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Role and communication: a zoosemiotic perspective

1. The concept of role

The idea of role derives from theatre. Its etymological roots go as far back as Ancient Greek and Rome, but it became a metaphor in Shakespeare's play 'As You Like It' (Ritzer 2007: 3945), where the world is a theatre and people in it actors who play many parts during their lives (Odell *et al.* 2003: 41).

In the social sciences the concept of role appeared at the beginning of 20th century and was associated with the development of self (Neiman, Hughes 1951: 141). However, the usage of role concept was loose, which enabled it to fit the interests of different scientists (Biddle 1986: 68; Francis 1965: 567). Its scope could be broadly divided into macro-level concept (structural approach) and micro level concept (interactional-approach based on reciprocity). According to the structural approach, role is a complex set of normative expectations, rights or obligations that are ascribed to positions in social structures. According to reciprocal concept usage, role is a tool for arranging social situations – roles develop in mutual interactions (Callero 1986: 344).

This paper concentrates on social communication where animal interaction is mutually interdependent. Although statuses and roles are not directly observable, we can pay close attention to interactions since statuses and roles are names for describing observations (Francis 1965: 567).

Relatively free usage of role concept has predisposed it to be likened to other concepts. For example, role has been considered to be the synonym of status, in which case role/status is the function of a person in a group (Neiman, Hughes 1951: 146)) but more often role is considered to be the occupation of a social position (Odell *et al.* 2003: 40).

Roles is only one of the many theatrical concepts, which inevitably leads to other terms derived from theatre, like, actor (role-holder), performance (role-enactment, role-behavior), and script (prescription). In addition, the concept has

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been tied into pairs with other terms, for example, role-play, role-taking, role-acquisition, role-conflict, role-change, role confusion/ambiguity.

Role concept in zoosemiotic approach

Using the role concept in zoosemiotics expands its area of application from the social sciences to studies of behaviour of other animals. Role is the means for describing the communication of many different species, thus overcoming its anthropocentrism. It must be taken into consideration that many other species, compared to human, have more or less different physical skills and different expressive and perceptive senses, which contribute to their diverse communicative abilities (e.g. dominant female cleaner fish (*Labroides dimidiatus*) changes her sex after the death of the dominant male; the transformed animal is even able to breed (Dewsbury 1978: 316)). Attention should also be paid to the fact that many possible statuses and corresponding roles are non-existent in many species (e.g. elephants care for their offspring, salmon do not). Also the expression of similar statuses as roles can vary greatly (e.g. the same status can be accompanied by different responsibilities and rights in different species). By expanding the scope of the term role, the nomenclature of role is to be adapted to suit the zoosemiotic approach. For example, the concepts of norm and prescription in the social sciences have the ability to be expressed orally or in writing (Homans 1979: 134–135). However, social roles are always addressed to another animal, whose behavior in return influences (positively or negatively) the behavior of the animal who initiated communication. The existence of norms can be derived from the result of social action and it is possible to refer to norms through sanctions (positive or negative); when someone deviates from the norm, sanctions will follow (e.g. when during a field test in which a puddle of sweet alcohol is left to the boars to find, the alpha-boar gets drunk then the other boars drive him off, because he acts out of character) (Turovski 2004: 123). It is also possible to think of norms as species-specific behavior or stereotypic behavior (e.g. it is abnormal for a boar to behave in a way he behaves while drunk (he starts giggling and jumping)).

In ethology, concentrating on norms as species-specific behavior, role and status often have been considered as synonyms. Status/role, thus, describes social structure, which can be considered as separate from the animal performing a role (Fedigan 1992: 111). This means that communication has minor significance because social structure clearly precedes social interaction. This current paper is an attempt to show the importance of communication in creating, manifesting, preserving and interrupting relationships. So role is considered to be a cross-specific term as in ethology, and, as in that part of the social sciences where focus is on interaction, role is used to describe social communication. The main emphasis is put on interaction between individuals and status/position is viewed as the static side of role, which enables dealing with roles when they are not at play.

In addition to writings that deal with social roles, there are scientific texts that concentrate on biological (see Matsumoto, Yanagisawa 2001) and ecological (see Lee 1998) roles. In theory, roles and statuses could be viewed on three different structural plains: social (e.g. alpha-male communicating with a beta-male), biological (e.g. female individual and her behavioural specifics compared to males from the same species) and ecological (e.g. bees as pollinators and a specific case of interaction between the bees and the plants that are pollinated). In order to avoid any confusion, it could be argued that the biological and ecological plains are such that the individual does not contribute in order to achieve the corresponding status and role and therefore these plains could be described by ascribed statuses and roles (Davis 1979: 69–70). Social statuses and roles, on the other hand, could be viewed as achieved due to the contribution of the individual (Davis 1979: 72). It must be emphasized, however, that dividing roles and statuses to different plains is merely theoretical because, in reality, social statuses and corresponding roles are inseparable from biological and ecological plains (e.g. snails as hermaphrodites agree on sex-roles through communication; or polar bears as lonely predators can run into each other often during the summer, if the food resources are low). This current paper focuses on social roles and since ecological and biological plains are already included in communicational action, no separate attention will be given to them unless it deems necessary.

2. Concept of communication

Thomas A. Sebeok believed that the whole animal kingdom should be included in semiotic inquiry (Sebeok 1990: 49). Sebeok joined together semiotics and ethology and zoosemiotics was born. Sebeok's initial aim was to learn more about human communicative behavior through studying communication of other species (Sebeok 2001: xx), which shows the connection between the social sciences and zoosemiotics. However, the similarities with ethological approach, where animal kingdom is explored for its own sake (Wilson 2001: 246), cannot be ignored. Ethology as a holistic study uses the help of other disciplines (e.g. ecology, morphology, physiology) (Klinghammer, Fox 1971: 1278–1279), so the connection with natural sciences becomes evident. It is probably due to the free dialogue between natural and social sciences (Tamm 2008: 583) that zoosemiotics claims the place of so-called *bridge-science* '[...] zoosemiotics, the study of the semiotic behavior of animals, is a transdisciplinary field of research. Situated between biology and anthropology, it investigates a domain located between nature and culture' (Nöth 1990: 147).

2.1. Communication in zoosemiotics

Zoosemiotics' object of study is communication. According to biosemiotics, zoosemiotics is concerned with animal level of organization (Kull 2008: 670), which includes humans' non-verbal communication. On the other hand, D. Martinelli includes relations of cultural and/or sociological type in zoosemiotics. Other animals become the objects of meaning (Martinelli 2007: 34) and so the level of language or symbolicity in biosemiotic sense is added to zoosemiotics. Sebeok excluded human communication based on language (Sebeok 1990: 52) and concentrated on organism as a whole, while having in mind the possibilities of studying intra- and inter-specific interaction.

2.2. Communication from the perspective of role concept

Communication, according to Sebeok, allows analyzing cases, where an individual does not have to interact with another animal, for example, in the case of autocommunication in bats or in cases where the receiver is indeed an animal, but the sender of the message happens to be the environment (e.g. spider considers moving leaf stuck in web to be live food). By applying role nomenclature, social communication is analyzed, which means that the interaction between at least two animals is observed (Marler 1973: 171).

For meaningful communication to be possible, two individuals have to have something in common (Kull 2005: 179). Members of the same species share a common Umwelt (Uexküll 1982). Messages in a species are mostly interpreted similarly because the shared Umwelt also includes similar contexts in which communication takes place. Members belonging to different species have much less in common, which also means that meaningful communication becomes possible only in some points (parasitism, predation, competition for food) and only between certain species.

It can be argued that social communication is one of the most complex forms of communication (Broom 1981: 256) because the terms for interactions are not bound to the animal and his or her environment – another animal is necessary. There are cases in which an outsider observes communication between two individuals, for one of the animals, the other one is a part of its environment. For example, when a fly lands on a cow to rest, from the point of view of the fly, the cow could be equated with a stone – cow is a part of the environment for the fly, so no social communication takes place.

Interactional role-theory implies that two animals are bound to each other through a social relationship. It is impossible to be an alpha-animal without a beta-animal and a parent without an offspring. It is impossible to be in a relationship alone. In this way the dialogical character of role is revealed, which means that formulation and coding of the message should be tightly bound with decoding and interpreting that message, and the same events from initially receiving animal

to initial sender. All of it should be viewed as a whole, so that the interdependent relationship could be seen. Role concept also enables analyzing the behaviour of a single individual, but the base for such description is still the underlying social relation. So zoopragmatics must be interwoven with zoosemantics because the latter deals with context and answers the question, 'What is going on here?' (Hawkins, Manning 1990: 217).

3. Role and communication

Social interaction is influenced by social relations (Chalmers 1980: 62), but social interaction also forms social relationships. Communication gives the possibility to show how relations and corresponding roles are inseparable from interaction and influenced by the latter. Fulfilling roles means that the relationship between individuals becomes manifested, which in turn means that the mutual dependence of individuals is revealed in the context of communication (e.g. head-throwing of female herring gull before mating is inseparable from head-throwing, which denotes food begging (Sebeok 1972: 81). Distinction is made only according to context.

The precondition for role-behavior is recognizing the other individual (see Kull 1995) and fulfilling a role according to the recognized individual (e.g. a sheep suckles her offspring, who is recognized in communicative situation). Recognizing context-referents is also necessary for role-behavior (e.g. a female bird can attract or repel a male with the same message, depending on whether she has offspring in her nest or not (Slater 1983: 16)).

Recognition based on context has an exception, which can be described by the concept of search tone (Uexküll 1992: 375). Applied to social interaction search tone means that it is not a specific role-holder that is searched for (e.g. someone's *own mother*), but rather somebody that would be suitable for that role (e.g. somebody that acts like a mother). These cases deserve attention because they vividly illustrate the mutual dependence and inseparability of roles in pairs, for example, mother hen takes two kittens under her wings and cares for them as her own; the kittens, in return, play with the hen like she was a cat and clean her feathers (Tinbergen 1978: 82). Both mother hen and kittens are tuned to fill a certain role and search for the other part of the necessary role-pair. In the given case the communicative abilities of animals allow partial overlap of codes and thus similar interpretation of messages, which means that a relationship based on roles is created.

Roles are the means for describing interactions that take place in real life (Biddle, Thomas 1979: 3) and at the same time roles show that communicative behavior is an example of a certain type of communication (Benedict 1969: 203). So, it can be argued that in creating roles social structure and interaction influence each other and are equally important.

Role-enactment is impossible without interaction, but statuses/positions can be held while not communicating, although reaffirming and achieving a social position depends largely on the social behavior of the animal under consideration (Davis 1979: 72) (e.g. a pecking order decided through social communication (Dewsbury 1978: 93)). The concept of status/position is necessary for describing roles when they are not being communicated. On the other hand, there are situations in which role-enactment is not in accordance with the held status: in communication it is possible to acquire a position, so role-behavior can precede holding a corresponding status. For example, when a beta-male challenges the alpha-male and takes over latter's position.

Role-conflict and role-change are considered further as possible problems when entering a role, staying in character, and exiting a role. Also an overview is given of how role-conflict and -change can affect the interacting parties and their relationship.

3.1. Role-conflict

Situations described by the term role-conflict can be broadly divided into inter-role conflicts, where simultaneously more than one role awaits enactment, and intra-role conflicts, where incompatibility between role-expectations and role-enactment arises or there are obstacles in filling a role. Intra-role conflict may arise also between one status and many roles that correspond to that status because different role-prescriptions are incompatible; e.g. alpha-male (status) must protect his herd (role) and also mate (another role), and doing both simultaneously is impossible. Intra-role conflict may also arise between many different positions and corresponding roles; e.g. occupying a high position in social hierarchy (status) and being a parent (another status) may conflict when sustaining a hierarchical position means leaving the offspring without guard, thus making the latter an easy target for predators (Broom 1981: 255).

Adding another individual to role-conflict reveals that conflict may arise when one party, from the point of view of other's expectations, fulfills the role inadequately, which may lead to interruption of the relationship or sometimes to role-change. Conflict that is based on inadequate role-behavior can be simultaneously an intra- and inter-role conflict because incompatibility between status and role-enactment may lead to conflict in the relationship between individuals.

In addition, the concept of role-conflict enables dealing with cases where the relationship itself is based on a conflict. This kind of conflict is not derived from communication: the other party and context have been correctly recognized, and there have been no obstacles in entering the role for either party. These kinds of conflicting roles can be used to describe agonistic behavior (Dewsbury 1978: 103–104). Whether the conflict occurs depends on ecological status (e.g. predation), personal adaption (e.g. a cat and dog raised together may get along well, but the same dog may attack other cats), a certain context (e.g. a tired animal

may choose not to fight for mating rights), and on environmental conditions (e.g. great tits and chaffinches answer each-other songs in Scotland's islands but not on main land, where there is more room (Halliday 1983: 76)). These conflicts do not fall under the category of role-conflict, but nevertheless enable a comparison of ecological (ascribed) statuses and corresponding roles (predation, parasitism) to social (achieved) statuses and corresponding roles because both ascribed and achieved statuses are manifested through role-behavior.

Accompanying the term role-conflict is role-ambiguity. The latter means that the role-performer has incomplete or confusing information for role-behavior (King, King 1990: 49) and entering a role occurs with uncertainty (Burton *et al.* 1990: 149) (e.g. if a mother tries to wean her offspring and thus chases the offspring away more often, then the offspring is unsure whether this time the mother will give milk or not (role-based relationship will be established only when the mother agrees to perform her role)). An animal's role-enactment can be ambiguous for the other party as well, which means that the latter might delay entering a role, until the context becomes clear, or interrupt the relation and thus give up that role-enactment, or perform a role that is not paired up with the role that the other is enacting (this case is not a role-conflict; it is rather miscommunication, where parties have recognized different contexts (Schneider 2002: 212)). Nevertheless, there is no clear line between role-conflict and role-ambiguity because conflict may follow ambiguity and *vice versa* (King, King 1990: 50) (e.g. a female rat that has been raised in solitude shows unusual aggressiveness towards her offspring – she lacks the ability to fill the role of a mother and that elicits a conflict between her status and actions).

Another concept that supports role-conflict is role-strain, which is used to describe a performer's perceived difficulties to fulfill a role (Goode 1960: 483) (e.g. protecting the herd takes so much energy, that the alpha-male feels tension due to his incapability to mate).

Role-conflicts, like social roles, can only be manifested in communication. For example, deviating from a norm may not bring about any difficulties for the animal, thus conflict or incompatibility between norm and behavior is rather ascribed than felt (e.g. members of different species can mate in zoos (Frings, Frings 1977: 146) because their communicative abilities allow them to). There is always individual deviation from norms to some degree (Turner 1990: 89), but it may not mean conflict. In cases where behavior is followed by sanctions, it may be argued that difficulties are felt by the animal himself or herself and/or by the other party. For example, a cross-bred fish acquires mating behavior from both of the species, but due to lack of persistence, the females from both species are unwilling to mate with him (Frings, Frings 1977: 110). Although the females initially recognize the male as a potential partner, they soon abandon the role due to confusion about the male's species, and disrupt communication (sanction), which means that the male cannot stay in character (felt difficulty to perform a role). Role-behavior may be hindered by factors like the environment (e.g. 'noise'), other performers (who is

trying to terminate the relationship), and the animal's own state at that given time (e.g. health). The fewer obstacles, the more likely an animal can enter a role, stay in character and exit the role.

Role-conflicts that concern different roles that express one or more statuses emerge from plurality of communication situations. When expectations for different behaviors emerge simultaneously, but the animal can perform those roles in sequence, role-conflict does not occur because one of the situations proves to be of much more importance for the animal. For a role-conflict to occur there is a need for equally important role-expectations to emerge, so that the animal has difficulty in choosing between roles and thus entering any of them (e.g. deciding whether to fight or flight). A possible solution for such role-conflicts could be classical role-conflict theory, which states that from one or the other emergent role-expectations, neither or partly both (intermittently or in sequence) are answered (Vliert 1981: 77). When partly both are performed, then the animal has difficulties with staying in character.

Roles based on conflict are not literally role-conflicts, but nevertheless, some similarities can be detected between the two. Namely, the relation based on conflict often has a self-disruptive character, in which one or both parties wish to exit the role as quickly as possible (and not to enter the role in the first place, if possible (e.g. individual of a lower status may even leave the group in order to avoid abuse by animals of higher status (Broom 1981: 225)). It also seems that animals in these relations fill a certain role due the other party (e.g. predator entering into dangerous proximity) and/or due to the situation (e.g. hunger), but in order to avoid tension (and exhaustion and injuries), role-enactment is ended as soon as possible (e.g. by fleeing or catching the prey). Another case of conflicting roles is the one in which neither party wishes to exit the role, but both try to make the other break out of character. Success ends the conflict (e.g. rams fight until one admits defeat (Broom 1981: 252). The defeated stops acting aggressively and thus the conflict-relation ends; the loser enters a submissive role and thus role-change takes place).

When role-conflict emerges because of ambiguous role-enactment, the relationship has also a self-interruptive nature because it is hard to stay in character when some received messages are incompatible with the recognized context. Confusing signals may indicate a mistake in identifying the other animal, so that the previously recognized becomes unknown. Thus the premise for role-based communication disappears and the relation is disrupted. However, if communication continues, there may develop a situation where mutual recognition occurs again: animals may fulfill previously performed roles, or when a new context emerges, new roles. The latter means that role-change takes place (e.g. a female, who is initially recognized as a mate, may unexpectedly start acting aggressively and become an attacker; the male searching for a mate, on the other hand, turns out to be the attacked).

Conclusively, the term role-conflict enables discussion about the relations between animals while concentrating on one of the individuals (observing the rela-

tions between status and role-enactment) or on both of the animals (when partly ambiguous role-enactment emerges). As an exception, conflicting roles enable considering the relationship itself (when concentrating on conflict as a type of relation).

3.2. Role-change

Role-change can describe the situation where a role-performer exchanges one role for another (Hermann *et al.* 2004: 170). Role-change can also indicate role-reversal (Gent *et al.* 1997: 109) (e.g. the initial attacker becomes the attacked). In addition, the concept refers to the change in a role-enactment (Francis 1965: 567) (remember the example about the great tits and chaffinches that live on the main land and on the islands of Scotland).

Role-change may take place between different roles expressing the same status or between roles expressing different statuses. It is possible that the role enacted after the change forms a relation with the same individual to which exchangeable role was bound (e.g. a female spider, who after mating (role of female status) considers her partner to be food and attacks him (role of a predator status)); or an animal in the position of a mother suckles her offspring (one role of the mother status) and teaches her offspring how to hunt (second role)). On the other hand, after a role-change, a relation can be binding to another animal (e.g. alpha-male fills a role of a mate, but when necessary interrupts interaction with a female to drive away a foreign intruder). Role-change, where both animals change roles but continue interacting with each other, implies that both of the animals recognize the changing context and are able to mutually adapt to the new situation, so that communication is not interrupted. A special case of this kind of role-change is role-reversal – a situation where individuals switch roles (e.g. the chased becomes the chaser and *vice versa*). Role-reversal shows the mutual interdependence of roles and illustrates how the animals maintain the same role-based relationship.

It seems that if role-conflict has a self-disruptive character, then role-change, which takes place during one communication situation, is aimed at preserving and elongating the relation of two animals. When one role ends, then role-change elongates the social contact. Of course, the new relation may be conflicting in nature and thus self-disruptive, but the interaction is preserved until role-change takes place. The given communication situation is the whole in which roles are changed.

It is worth noticing that role-change which takes place during a communication situation (leaving aside the cases where animals enter agonistic roles) enforces the bond of two individuals. When animals are bound by many role-based relationships, different contexts refer to one and the same individual. Their social bond is stronger than when the same relations would connect the animal to different individuals. If, however, the new context refers to another animal and interrupts communication with the initial individual, then role-change brings about

a new communication situation with a new animal, abandoning the previous situation and individual. In such a way, role-change can be the means for elongating or ending interaction, depending on whether role-change involves replacing the other party or not.

Role-change, as a broader term, allows analyzing in what way similar roles (e.g. parents participating in bringing up their offspring) and role-pairs (e.g. males' and females' actions before mating) are manifested in different species. This comparison helps to explain how and to what extent role-based interaction can take place between different species. If communication occurs (e.g. between afore mentioned cat and chicks), it may be argued that mutually dependent role-manifestations are similar enough to identify the other party and context, and that the Umwelten are similar or congruent enough. In other words, the more species have similarly manifesting and analogous roles, the more there are possibilities for inter-species social communication.

Animals of the same species, besides sharing a common Umwelt, also have a species-specific role-set, which includes species-specific statuses and according roles. This means that role-change enables dealing with changes in a role-enactment within a species (e.g. the influence of the environment or personal adaption on role-enactment). It is also possible to analyze manifestations of a status of time in a certain species, to consider how role-behavior of a given status has changed over time. In addition, it is possible to give an overview of an individual's change in certain role-enactments over time (e.g. how female cats become more confident and enter a partner-role more quickly when having previous experience in mating) and consider changes during one communication situation (e.g. the increase or decrease of intensity of filling a role of player when parties are getting tired or more excited). Role-change that takes place during one communication situation can indicate weakening or strengthening of a relation between two animals

Role-change promotes an analysis of communication through one animal, both individuals, through role-based relationships, or through many species.

Conclusion

British social anthropologist Burton Benedict proposed in his article *Role Analysis in Animals and Men* (1969) the term role to describe and compare the social behavior of different species and this paper was an attempt to do that – to utilize the concept of role in order to analyze cases of social communication in animals. Applying the concept to other species, in addition to humans, can be of use to anthropologist, ethologists and other researches because common terminology might also facilitate cross-discipline communication.

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Abstract

The concept of role is wide-spread in social sciences. It is also used in ethology, but only to describe social structure which exists in species under observation. This paper is an attempt to utilize the concept of role in order to analyze cases of social communication in animals.

To reach this goal, the meanings of role and its related terms are revisited to understand its different applications in social sciences. Also, a synopsis of role concept usage in ethology is presented and social role is re-conceptualized in a way that permits it to be applied with consideration to other species' communicative abilities. In other words, this paper analyzes how role concept fits into a zoosemiotic approach.

By concentrating on the act of social communication, the interdependent nature of social relationships and their dependence on roles becomes evident. Social roles are created and manifested only in the act of communication and social roles in reverse shape the act of communication. In order for social communication dependent on roles to take place, it is crucial for interacting animals to recognize the context of communication and the other communicative party. To affirm the latter, situations which can be described by terms: role conflict and role change are considered in order to see their effect on communicating animals and on the act of communication itself.