creativity in animal communication needs collaboration between participants and it is also influenced by the surrounding environment. The question is raised in the article how much the content of a ritual can be changed without changing the overall meaning of the ritual to the participants.

Keywords: animal creativity, ritualised behaviour, fixed action patterns, zoosemiotics

Loomade käitumisspektris on esindatud nii ritualiseeritus, stereotüüpsed käitumisviisid, harjumused kui ka loovus. Lisaks sisseharjunud käitumisviisidele on paljud loomad võimelised uutele olukordadele väga paindlikult ja loovaalt reageerima. Kui tuttavas



keskkonnas tegutsemine võib muutuda harjumuslikuks ning automaatsekski, siis tavatud olukorrad nõuavad tähelepanelikkust ja meelte keskendatust toimuvale. Käitumisspektri otstes paiknevaid ritualiseeritud ja loovad käitumisviisid, mis on vastandlikud ning moodustavad binaarse opositsiooni. Samas on need mõlemad loomalt semiootilist aktiivust nõudvad tegevused. Sobiva käitumisviisi leidmine on semiootiline protsess, milles mängivad rolli nii looma varasemad kogemused kui ka tema kognitiivsed omadused ja kohanemisvõime uudsete olukordadega. Traditsioonilised käitumismustrid on kasulikud stabiilses keskkonnas, tänapäevases kiiresti muutuv keskkonnas on loomadel tarvis lisada tavapärastele käitumisviisidele ka teatud semiootiline paindlikkus ja loovam lähenemine.

Tähendusloome ja märgid kommunikatsioonis

Antud artiklis vaadeldakse semioosi Charles Morrise (1985) järgi kui protsessi, milles mingi objekt saab organismile märgiks ja omandab tähenduse. Semioos on organismide jaoks seotud keskkonnaga või konkreetse hetkega, nagu näiteks kommunikatsiooniolukord. Loomade omailmad on Uexkülli (1992) järgi täis organismidele olulisi märke ja tähenduslikke märgisuhteid, mis on ka nendevahelise kommunikatsiooni aluseks: „Iga tegevus, mis koosneb tajumisest ja sellele vastamisest, kannab oma tähenduse tähenduseta objektile ja seeläbi muudab selle subjektiga seotud tähendusekandjaks“ (Uexküll 1982: 31). Protsess, milles märk kodeeritakse ja kantakse saatjalt vastuvõtjale üle, on ainult üheks väikeseks osaks kommunikatsiooni käigus toimuvast tähendusloomest. Juba enne tegelikku kommunikatsiooniolukorda mõjutab saadetava teate moodustajat ümbritsev keskkond, mis võib muuta järgneva kommunikatsiooni käiku ja tähendusloomet. Samuti on oluline osa teate vastuvõtja antaval tagasisidel. Kommunikatsioonimomendid on lühikesed ja nende käigus toimuv sageli ennustamatu, ootamatu ja osalejate suhteid muutev. Loovus sünnib osalejate koostööna tagasisidestatud kommunikatsiooniolukorras, mida mõjutab ümbritsev keskkond.

Sebeok on näidanud, et „semioos on kõigi maapealsete eluvormide hädavajalik tunnus. Tegelikult eristab elusolendeid mitteelavast [...] võime omada, paljundada ja väljendada sõnumeid ning eristada nende tähendusi, rohkem kui ükski muu tunnus, millele tavaliselt viidatakse.“ (Sebeok 1991: 22). Organismide kehalisus ning tajumodaalsused teevad semioosi võimalikuks. Ainult elusorganismid valivad käitumisviise ja reageeringuid ning vastavad paindlikult muutuva maailma pakutavatele üllatustele. Uute olukordade ja elutingimustega kohanemine eeldab lisaks veel head kognitsioonivõimet. Nagu on kirjutanud Hoffmeyer, on organismidel isegi kõige lihtsamatel tasemetel võime lugeda enda maailma ja teha selles endale sobivaid valikuid (Hoffmeyer 2014). Nii võib öelda, et organismidel on eeldused loovaks käitumiseks olemas juba küllaltki varajastel evolutsiooniastmetel. Kõrgemate loomade puhul on loov käitumine juba üsnagi tavaline.



lan Ground on öelnud, et „peame liikuma edasi ajastust, kus intellektuaalsuse haripunktiks oli uskumus, et kuigi arvutid võivad mõelda, siis koerad ei või“ (Ground 2015: 333).

Tekib küsimus kuidas välise maailma märgid saavad organismile tähenduslikeks nii, et organism saab toimuvatele sündmustele tegusalt reageerida? Semioosi aluseks on tajumisvõime olemasolu, mida eesti keeles tähistatakse sõnaga 'meelemärkus'. Meelemärkusetu organism ei ole võimeline midagi märkama – seda kasutatakse ka teadvuseta oleku märkimiseks. Samas saame öelda, et kui loom midagi meelte abil märkab, siis on tal meelemärkus. Sõna 'meel' tähendab erinevaid tajuelundeid nagu nägemis-, kuulmis-, haistmis-, maitsmis- ja kompimiselundid. Tajumist seostatakse seega teadvusel olemisega. Sõna 'märkama' on eesti keeles sama tüvega kui 'märk', mis muudab semiootiliste protsesside mõistmise intuiitiivselt lihtsamaks. Seega võiksimegi öelda, et „meelemärkus“ on seisund, mille kaudu organismidel on võimalik maailma märgilisena tajuda.

Peirce'i arusaamine märgist, kui millestki, mis tähistab kellelegi jaoks midagi, pani ta pidama teadvust ja kehafunktsioone loovateks semioosi vormideks (Colapietro 1988; Parmentier 1994). Millelegi tähenduse andmine võib ka loomade puhul alguse saada omaenese kehas toimuvate protsesside tunnetamisest. Kui loomal on kõht tühi, siis otsib ta märke toidust ning võib jõuda loovate tulemusteni toiduobjektide suhtes ehk pidada toiduks midagi, mida ta varem söödavaks ei tunnistanud.

Keskkonnas esineb stabiilsete olude kõrval tihti juhuslikke muutusi. Samal ajal kui harjumuslik käitumine aitab stabiilsetes oludes energiat säästa ja loomadel harjumuspärasel territooriumil enesekindlalt tegutseda, siis juhus toob sisse uudsuse ja võimaluse muutusteks. Wheeler on samuti pidanud oluliseks juhususe osa uute märkide tekkel. Ta on öelnud, et „juhus [...] on harjumuste häirija, mille läbi miski, millel on potentsiaal saada märgiks [...] või tähenduse kandjaks, tegelikult muutubki mingi elusolendi jaoks märgiks“ (Wheeler 2014: 382)

Keskkonna tähenduslikkus loomale sõltub tema keha anatoomiast ja meeleeelundite tundlikkusest. Nagu postuleerib Uexküll, on iga organism vastastikmõjus oma keskkonnaga ning valib välismaailmast stiimuleid, millele ta reageerib ning mis omandavad funktsiooniringi kaudu tema omailmas tähendusi (Uexküll 1926; 1982). Iga loom paneb endale kokku oma tähendusliku maailma, milles ta toimib. Tsiteerides Sebeokki: „Kõik elusolendid, ja ainult elusolendid, omavad liigispetsiifilist mudelit (*umwelt*) oma universumist“ (Sebeok 2000: 89). Ka Hoffmeyer on öelnud, et „loomad loovad tingimusteta ja terve oma eluea jooksul sisemisi mudeleid välise reaalsuse kohta, millega neil on vaja toime tulla“ (Hoffmeyer 2014: 257). Keskkonnas looma poolt ära tuntud märgid moodustavad kujutisemustri – mudeli, mille läbi antud keskkond loomale tähenduslikult tuttav on. Kui keskkonnas vastav muster ära tuntakse, aktiveerub antud koha tähendus organismi jaoks. Mustri äratundmine iseenesest ei pruugi kutsuda esile kohest vastureaktsiooni. Biheivioristlik maailmapilt postuleerib, et kui mingil olukorral on organismile tähendus, siis järgneb sellele kindlasti loomapoolne tegevus ehk siis aktiveeritakse organismile omane käitumisjärjestus. Selle seisukohaga on raske nõustuda, sest tähendus muutub nii vaid fikseeritud käitumist tähistavaks terminiks ja sellisel juhul



saaksid organismid ellu jääda ainult muutumatus keskkonnas. Mõnedel juhtudel see tõesti nii ka on ja liigid surevad keskkonna kiire muutmise tõttu välja, aga enamasti mitte. Eriti oluliseks muutub loov käitumine radikaalsete ja kiirete keskkonnamuutuste korral kui on tarvis teha käitumises suuri muutusi. Ainult geneetiline varieeruvus ei suudaks tagada liigi säilimist, kui indiviididel puuduks võime uutes olukordades loovalt käituda ja kohaneda.

On loomi, kellel on võime plastiliselt muutuvatele keskkonningimustele reageerida ja isegi asustada uusi ökoloogilisi nišše. Näiteks linna elama asunud rebased on muutnud oma eluviisi ja toitumisharjumusi ning suurepäraselt kohanenud neile täiesti uues inimtekkelises keskkonnas. Kuigi rebased ei ela tavaliselt seltsingutes koos, siis linnas võivad nad mitmekesi ühes urus elada. Samuti ei karda nad inimesi ning paljud neist ei pea kasse enam toiduks, vaid on nendega üsna sõbralikes suhetes.

Organismil ei ole seega tarvis iga kord reageerida, kui ta omailmas mõne märgi ära tunneb. Pigem vajab reageerimist olukord, kui tuttav keskkonnamuster mingil põhjusel muutub. Kui metsvint vaatab oma pesaümbrust, siis kindlasti on seal märke, mille ta ära tunneb – tuttav oks, kus ta tavaliselt istub, pesa, teiste lindude taustahääled tema ümber –, aga need märgid ei vaja kohest reageerimist. Reageerimist vajab tuttava keskkonnamustri muutus. Äkiline vaikus või teiste lindude alarmhüüud võivad tähendada kiskja saabumist. Selline olukord vajab reageerimist. Sellistele märkidele tuleb vastata omapoolse aktiivsusega. Kui hirv näeb tuttavat triibulist rohukõrte mustrit, siis reageerib ta juhul, kui ta selles mustris märkab muutust või korrapäratust, vaatab tähelepanelikumalt ja näebki, et tegu on tiigriga.

Galaty (1989) kirjeldab, et Aafrikas on veiste jaoks märgiks see, kas inimesed on riietatud lääne rõivastesse või traditsioonilistesse Aafrika rõivastesse ning suhtuvad vastavalt sellele inimestesse erinevalt. Enamusel loomad on samuti mitmeid fikseeritud käitumise mustreid, mille muutus võib osutada nende omailmas märgiks. Mõnikord on märgiks ka millegi puudumine. Näiteks kui kommunikatsioonipartner ei vasta liigile omasele ritualiseeritud käitumisele, siis ilmselt on tegu 'võõraga'.

Ritualiseeritud käitumine

Etoloogid on rituaale defineerinud kui geneetiliselt määratud ja sotsiaalselt omandatud arbitraarsete kommunikatiivsete käitumisviiside kombinatsioone, mis kontrollivad või reguleerivad sotsiaalseid situatsioone. Loomade ritualiseeritud käitumised võivad koosneda paljudest alaosadest ja olla erakordselt varieeruvad ja rikkalikud nagu Austraalia lüürasabade või paradisiilindude pulmarituaalid, kuid need võivad olla ka väga lihtsad nagu jalgadega trummeldamine teatud signaalide edastamiseks mõnede putukate vastsetel.

Tinbergen (1952, 1959) on kirjeldanud kuidas toimub ritualiseerumine. Käitumise ritualiseerumise korral saab igapäevastest tegevustest, nagu sulgede puhastamine, lendu



tõusmise alustamine, okste murdmine, täiesti uus rõhutatud käitumisjärjestus, mida kasutatakse mingi suhtumise või kavatsuse edastamiseks. Näiteks kajakatel on muutunud rohu kitkumise liigutused (mida nad muidu kasutavad pesaehitamisel) rituaalis agressiooni väljenduseks (Dissanayake 2006). Kõige detailsema definitsiooni on andnud Julian Huxley (1966: 250) öeldes, et “ritualiseeritud käitumine on defineeritud etoloogiliselt kui kohastumuslik emotsionaalselt motiveeritud käitumise formaliseerumine või kanaliseerumine, loodusliku valiku käigus, et (a) parandada ja muuta selgemaks signaalide edasiandmist nii liigisiselt kui ka liikide vaheliselt; (b) olla efektiivsemaks stimulaatoriks ehk siis teise indiviidi käitumismustrite vabastajaks; (c) vähendada liigisisest ohtu; ja (d) olla suguliseks ja sotsiaalseks seotuse loomise mehhanismiks”. Huxley osutab, et sellised käitumismustrid muudavad kommunikatsiooni selgemaks, mis vähendab liigisiseste võitluste vajadust ja aitab kergemini sotsiaalseid sidemeid luua. Näiteks isas- ja emaslinnu kohtumine on sotsiaalne situatsioon, mida paljudel juhtudel reguleerivad rituaalid. Need võivad väljenduda tantsuna (lüürasabad, sookured), lauluna (erinevatel laululindudel) või lihtsalt rituaalsete pooside kaudu nagu mitmete haneliste puhul. Ritualiseerunud käitumine aitab ära tunda nii liigikaaslast üldisemalt kui ka konkreetseid indiviide liigi sees. Meseth (1975) näitab kui olulised on tantsud äratundmisprotsessina ja väidab, et tantsimise kaudu õpitakse tundma individuaalseid iseärasusi ning tugevdatakse paari sidet.

Desmond Morris leidis esimesena, et ritualiseeritud liigutuste amplituud ja intensiivsus on rangelt reguleeritud. Võrreldes tavakäitumisega on sellised käitumised lihtsustatud, formaliseerunud, tavaliselt ka rütmiliselt korduvad ja need on intensiivsemad ja rõhutatamad (Morris 1957). Rituaalsed käitumised sarnanevad harjumustega, kuna need on samuti korduvad ja neid vallandavad kindlad märgid. Ritualiseeritud käitumisi võiks vaadelda eelnevate mõtete valguses kui spetsiifilisi käitumismudeleid või kommunikatsioonikoodide süsteeme, mis on arenenud välja igapäevastest käitumismustritest semiootiliste valikute kaudu. Thomas Sebeok on postuleerinud, et „semioos on liigi võime luua ja mõista kindlat tüüpi mudeleid, mida on tarvis omal viisil tajusisendi töötlemiseks ja kodeerimiseks“ (Sebeok 2001: 156).

Rituaalsele käitumisjadale tähenduste omistamine toimub kommunikatsiooni-partnerite suhtluse ja tagasiside mehhanismide kaudu. Uue rituaali välja arenemisel tekib läbi osapoolte loova koostöö uus tähendus, mida kasutatakse kas eraldi või püütakse olemasolevate mustritega sobitada. Nagu Lorenz on veenvalt ristpartide näitel demonstreerinud, ehitatakse rituaal üles varem olemasolevatest igapäevastest käitumisjadadest või žestidest (Lorenz 1966: 276). Olulise osa moodustavad nendest indeksiaalsed ehk millelegi viitavad või osutavad märgid. Mõnikord osutatakse otseselt mõnele teisele linnule (näiteks emane näitab isasele teist, liiga lähedale tulnud isaslindu) aga enamasti viidatakse kindlatele tegevustele. Võiks isegi öelda, et märgid, mis osutavad tegevustele nagu pesa ehitamine või poegade toitmine, aitavad rituaali sees luua omamoodi narratiivi, mille tähendust linnud omavahel jagavad. Mõnikord on tegu ka jagatud objektiga lindude omaloomingel. Näiteks toimuvad mõne linnuliigi tervitusrituaalid alati pesa juures, mis saab sellisel juhul ühiseks jagatud objektiks.



Lotman on samuti avaldanud arvamust, et loomade käitumine on suurelt osalt rituaalne: „Looma võib võrrelda tantsijaga, kes on võimeline tantsusamme täiustama, kuid ei suuda järsku ja ootamatult vahetada tantsu ennast välja millegi muu vastu. Looma käitumine on rituaalne; inimese käitumine püüab leiutada midagi uut, mis oleks tema vastastele ennustamatu. Inimese vaatepunktist on loomad rumalad; looma vaatenurgast on inimesed ebaausad (ei allu reeglitele).“ (Lotman 2001: 41). Lotmaniga võib antud juhul osaliselt mitte nõustuda. Kuigi loomade käitumises leidub palju rituaale, siis toimivad need enamasti niikaua, kui neid on tarvis kommunikatsiooni lihtsustamiseks. Ka inimesed tervitavad ja naeratavad ning suruvad kätt, mis on üheks lihtsaks igapäevaseks rituaaliks, mida kasutatakse kohtumise pingete mahavõtmiseks ja üksteise kavatsustest aimu saamiseks, kuid see ei tähenda, et seda rituaali kasutatakse eranditult alati. Rituaalide kokkuleppelise iseloomu tõttu on neid raske muuta. Ka terve rituaal tervikuna võib olla üheks sümboolseks märgiks ning sellisel juhul ei saa selle ette kandmist pooleli jätta ilma, et muutuks selle tähendus. Samas koosneb näiteks isaste lüürasabade rituaalne etendus emastele paljude teiste lindude häälte imiteeringutest ning tantsusammudest, mille iga isaslind ise kokku seab. Rituaali vorm jääb liigiomaseks, aga selle sisu on igal lüürasabal erinev.

Mõnikord valivad loomad isegi niinimetatud instinktiivse käitumise asemel mingil põhjusel ootamatult uue käitumismustri. Näiteks võin tuua oma kogemuse siiliga, kes tavapärase kerra tõmbumise ja turtsumise asemel mängis koeraga kohtudes surnut. Siil sirutas oma pea ja käpad pikalt okaskasuka alt välja ja kangestus. Kui segadusse sattunud koer eemaldus, siis tõusis siil üles ja jätkas oma teed.

Seega võime öelda, et loomadel on välja kujunenud erinevaid käitumismustreid, mis aitavad ellu jääda kindlas keskkonnas ning mis võivad olla nii päritavad kui ka õpitavad teistelt liigikaaslastelt. Kalevi Kull on öelnud: „Kui vastus muutub harjumuseks [...] kutsutakse seda õppimiseks“ (Kull 2014: 52). Nendest mustritest moodustub liigi ja ka indiviidi kultuurimälu. Seni kuni mustrid ja reaktsioonid omavahel kokku sobivad elab organism endale tähendusrikkas omailmas, kus kõik on talle arusaadav. Mis aga juhtub kui keskkond muutub või tuleb ette ootamatu kommunikatsiooni olukord, kui juhus toob mängu tundmatud faktorid?

Semiootiline paindlikkus ja loov käitumine

Lisaks ritualiseerunud käitumisele on loomade puhul tuntud ka uuendusmeelne käitumine, ilma milleta oleks liikidel raske uutes oludes kohaneda. Simonton (2003) näitab, et loovus peab eelnema innovatsioonile. Iga uus käitumisviis peab olema konteksti sobiv ja funktsionaalne, ainult siis saab seda pidada loovaks, vastasel korral on uut moodi käitumine pigem rumal ja sihitu. Loomade loova käitumise tulemustena on mitmed autorid kirjeldanud uute tööriistade (Roelof 2010), oskuste (Boswall 1977) või



kohastumuste teket ning erinevate probleemide lahendamist nagu lukkude ja pudelikorkide avamine (Lefebvre 1995).

Näiteks viskavad haigrud vette leiba, et meelitada kohale kalu, keda nad püüda tahavad (Boswall 1977).

Vähem on uuritud uuendusmeelsust kommunikatsioonis või sotsiaalses käitumises. Üheks põhjuseks on see, et loovusel puuduvad kindlad käegakatsutavad mõõdikud. Teiseks raskuseks on loovate momentide lühidus ja ootamatu esilekerkimine. Loovuse aluseks on eelnevad kogemused ja kognitiivsed võimed. Üheks teooriaks ongi, et loov saab olla ainult selles ulatuses nagu eelnevad kogemused ja õppimisvõime seda lubavad (Bailey jt 2007). Loomade loovuse mudeli on pakkunud välja Kaufman jt (2011). Selle tasemetena on ta välja toonud hierarhiliselt uue äratundmise, uudsuse otsimise (neofiilia) ja riskide võtmise, õppimise jälgmise teel ja lõpuks innovatsiooni (Kaufman jt 2011). Kaufmani mudel ei sobi aga loovate kommunikatsioonimomentide kirjeldamiseks, mis kestavad vaid hetke ja mis ei vii innovatsioonini. Selliste momentide uurimine on oluline näitamaks erinevate kommunikatsiooniolukordade rikkust ja eriilmelisust ning seda, kuidas loovad hetked mõnikord ka loomadevahelisi suhteid ümber kujundavad.

Boden (2004) eristab ajaloolist loovust (kus tekib uudsus terve liigi jaoks) ja psühholoogilist loovust (kus uudsus tekib ainult indiviidi jaoks). Esimene on harvaesinev, kuid teine laialt levinud. Näiteks esimene lind, kes avab piimapudeli korgi (Lefebvre 1995) on innovaator uues olukorras ja seda uuendust saab kutsuda psühholoogiliseks loovuseks, kui see käitumine aga levib lindude hulgas laiemalt, siis saab sellest ajalooline loovus, kuna see muudab käitumismustrit juba terve populatsiooni jaoks.

Viimasel ajal on üha enam uuritud ka liigisiseseid erinevusi indiviidide vahel ehk siis individuaalseid erinevusi, mis väljenduvad nii inimeste kui ka teiste loomade psühholoogilistes seisundites, reageerimises stressitingimustele, kognitiivsetes oskustes, käitumismustrites ja sotsiaalsetes suhetes. Näiteks on näidatud, et mõned šimpansid lahendavad ülesandeid kiiremini kui liigikaaslased, kellel on samasugused kogemused (Vonk, Povinelli 2011). Igapäevaselt näeme kui erinevalt käituvad ja õpivad isegi sama tõugu koerad ja kui erinevad loomuse ja temperamendiga võivad olla samast pesakonnast pärit kassid.

Loovuse väljendumine on lihtsam just tänu loomadel esinevatele väljakujunenud käitumismustritele ja harjumustele. See võimaldab kergemini märgata muutusi nii liigisiseste kui liikidevaheliste kommunikatsioonipartnerite käitumises, tunda kergemini ära veidrat ja tavapärasest erinevat käitumist, mis nõuab uut moodi vastust. Loovuse aluseks on see, et erinevus elementide vahel oleks suhestatud sarnasusega, näiteks sarnaste kogemustega ehk siis tähendustega minevikust. Nagu on välja toonud Wilf (2014) nõuab loovus kahekordset semiootilist süsteemi, mis võib avalduda siin mälumustri ja uue muutuva mustri võrdlusena, milles mälus olev muster on uute mustrite võrdlusmudeliks. Kahekordne informatsiooni töötlemine annab tulemuseks kahte tüüpi mustrite kombinatsiooni: ühest küljest stabiilsed mustrid ja teisest küljest pidevalt muutuv olukord. Stabiilseid mustreid või märke kasutatakse äratundmiseks ja tähenduse andmiseks uutest olukordadest võrsuvatele mustritele. (Wilf 2014)



Loova kommunikatsioonilise uuenduse peab suhtluspartner aga ka ära tundma ja kui sellest peaks välja kujunema rituaal, siis peaks see omaksvõetud saama terve populatsiooni poolt. On näidatud, et suhtlussituatsioonis tegutsevad osalejad varem olemasoleva mudeli raamides, mis lihtsustab kommunikatsiooni, seades samas osalejate väljendustele piirid. Osalejate panused võivad olla väljakujunenud mudeli jaoks sobivad või siis loovad, mis tähendab, et need võivad algatada uue reeglistiku või mudeli loomise. Selline struktureeritud konteksti loomine on pidev koostöö protsess. (Duranti, Brenneis 1986; Bauman, Briggs 1990).

Kokkuvõte

Artikli eesmärgiks oli anda ülevaade sellest, kuidas ritualiseeritud käitumine ja loovus on loomade tähendusloomes omavahel tihedalt seotud ning kuidas loovus saab paljudel juhtudel paremini märgatavaks läbi võrdluse fikseeritud käitumismustritega. Traditsioonilised fikseerunud käitumismustrid on kasulikud püsivates keskkonnatingimustes, tänapäevane kiiresti muutuv keskkond paneb loomad tihti ootamatutesse olukordadesse, mis nõuavad loovust ja kohanemisvõimet. Kuigi rituaale on nende arbitraarse iseloomu tõttu keeruline muuta, varieeruvad need aja jooksul siiski. Linnud saavad näiteks rituaali sisu päris palju loovalt muuta, ilma et esituse üldine tähendus osalejatele selle käigus kaduma läheks, mis näitab et loovus kommunikatsioonis toimub kahe osapoole koostööna. Edasist uurimist vajab see, kas rituaal saab sisaldada osalejate jaoks erinevaid alatähendusi, ilma et muutuks rituaali kogutähendus tervikuna ja kui suur variatiivsus on võimalik. Loovus avaldub loomade igapäevases kommunikatsioonis ennustamatult ning ainult lühikeste kaduvate ajamomentide jooksul, mis ometi võivad muuta loomade suhteid, või saada isegi mõnele loomale saatuslikuks. Sobivate käitumisviiside leidmine erinevates nii liigisisestes kui liikide vahelistes kommunikatsiooniolukordades nõuab loovust ning semiootilist paindlikkust, mis on muutavas keskkonnas ellujäämiseks erakordselt vajalikud omadused.

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INTERVIEW WITH TIMO MARAN
about his new book *Ecosemiotics. The
Study of Signs in Changing Ecologies*.
Cambridge, Cambridge University Press.

Interviewed by Pauline Delahaye



ECOSYSTEM OF ECOSEMIOTICS

PROF. TIMO MARAN

Illustration by Kaustubh Khare, 2020



Timo Maran is a specialist in biosemiotics and, more precisely, in ecosemiotics at the University of Tartu, Estonia. He is working on and writing about changing ecologies, their signs, their impact, and their implications for species, human or not, living in them. He agreed to tell us more about the stakes, the research, and the future of his discipline, mapping for us the ecosystem of ecosemiotics.

PD: Ecosemiotics is a relatively new research area, what is its relation to other disciplines like zoosemiotics, biosemiotics, and semiotics in general? Do you see them as ‘cousins’, ‘sisters’, ‘mother-daughter’ disciplines?

TM: There are many research frameworks inside semiotics from medical semiotics to political semiotics, from translation semiotics to musical semiotics. In my understanding, ecosemiotics fits into this broad semiotic landscape rather well. Ecosemiotics shares an interest with general semiotics, including semiosis, sign systems, codes, interpretation and communication. Ecosemiotics is naturally closer to biosemiotics and zoosemiotics as we all share Uexküll’s umwelt theory as a basic understanding. Umwelt being the idea that animals participate in the surrounding world in active but species-specific ways. What is specific to ecosemiotics, however, is that it allows for the semiotic potential of the non-living environment and brings focus on interplays and relations of semiotic processes of different complexity levels (distinguishing at least environmental, physiological, cognitive and narrative levels).

PD: Talking about focus, if you had to name just one, what would be the main interest in ecosemiotics today?

TM: This is not an easy question to answer. If I would need to choose, then it would be that ecosemiotics could provide us with suitable conceptual tools and methods for making fruitful inquiries about human-environmental relations. There has been a lack of research frameworks for studying semiosis in the environment. Only then, can we start asking the right type of questions, such as what are the specific semiotic mechanisms and processes that allow culture to keep up the dialogue with the ecosystem and why this dialogue sometimes fails. In the long run, the task of the ecosemiotics is to make natural environments meaningful again for the culture, to restore and elaborate cultural models that allow humans to perceive the environment as endowed with meaning and value.



PD: Ecosemiotics also allows to study very current concerns, and many of them are directly created by human actions; what is it like to build a discipline in which entire sections appear over time and which must be integrated into previous models?

TM: Working with ecosemiotics has been a very interesting exploration. Many relevant conceptual tools and models have been already proposed by historical authors (like Michael Polanyi's "tacit knowledge" or James J. Gibson's "affordance") or are present in adjacent paradigms (like Timothy Morton's "hybrid object" or Luisa Maffi's "biocultural diversity"). So, working with ecosemiotics requires a lot of translating and integrating between previously separate authors and traditions. At the same time, there is a distinctive core around which ecosemiotics develops. Ecosemiotics focuses on the semiotic activity in ecosystems including semiosis and communication of nonhuman species, emphasises prelinguistic and presymbolic components of human culture, scrutinises the semiotic causes of environmental problems, and makes it an endeavour to apply cultural and semiotic modelling to reconcile culture and environment.

PD: Talking about culture, and, more precisely, scientific culture – all researchers are said to be “dwarfs on the shoulders of giants”. Who do you think are the semiotics giants? Are there any unknown or underrated “giants” you would like to introduce to us?

TM: Academic genealogies are indeed a very interesting topic. There are bloodlines and peer relations even in today's very dynamic and nomadic academic world. And then there are subtle affinities of thinking that encourage you to read and cite certain authors and not the others. The semioticians who have influenced me most are Jesper Hoffmeyer, Almo Farina, Kalevi Kull, Juri Lotman, Thomas A. Sebeok, Charles S. Peirce, Jakob von Uexküll, Wendy Wheeler, just to name a few. It is very difficult to close the list. There are many relevant people whose work situates somewhere at the borders of semiotics: Gregory Bateson, Michael Polanyi, James J. Gibson, and Tim Ingold. In recent years, I have also read quite a lot of the French tradition of philosophy of science – works of Michel Serres, Bruno Latour and Michel Callon. I think this group is very relevant to semiotics and to ecosemiotics especially.

PD: Indeed, this group is one of your very personal and recent “discovery” in the field. In general, what remains to be discovered, what are the avenues you see in the future of semiotics in general, and ecosemiotics in particular?

TM: Semiotics is a very powerful conceptual and analytical device for making sense of the systems and processes in culture, nature, and society. Perceiving this potency, I am a patriot of semiotics and very enthusiastic about its future. At the same time, we are in a strange situation. If to look to the recent developments at an object level – multimedia



and AI, intercultural communication, big data, hybrid environments of nature and technologies – then the world is becoming richer in signs and mediation than probably ever before. We have not witnessed, however, a corresponding expansion in semiotic theory. At the theoretical level, semiotics is still mostly engaged in reflecting upon and elaborating the structuralist and poststructuralist views from 1960s to 1980s. I think what we are currently waiting for, is a theoretical rejuvenation – the next big step in semiotics – that would adequately reflect the changes in 21st century culture and technology. I believe that this turn will come soon.

PD: Talking about rejuvenation and change in science, there has been a “reproducibility crisis”, which affects certain disciplines. Are semiotics and ecosemiotics affected by this? How do you manage that in your own work?

TM: The reproducibility crisis appears to be more a problem to natural sciences and social sciences, that is, for those disciplines that rely on quantitative methods. Semiotics uses predominantly qualitative methods (interviews, observations, content analysis, and discourse analysis) that produce unique outcomes and are therefore non-reproducible from the start. The validity of the research in qualitative methods has a different basis than reproducibility: enough data, completeness of the study, relating with earlier studies and tradition of the field, transparency of researcher’s position and intents. What we should be aware of in semiotics, however, is not to make conclusions that are unsupported or far-fetched regarding our study object. Cultural semiotician Peeter Torop, whose work I value a lot, has compared semiotic research with “dialogue” indicating that you need to “listen” to your object for really making sense of it.

PD: Let’s talk about another kind of dialogue: for the past few years, you have also been supervisor of doctoral theses, and had to deal with researchers-to-be, their questions and their inquiries. How has that changed your vision of research and the future of your discipline?

TM: In semiotics, researchers appear to be quite independent, in the sense that we mostly publish as sole authors and have individual research grants and interests. This makes supervising a two-sided learning process where both parties bring something new to the table. As a supervisor, I may have more experience on methodology or how to organise the research, but my supervisees have also educated me a lot in Augustine’s philosophy, zoological gardens, and Estonian folklore to name a few topics. In the light of the variety of these topics, one general issue that frequently arises, is how to retain and develop a semiotic framework. So, the role of supervisor has probably made me more aware about the identity of the discipline and the necessity for grounded semiotic theory and methods.



PD: In addition to developing new topics you have discovered, are there any other new subjects or young researchers that you consider “rising stars” in the discipline that you are closely engaged with? Conversely, are certain subjects considered as “dead ends”?

TM: I am quite confident about the future of biosemiotics and ecosemiotics. These fields have gained a lot of strength in the last twenty years and there are many young scholars actively involved. In the last Gatherings in Biosemiotics held in Moscow 1–5 July 2019, the majority of participants were my age or younger. This is the clearest sign about the potential of the academic field – if it attracts doctoral and post-doc researchers. I think semiotics of education has been developing quickly in recent decades and so has cognitive semiotics. Both have active research groups, conferences and publications, and good outlooks. There appears to be a certain standstill in semiotics of literature and language – the very fields in which semiotics was originally born. Hopefully, this is temporary. But I can’t pretend to have a complete overview of what is going on in each and every corner of semiotics. Our discipline is thematically, geographically, and linguistically just too diverse and extensive for that.

PD: One last question about the future of the discipline and its extension, geographical but also socially: in Europe and, more specifically, in Estonia most of the exchange and research programs focus on the activity of popularisation and interaction between the public and researchers. It’s fairly new that so much emphasis is put on this aspect, what do you think about it?

TM: I consider this to be a very positive development and not just as a formal requirement of research applications. All knowledge and science are for the benefit of the people and it is a common thing to communicate about your studies. I understand that this may be sometimes challenging, but it is important to communicate your findings to different audiences in different manners. Another aspect of the same topic is educating the public. There is so much ignorance, superstition, conspiracy theories, and irresponsible politics in today’s world. This social context really makes it the responsibility of academic people to come out from their faculties and to participate in media and public discussions to rise the quality of the debates.



University of Tartu | ISSN: 1736-3314

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