

SEBEOK 2.0

Introducing anthropological zoosemiotics.

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Thomas Sebeok's introduction of zoosemiotics within the scientific world was obviously very far from being the first attempt to study non-human signalling behaviour. Yet, Sebeok opened a door that scholars were a bit hesitant to tackle. When we compare pre- or non-semiotic definitions of animal communication, such as those of Frings and Frings ("Communication between animals involves the giving off by one individual of some chemical or physical, that, on being received by another, influences its behaviour"), Cullen ("Animal communication evokes a change of behaviour in another individual"), or Dawkins and Krebs ("Communication occurs when an animal, the actor, does something which appears to be the result of selection to influence the sense organs of another animal, the reactor, so that the actor's behaviour changes to the advantage of the actor"), with those provided by Sebeok ("the discipline within which the science of signs intersects with ethology, devoted to the scientific study of signalling behaviour in and across animal species. The basic assumption of zoosemiotics is that, in the last analysis, all animals are social beings, each species with a characteristic set of communication problems to solve") and other semioticians¹, we understand how, thanks to the semiotic approach, animal information exchange could finally get rid of the rigid stimulus-reaction scheme and achieve the significant status of "communication", in the whole complex and flexible sense of the term.

Unfortunately, the importance of zoosemiotics as a discipline, or even as a simple idea, did not walk hand in hand with its success, within the category of semioticians and other scholars. Honestly, we cannot really say that the scientific environment is invaded by zoosemioticians that are glad to be recognised as such. On the one hand, forty years are still very few to entitle anyone to such statements, neither should we forget that semioticians continue to complain that institutions are still refractory to officially 'accept' semiotics (the whole of it). However, a few considerations are worth to be mentioned here:

- 1) In terms of intensity, the spreading of zoosemiotics is not really encouraging, especially if we compare it to equally (or even more) recent fields within semiotic research, such as musical semiotics or biosemiotics. The publication of an explicitly zoosemiotic text is by far a rarer event than that of a musical semiotic or biosemiotic one.
- 2) As compared to other branches of semiotic research, zoosemiotics can hardly be considered a specialisation in its own. In other words, it is not very difficult to encounter comments or topics of zoosemiotic concern, but it is rare to encounter self-styled zoosemioticians: rather, they might

¹ See, for instance, Wilfried Nöth (1990: 147): "zoösemiotics, the study of the semiotic behaviour of animals, is a transdisciplinary field of research. Situated between biology and anthropology, it investigates a domain located between nature and culture", or Giuseppe Malacarne (in Mainardi 1992: 817-818): "Zoösemiotics deals with the rules of animal communication by using the theory of information (e.g. mathematic analysis of signals) and the theory of communication. Situated between traditional ethology and sociobiology, it deals with topics of particular interest: 1) the nature of communicative channels (visual, tactile, electric...) in relation with the environment; 2) the meaning of a message in relation with the context in which it is emitted; 3) the ability of social species to construct symbolic languages. The latter shows similarity between zoösemiotics and cognitive ethology"

either belong to different disciplines dealing with the same issues (quite often the case of ethology, as the case of Marc Bekoff illustrates), or deal with zoosemiotic issues only in exceptional cases, their specialisation (and academic identity) being of quite a different type (it is the case of John Deely or Susan Petrilli). This is another reason why

3) Zoosemiotics has not yet achieved a scientific autonomy. If a musical or media semiotician is rarely confused with a musicologist or a mass-mediologist, zoosemioticians often seem to be on the threshold of identity crises (Ethologist? Biologist? Zoologist?), the contrary of course never occurring (never heard of a Von Frisch being called zoosemiotician as a result of his studies on bees).

An interesting support to such considerations can be provided by internet research, through the use of the so-called search engines. I tried to type some key-words on three of the main search engines (Google, Altavista and Yahoo), in order to check the amount of matches that can be found. The key-words were the following: “zoosemiotics”, “zoösemiotics” (variation proposed by John Deely, in order to ‘force’ the reader to pronounce the prefix “zoo-“ in the same fashion as “zoology” rather than “zoo”²), “zoosemiotician”, “zoosemiotica” (translation of the term in Spanish and Italian), and “zoosemiotique (French translation). Results are reported in **table 1**.

	<i>www.google.com</i>	<i>www.altavista.com</i>	<i>www.yahoo.com</i>
Zoosemiotics	597	342	508
Zoösemiotics	19	13	13
Zoosemiotic	67	45	57
Zoosemiotician	5	8	10
Zoosemiotica	221	137	154
Zoosemiotique	8	23	27

Table 1: Matches found in three Internet search engines for zoosemiotics-related key-words (retrieved June 27, 2004)

In order to handle some comparative material, I searched for the terms “semiotics”, “ethology”, “biosemiotics” and “philosophy”, plus the relative adjective forms (“semiotic”, “ethological”, “biosemiotic” and “philosophical”) and nouns indicating the profession (“semiotician”, “ethologist”, biosemiotician”, “philosopher”) on the Google search engine (which is normally considered the most authoritative as far as scientific-academic purposes are concerned). The reasons for the terminological choices are, I guess, quite clear: semiotics is the mother-discipline of zoosemiotics, biosemiotics is a sister-specialisation, ethology is a discipline zoosemiotics is often referred to, and philosophy³ is finally a possible instance of a very widely known discipline, in comparison to which one can figure out the notoriety of zoosemiotics in the relative sense. Results are shown in **Table 2**.

	<i>Discipline</i>	<i>Adjective</i>	<i>Profession</i>
Semiotics	289,000	161,000	5,440
Ethology	175,000	25,700	7,970
Biosemiotics	3,130	505	19
Philosophy	17,400,000	3,210,000	1,840,000

² To say it in his own words, zoosemiotics – with the umlaut – distinguishes the study of free animals from the study of captive ones.

³ Although I reckon that this last choice can be a bit misleading, the term “philosophy” often being used in metaphorical sense (e.g., “my philosophy is ‘live and let live’”)

Table 2: Comparative key-words, as found on the Google search engine (retrieved June 27, 2004)

These data call for a few reflections. First of all, it appears that zoosemiotics is quite definitely the least known among the mentioned disciplines. The sole biosemiotics is almost eight times more recurrent in websites. Secondly, although appearing as the result of a general trend, the adjective form “zoosemiotic” is very rarely found. But even more impressive is the recurrency of the term “zoosemiotician”. Google found only eight matches, three of which refer to myself, one to Sebeok, and one to Cimatti (this latter within the context of an article I wrote). In other words, the label “zoosemiotician”, as applied to anyone, is a really exceptional event. I consider this the most striking datum⁴. Thirdly, if Spanish and Italian translations reach a peak of 122 matches (in the Altavista search engine, which is more oriented to non-Anglo-Saxon targets), it is rather significant that the term is extremely rare within French-speaking academic contexts. Indeed, if on the one hand it is probably true that French scholars tend to use the Internet tool less systematically than Americans or Scandinavians, on the other hand one cannot avoid mentioning that the French semiotic tradition has always regarded with scepticism the possibility of extending semiotic research beyond the anthropological domain. In order to escape any doubt, I also typed the term “zoosemiologie” (French scholars notoriously prefer the term “semiologie” to “semiotique”), but the result was “zero” in all three engines, a sign that not only zoosemiotics is little acknowledged in French academic environments, but also – in the cases where it is – it is clearly classified as ‘foreign’ discipline.

Further considerations need to be done about the contents of the websites found, also because they unveil two major limits of this Internet-based survey:

- 1) It is mostly the last and the second last generations of scholars that make use of the Internet. A zoosemiotics-related research on the Internet only provides information on the last ten years of zoosemiotics, not on its entire existence. No wonder that Sebeok, who should be a massive presence, occupies a marginal position within the Internet world⁵;
- 2) Countries that are more confident with Internet devices are obviously a more prominent presence. Scandinavian (fully including Estonia) and Anglo-Saxon countries are definitely more represented than New-Latin, Asian or African ones. Beyond myself (mostly appearing as a result of my own intentions, being for instance editor of the www.zoosemiotics.helsinki.fi website), easily recurring are Timo Maran (University of Tartu, Estonia), Aleksei Turovski (University of Tallin, Estonia), Henna Törmänen (high-school teacher in Kuusamo, Finland), Jim Nollman (from the States, and strict collaborator of Finnish researchers) and Jack P. Hailman (University of Wisconsin-Madison, USA).

The 436 matches for “zoosemiotics” are made even less consistent by the sites in which the term is used in generic, indirect or even metaphoric fashion (instances that, for the purposes of this research, we shall call “interference”). The term indeed also appears in the following contexts:

- 1) Articles or essays concerning ecosemiotics and/or biosemiotics. Here, zoosemiotics is (correctly) quoted as part of the above-mentioned disciplines, but there is no specific treatment of the matter;
- 2) Articles or essays concerning Sebeok. Here, zoosemiotics is referred to as a main specialisation/innovation of the American semiotician, but – once again – the term is just mentioned within a list;
- 3) Occasional messages posted in discussion groups. Here, the term is just marginally mentioned for the purposes of totally different contexts;

⁴ Biosemiotics seems to experience an analogous – and proportionally even bigger – problem.

⁵ Most of the times, Sebeok only appears as a bibliographical reference of authors who made use of texts like *Perspectives in zoosemiotics* or *Talking with animals: zoosemiotics explained*.

4) Sites that – scientifically speaking – have nothing to do with zoosemiotics, but rather employ the term as an effective metaphor (in particular, I could find a so-called “multimedia installation” named exactly “zoosemiotics”, and a photographic exhibition of animal tracks).

WHERE ARE THE ZOOSEMIOTICIANS?

One could easily argue that very seldom, within semiotic disciplines, a scholar expressively declares himself a specialist of a given field, thus it should not come as a surprise that self-styled zoosemioticians are so rare. Still, if once again we think about a discipline like musical semiotics, dozens of names that, if not *only*, are *also* or *mostly* identified as musical semioticians, can be listed. It is the case of Tarasti, Fabbri, Stefani, Nattiez, Tagg, Marconi, Hatten and many others. Evidently, the same does not apply to zoosemiotics. It is quite significant that Winfred Nöth, in writing the chapter for zoosemiotics in his precious *Handbook of Semiotics*, ends up referring quite exclusively to scholars belonging to other disciplines. Exceptions are of course Sebeok, W. John Smith and – to a fair extent – Günter Tembrock.

Therefore, where are, who are the zoosemioticians? Beside Nöth’s list, I shall add Felice Cimatti, author of the excellent and unfortunately not yet translated *Mente e linguaggio negli animali*, the already mentioned Maran, Turovski and Hailman; Heini Hediger, mostly a zoologist and an animal psychologist, but whose contents (especially in the important *Man-animal communication*) are of deep zoosemiotic concern; Martin Lindauer, because of the famous *Botschaft Ohne Worte*; Marc Bekoff, surely an ethologist, but profoundly interested in the issue of communication (he also published for *Semiotica*); Susan Petrilli e John Deely, both followers of the Sebeokian tradition, although evidently to be considered part-time zoosemioticians; up to – of course – crypto-zoosemioticians par excellence, i.e. Charles Darwin, particularly referring to texts like *The descent of man* and *The expression of emotions in man and animals*, and Jakob Von Uexküll. However, a whole list of crypto-, pseudo-, proto- or para-zoosemioticians (which shall then include fundamental scholars like Morris, Thorpe, Griffin, Tinbergen, plus various experimental interspecific communication scholars, like Fouts, Premack, Petterson etc.) could make us lose track of the purposes of this small survey.

TRENDS IN ZOOSEMIOTIC STUDIES

In contrast to the above discourse, one important aspect to grasp is a little map of orientation of zoosemiotic studies during these first forty years of life. In other words, what has zoosemiotics been dealing with? To say it concerns animal communication is not only generic: it is probably imprecise, too, for it paradoxically gives, through an omnicomprehensive expression, a quite partial picture of reality.

In my opinion, at least two main branches should be distinguished within zoosemiotics, both to be divided, in turn, in two more sub-branches. On the one hand, I shall refer to zoosemiotics in the traditional sense, i.e. a discipline dealing with the behaviour “communication”, through the most obvious theoretical tools of semiotics. I shall call this branch **ethological zoosemiotics**. In turn, ethological zoosemiotics can be divided into a **traditional** current and a **cognitive** one. The former includes the studies performed by the early Sebeok, or Lindauer, or other scholars belonging to Lorenzian or behaviouristic traditions. Within the field of cognitive zoosemiotics, I shall mention at least the latest Sebeok, Cimatti, and Bekoff (not to mention strong anticipations provided by Darwin).

As for the second branch of zoosemiotics, which I here call **anthropological**, I intend to refer to the studies dealing with the semiotic interaction between human beings and other animals, including those of cultural and/or sociological type. Interspecific communication experiments are one example (although very sceptic, Sebeok dealt quite often with those, and so did Petrilli, Deely,

Cimatti, Bekoff and others). Such types of study fall under a sub-category of anthropological zoosemiotics, which I call **communicational**. This term refers to the contexts where human-animal interaction is of a communicative type, i.e. interactive, reciprocal and intentional. Moreover, studies of applied zoosemiotics, such as human-pets or human-cattle interaction, fall under this group, too.

The second sub-category within anthropological zoosemiotics is, by consequence, named **significational**: here, the non-human animal is a pure source of meaning, an object, rather than a subject, of signification. The model is thus of an ecosemiotic type: whereas, indeed, ecosemiotics is the study of human representation of nature, this typology of zoosemiotics deals with the human representation of other animals. It is evidently the case of myths, tales, allegories, but also systematic classifications, such as taxonomy.

It thus appears that ethological zoosemiotics has a close relationship with natural sciences (starting, obviously, from ethology), while anthropological zoosemiotics is a closer relative of human sciences, especially the so-called anthrozoology and the social sciences, which nowadays show an increasing interest in animal-related issues. In a way, the definition of zoosemiotics provided by Nöth appears as the most appropriate for this framework: zoosemiotics 1) is interdisciplinary, and 2) occupies an intermediary position between natural and human sciences.

The reflections I will propose from now on seek to investigate mostly the human-other animal relation, and are thus very likely to fit the anthropological zoosemiotic section, with a particular (but not exclusive) stress on the significational area.

THE CONCEPT OF ANIMAL

It seems quite clear that the very first step towards an anthropological zoosemiotics of the significational type is the definition itself of the term *animal*. To say that the concept is quite hard to define, sounds like rediscovering the wheel. Much research has been performed on the matter (see, for instance, the very interesting Ingold 1988), but the discussion still goes on. Within zoosemiotics, Sebeok himself dealt with the subject first, although this was not his major focus. Of course, any zoosemiotic reflection on the subject will take Sebeok's work as a starting point. So will I in the next few lines.

However trivial, the first step is that of searching for the word "animal" in a dictionary. According to the Webster's Revised Unabridged Dictionary animal is

n.

1. An organized living being endowed with sensation and the power of voluntary motion, and also characterized by taking its food into an internal cavity or stomach for digestion; by giving carbonic acid to the air and taking oxygen in the process of respiration; and by increasing in motive power or active aggressive force with progress to maturity.

2. One of the lower animals; a brute or beast, as distinguished from man; as, men and animals.

adj.

1. Of or relating to animals; as, animal functions.

2. Pertaining to the merely sentient part of a creature, as distinguished from the intellectual, rational, or spiritual part; as, the animal passions or appetites.

3. Consisting of the flesh of animals; as, animal food.

The American Heritage Dictionary of the English Language provides the following definitions:

n.

1. A multicellular organism of the kingdom Animalia, differing from plants in certain typical characteristics such as capacity for locomotion, nonphotosynthetic metabolism, pronounced response to stimuli, restricted growth, and fixed bodily structure.
2. An animal organism other than a human, especially a mammal.
3. A person who behaves in a bestial or brutish manner.
4. A human considered with respect to his or her physical, as opposed to spiritual, nature.
5. A person having a specified aptitude or set of interests: “that rarest of musical animals, an instrumentalist who is as comfortable on a podium with a stick as he is playing his instrument” (Lon Tuck).

adj.

1. Relating to, characteristic of, or derived from an animal or animals: *animal fat*.
2. Relating to the physical as distinct from the spiritual nature of people: *animal instincts and desires*.

Other dictionaries provide more or less the same types of definition. In each of them a reference to the Latin origin of the term is also indicated, i.e. the word “animale”, which stands for “living”, “provided with soul”. Further, the use of the term in its adjectival form is perfectly functional to the discourse I intend to propose, that is why I decided to report that form as well. Beside some theoretical implications I will discuss later on, these authoritative definitions emphasise the existence of two different semantic typologies associated with the term: a denotative and a connotative type. In other words, in the first case a stress is put on the scientific meaning of the word, i.e. the animal as a multicellular organism belonging to the animal kingdom, thus different from plants and other organisms. In the second case, a whole series of more or less metaphorical semantic nuances are put into evidence, with associations to the most diverse contexts.

Starting from the denotative dimension, it may be useful to call to mind the taxonomic classification of the so-called “kingdoms” of the biosphere (in fact, the semiosphere), which Sebeok himself mentions in some of his works (e.g. 1998: 61-67). In his opinion, strongly influenced by the work of Whittaker (1959), a good classification of living systems is not only a matter of levels (mostly of evolutionary type), but also of *types*. Types are essentially determined by the modes of nutrition. Such a criterion leads to the articulation of three complementary macroscopic entities, named super-kingdoms:

- 1) **Plants**, i.e. producers. Through photosynthesis, they obtain nutrition from non-organic sources;
- 2) **Animals**, i.e. ingestors (so called for they ingest food in their body, and there it is digested). They eat other organisms, and can be divided into *herbivores* (ingestors of plants), *carnivores* (ingestors of animals) and *omnivores* (ingestors of both plants and animals);
- 3) **Fungi**, i.e. decomposers. They do not ingest, but rather decompose externally their food through apposite enzymes, and eventually absorb the molecules that result from this process.

Since this classification, as probably every other classification, in the end excludes some (many, actually) life forms, Sebeok suggests applying the principle of the evolutionary levels and defining the remaining forms (the inferior ones) as non-plants, non-animals and non-fungi. In detail:

- 1) **Protista**, i.e. micro-organisms lacking embryogenesis, are heterogeneous from the point of view of nutrition. An example of protista are algae;
- 2) **Prokaryotes**, i.e. monocellular organisms (like bacteria). Nutritionally heterogeneous like protista, prokaryotes are however incapable of ingestion.

Not that this should surprise anyone, but it shall be useful to underline that there is no scientifically-acknowledged taxonomic classification that refers to an autonomous category named “human beings”, and moreover all classifications include human beings in the animal kingdom. A suggestion we are given is thus that, scientifically and biologically speaking, the human being is an animal. Ever since Darwin, with the exception of a few fundamentalist religious and/or ultra-

conservative groups, no member of the scientific community has had the nerve to deny that human beings are animals.

However, a whole other issue is to see whether this scientific assertion is acknowledged within the cultural dynamics of one or more human communities. In fact, the issue is highly complex.

This is why a semiotic analysis of the various connotative dimensions of the term animal is useful. It is at the connotative level that most of the semiotic (significational) human-other animal relations occurs. Sebeok (1998: 67) is certainly right in saying that the animal easily becomes a cultural object, a kind of information that – as a result of a given system of socio-cultural values – determines a gap, if not a straight reconfiguration, between signifier and signified⁶. In this sense, synonyms of “animal”, like “beast” or “brute”, are also of full significance. Although it shall be pointed out that the following list is surely incomplete, I feel that at least eight connotations of the word “animal”, as used in western cultures, can be identified:

1) *Animal as “any other animal except humans”* – This is of course the most common use of the term (in fact, it is probably more common than the denotative level itself). Whatever the context, including specific fields like the biological or the zoological one, people often refer to the term “animal” as a semantic whole that clearly excludes humans. In fact, most of the time, the term is explicitly chosen to establish comparisons: “the human-animal relationship...”, or “we are humans, not animals...”.

2) *Animal as referred to exclusively human characteristics* – However weird it may sound, the term “animal” is often used in reference to species-specific aspects of the human being (“the human being is a political animal”, “human beings are thinking animals” etc.).

3) *Animal as referred to a particularly uncivilised human being* – A typical epithet addressed to bad-mannered and/or uncultivated people is exactly “you are an animal” or “you are a brute”.

4) *Animal as referred to aggressive and/or violent attitudes* – Quite normally, especially in the mass-media, serial killers, sexual maniacs and other similar characters are described as “wild animals”, “cruel beasts” and so on.

5) *Animal as referred to natural and/or instinctive attitudes* – Expressions like “animal instinct” or “animal strength” are often used to describe behaviours that appear ancestral or anyway pre-cultural. The song *The Animal Instinct*, performed by the Irish rock band Cranberries, refers, for instance, to a wish for escape and freedom. “Animal instinct” is also an expression often associated to mother-child interactions.

6) *Animal as referred to remarkable physical (mostly sexual) performances* – As a consequence of an equal-but-morally-opposite principle of point 4 of the present list, a human being (mostly, a man) who appears as particularly gifted in physical-erotic terms can easily be nicknamed “animal”.

7) *Animal as referred to the ability of a human being to adapt to a certain context* – A particularly gifted actor or singer is often defined a “stage animal”; someone who is professionally keen to work during nighttimes is often referred to as a “night animal”; and so on.

8) *Animal as referred to a zoomorphic non existent creature* – Such is the case of unicorns, centaurs and all those mythical creatures that result from the narrative elaboration of the myth. In certain times and places, they are or have been considered *existent*, thus, in semiotic terms, they do in fact exist as objects.

If we consider the ethical nuances of these eight connotations, it seems quite clear that the first four points imply a negative consideration of non-human animals, while the following three appear as mostly positive (the last case, that of mythical animals, is probably to be considered of a neutral type, for the association can be either negative or positive, according to the case and the creature described). In other words, in the first four cases a) distances (mostly cultural) are established

⁶ A concept that MacCannell (1976: 110) properly names *countersign*.

between the human being and the non-human animal, in quite a strong fashion; and/or b) conventionally negative and unacceptable behaviours are associated to non-human animals, rather than human beings, almost as the latter could act that way only when lacking or losing their properly human (and humane) characters. In the following three cases, on the other hand, a) conventionally positive aspects of the extra-cultural dimension of human behaviour are underlined; and/or b) certain scientific (thus, in part, denotative) aspects of the concept “animal” are put into evidence, through the use of metaphors, like in the case of adaptation in point 7 of the list (e.g. “night animal”).

Another remark, consequent to this list but apparently paradoxical, is that *animal* is a very general concept when referred to limited cultural contexts (as a single community of people can be, for instance), thus corresponding to more or less socially-shared meaningful unities; while it is an extremely detailed and strict concept when referred to wide intercultural contexts. Any person or any group of persons perceives the animal according to a set of criteria and particulars; at the level of inter-cultural comparison, any or several of the particulars accepted by one group may be rejected by another (some, for instance, make a clear distinction between animals, fishes and birds, animals being the terrestrial ones). Both groups, however, perceive something that is considered “animal”. Within each community (and, by this word, I mean also groups *within* the same culture), *animal* may be a general word, but, cross-culturally, it becomes a particular. This aspect, although not exclusive of the term “animal”⁷, carries anyway a bunch of interesting implications (starting from the difficulty, if not impossibility, of defining what an “animal” is in a culturally universal sense⁸). Moreover, “Animal” is also – and mostly – a concept emerging from a textual and contextual interaction: trivially, mussels are animals for the zoologist and “frutti di mare”, i.e. sea food, for the gourmet). However, most notably, it seems clear that “animal” is not a term suitable for a dictionary⁹, except for its strictly denotative dimension (and, anyway, we have seen that there are exceptions in that case as well).

“Animal” is then to be included in the bunch of concepts, like “music”, “game”, “freedom”, that demand a definition by prototypes. Starting in the mid-1970s, a theoretical school nicknamed the *Roschian Revolution* began to enjoy greater popularity. Eleonor Rosch is quite a famous psycholinguist, and her revolution derives from the categorisation principles she postulated, which indeed provided quite a crucial change to classical Aristotelian-framed analyses of meaning.

Before discussing Rosch, we need to mention a better-known figure, the philosopher Ludwig Wittgenstein. Wittgenstein was one of the first to question Aristotelian categorisations, which at that time were absolutely dominant in philosophical and logical speculation. Such categorisations were based on the idea that concepts can be explained according to necessary and sufficient features. Together with these, a similar type of categorisation, called componential analysis, gained much credibility. Componential analysts postulated that the meaning of a word could be established according to a series of meaning components, which are not exclusive to a single word, but shared with others.

The meaning of the lexeme *mother*, for instance, can be divided into the following sense components: HUMAN, FEMALE, ADULT, ANIMATED. The feature HUMAN distinguishes the meaning of the word *mother* from the meaning of the word *elephant*, whereas FEMALE distinguishes the meaning of the lexeme *mother* from the meaning of the lexeme *man*, etc.. By means of the componential analysis, words are divided into binary, oppositional components, stressing the complementary features of the world.

⁷ To mention one, a similar discourse was made about the term “music” (Martinelli, 2002: 147-63)

⁸ Even in strictly taxonomic terms, consensus is not global. Some cultures, for instance, refer to cetaceans as fishes, rather than mammals.

⁹ In Aristotelian terms, such a definition would be constituted by the so-called *necessary and sufficient features*, and it would be characterised by a closed category of the term, exactly like a dictionary: I call “animal” *always and only* a concept provided with the x, y and z features. Just y and z would not be enough, and w, x, y and z would be too much.

Wittgenstein considered componential analysis interesting but in many respects inadequate. In order to prove his point, he constructed the famous example of the concept of "game". According to Wittgenstein, a concept like "game" cannot be defined by necessary and sufficient features, since it consists of a complex web of cross-referencing and overlapping similarities, both in general and in detail. Indeed, if game A shares some characteristics with game B, and B with C, but not A with C, and all of them are still "games", then it is easily demonstrated that there are no traits without which, or thanks only to which, one can or cannot speak of "game". In short, the boundary between game and non-game is not clearly marked.

What does still count as a game and what does no longer? Can you tell the boundary? No, you can draw one; for none has so far been drawn. (but that never troubled you before you used the word game.) (Wittgenstein 1978: 67)

In addition, a concept like this describes not only the structure within a given category of meaning, but also the way this latter should be learnt: "game" is not a concept one can learn by distinguishing it from a "non-game". What is possible is to categorise it on the basis of examples.

Wittgenstein did not mean to exclude componential analysis in all cases (e.g. a category such as "triangle" can be distinguished from the category of "non-triangle"). Yet, categories such as "game" are definitely more blurry in their definition. The point is to understand what the actual elements are that affect the determination of a word's meaning. As Wierzbicka points out (1992: 7), "Language doesn't reflect the world directly: it reflects human conceptualisation, human interpretation of the world". Not only does the meaning of a word reflect the relation between language and reality, it also reflects the way in which reality is structured and categorised in human cognition.

At this point, Eleanor Rosch's theories come into play. The best possible explanation of her ideas is by means of a game. If one was asked somebody to name the bird species that first comes to his/her mind, most probably s/he would recall a sparrow, a nightingale, a canary, eagle, condor, etc. Very seldom one would think about penguins or ostriches. The game usually works, and, according to Rosch's studies, to think about ostriches and penguins is an extremely exceptional event.

What did actually happen? Consider two birds, such as ostrich and sparrow: the two creatures have some features in common, like ANIMAL, LAYING EGGS, FEATHERS, BEAK, WINGS etc. As in Wittgenstein's example of *game*, ostriches and sparrows, although both members of the category "bird", do not share the same amount and type of features: e.g. both ostriches and sparrows have wings, but only sparrows fly. Consequently, the above-mentioned features cannot be called necessary ones. In addition, the characteristics featured above are not sufficient for the category "bird", since they do not allow a clear distinction between other categories; snakes, for instance, lay eggs as well. Thus, it seems impossible to find necessary and sufficient features to cover the sum of all potential birds in the world. In short, componential analysis is not applicable for the categorisation of natural kinds.

In Rosch's opinion (1978: 27), human categorisation "should not be considered the arbitrary product of historical accident or of whimsy but rather the result of psychological principles of categorisation". This means that any process of categorisation, starting from linguistic categorisation, is first of all determined by human cognition. Since human language seems to have a special tendency for categoriality, there must be a good reason why humans categorise the world. In such a framework, Rosch (1978: 28) points out that "the task of category systems is to provide maximum information with the least cognitive effort". In contrast to the traditional theory of categorisation, Rosch maintains that one assigns an object to a category not by verifying a set of criterial features, but by comparing that object to a prototype of the category. The prototype is considered the best exemplar, which is generally associated with the category concerned.

Rosch made several experiments with the category of birds. In one of these, Rosch investigated how long it took her students to verify category membership. Students were asked to press a button to indicate true or false in response to a list of statements, such as "A Chicken is a bird" or "A sparrow is a bird". Here, response times were generally shorter for more representative exemplars, such as sparrow, than for less good exemplars, such as chicken.

Now, similar considerations can be made with *animal*. To set the limits between animal and non-animal is – in most of the cases – a purely subjective matter, even though there might be an almost absolute consensus in certain cases. The concept is far more structured as ‘game’ than as ‘triangle’. Animal is not a fixed concept, and the category ‘animal’ carries a series of features which different examples of animal do not necessarily share. In addition, every culture and every individual categorise the concept, according to some central prototypes: a mussel is probably far less central than a tiger, and so on.

According to Rosch, the five main features of prototypicality are:

- 1) A category has a prototypical structure. A prototype is regarded as the most representative member and is the central entity around which all other members are organised. Thus, some members are *more members* than others. I do not know how many animal species can be taken as prototypes, but I am sure that pets (particularly dogs and cats) have a prominent role in this sense. And I am also sure that mussels and humans (for different reasons) are much less “animals” in people’s minds.
- 2) Prototypical categories cannot be defined by means of a single set of necessary features, since members do not share the same amount and type of features. For example, all existent living beings provided with wings are animals, but not all animals have wings.
- 3) Prototypical categories exhibit a family resemblance structure; their semantic structure can take the form of a set of clustered and overlapping meanings. This is especially the case of the concept “animal”, if we only consider the amount of information produced in association with the term.
- 4) Prototype categories exhibit degrees of category membership; not every member is equally representative of the category. In contrast to the classical approach, the members do not have the same status. The question of membership is not a question of either-or, but a matter of more or less. As I said, a mussel *is* an animal, but it is probably *less* of an animal than a tiger.
- 5) Prototypical categories are blurred on the edges: i.e. one category merges gradually into another category. The mammal-fish confusion concerning cetaceans, or the mammal-birds one regarding bats is quite representative in this sense.

FORMS OF HUMAN-ANIMAL RELATIONSHIP

Once explained what an animal is (or, in fact, once explained how hard it is to explain the concept), the next step is to consider the various forms of relation that human beings establish with other animals, and how they are semiotically articulated. For a change, it was still Sebeok who gave a significant input to the issue. I will try to shape more systematically some of his reflections, trying – when possible and necessary, and with due humility – to update his analysis, in the light of the most recent technological advancements (and their cultural consequences). First of all, it shall be interesting to establish a general set of motivations that push human beings to interact with other animals, whatever form these interactions may assume. Without a particular order, I shall indicate at least seven typologies of motivation:

- 1) *Adaptation* – The human adaptation in, or – more and more often – the anthropisation of a given environmental context, implied and implies always a meeting/collision with other animal species. Some of these species are ‘useful’ to the anthropisation, others are driven away, or even eliminated (partially or totally), others are needed in a bigger amount.

- 2) *Progress* – Scientific and/or technological. The human being believes it useful to exploit other animals in order to support its own evolution. Both scientific and industrial research make a large use, in different ways, of non-human species.
- 3) *Work* – Non-human animals have always (although in a constantly decreasing number) been part of the human productive cycle, or at least they support it.
- 4) *Needs* – Primary or not, real or not, many human needs are fulfilled by, or thanks to, non-human animals. We eat animals, wear them, and so on.
- 5) *Pleasure* – Many animals are exploited (which means killed or imprisoned, as well as just used as graphical models) in order to satisfy purely hedonistic wishes. The list includes pets, zoos, cartoons, toys and many others.
- 6) *Tradition and culture* – Religion, myth, folklore, literature, art... it is practically impossible to find just one single human community that does not interact with other animals from the cultural point of view. Such interaction is either abstract (e.g. tales) or concrete (e.g. sacrifices).
- 7) *Daily life* – Even though this one may appear as a super-category that includes all the other points in the present list, I still feel like pointing out that non-human animals are often full part of our life, independently from our choices and needs. They are part of our surrounding landscape and our actions. While I am writing in this very moment, I can see a) a notebook whose cover is a drawing of two dolphins; b) the advertisement of a company whose logo is a rabbit; c) a series of books of animal-related studies; d) a pair of leather shoes; e) a moose soft-toy; f) a few CDs of animal sounds; g) a cartoon-cat as a virtual assistant of my Microsoft Word program; h) the reproduction of a Magritte's painting representing a dove, whose body is coloured like the sky; plus many other things I am probably not able to notice right now, for they are so much part of my home environment, that my perception tends to 'take them for granted'.

Once established the motivations, let us see *what* these interactions are in detail. As already said, Sebeok (1998: 67-73) was the first to deal with this issue from a semiotic perspective. To his list, consisting of nine categories, I took the liberty of adding more suggestions, as a result of the different times we are living in nowadays (with consequent new forms of relationship). My additions include the last four points of the following list:

- 1) The human being can be a *predator* of other animals, and vice versa – By this, Sebeok refers to all the reasons why a human being exploits, through killing it, the life of another species: food, clothes, research, etc. At the same time, the human being also happens to be a *prey* of certain non-human species: such is the case of sporozoites (those protozoa responsible for the malaria disease, transmitted to humans through the mosquito *Anofele*), but also of the cases (very rare, in fact) when specimens of diverse species attack humans in order to eat them or – more often – defend themselves.
- 2) The human being can also be a *partner* of other animals – Partnership relations between humans and other animals date back to the dawn of times. Sebeok mentions four particular typologies of partnership (1998: 68-9): a) host-guest relation, as in the case of pets; b) mutual dependence, as in the case of bee-breeding or dogs for blind people; c) sexual relation, as in the case of certain communities or certain pornography; and d) relations aimed at social facilitation, as in the case of pets used to facilitate the approach with other people (this is for example the case with children who can be more easily approached using a cute dog or cat as an excuse).
- 3) The human being can exploit other animals in his *sports* and *hobbies* – This category includes at the same time very cruel examples like bull-fighting (corridas) and circuses, as well as very innocent ones like feeding pigeons or bird-watching.
- 4) The human being can be a *parasite* of other animals, and vice versa – This category includes cases like reindeer-breeding, where humans exploit every single resource offered by the species in question; or – in the opposite relation – cases like the hair-follicle mite *acari demodex*, fleas, lice, etc.

- 5) The non-human animal can establish relations of *consppecificity* with the human being – This happens mostly with pets, who tend to identify their human host as part of their own species (or, more rarely, themselves as part of the human species¹⁰). This phenomenon is known as zoomorphism, but – as I discussed in other occasions – I am really sceptic about the use of this term, as referred to this and many other contexts. We do not have clear proof of whether humans can feel other animals as conspecific, as well: such could be the case with children, for instance, or with humans bred in the wild by some non-human community, in the same way that inspired the famous character named Tarzan. However, as I said, these are simple hypotheses.
- 6) The non-human animal can establish relations of *insensibility* with the human being, and vice versa – Some non-human animals may consider human beings as an inanimate part of their Umwelt (Sebeok mentions the case of birds who perch on a human body as if it were a tree). In fact, I shall add to Sebeok’s formulation that it occurs more often that human beings tend to be physically insensible towards other animals. This is mostly due to ignorance, so that some species (especially marine ones) are often mistaken for plants or others.
- 7) The human being can *domesticate* other animals – Domestication is defined as the “reduction or possibly total elimination of the reaction of escape in a non-human animal from a human one” (Sebeok 1998: 70). Taking the definition in its general form, it shall be fair to say the opposite as well, but we should be able to establish how active the role in the animal is that reduces or eliminates the reaction of escape in the human being.
- 8) The human being can *train* other animals, and vice versa – The non-human animal is more or less forced to learn a given behaviour on the basis of quite drastic options (life if s/he learns, death if s/he does not, grant/punishment, etc.). According to Sebeok, there are two types of training: a) apprenticeship, i.e. laboratory training; b) dressage, or circus-like training. The difference consists basically in the typology of relation established between trainer and trainee: almost inexistent in the first case, quite intensified in the second case¹¹. Although he did not mention it, I believe Sebeok had nothing against the idea that human beings can also be trained by other species. A person who takes his/her dog outside for the daily walk precisely when the dog shows himself holding the leash in his teeth, is quite evidently a trained human.
- 9) The human being can also be a *manipulator* of non-human animals. It is quite probable that Sebeok took for granted this option within the first and/or the third category of this list, but personally – especially in the light of the most recent technological advancements – I believe that ‘manipulation’ is a concept deserving a section in its own. Cases like *Dolly the sheep* suggest that human beings have now quite a strong control of the genetic heritage of non-human species (in fact, of the human species as well). However, without simply referring to very recent times, the domestication process of many species occurred and still occurs through a constant manipulation/selection. Finally, even single parts of characteristics of the non-human animal (especially physical and somatic ones) are manipulated for essentially aesthetic purposes (ear-pointing, tail-cutting, etc.).
- 10) The non-human animal can be a *source of knowledge* for the human being, and vice versa – Zoomusicology is a good example of (non-invasive, in this case) exploitation of non-human animals aimed at the enrichment of the knowledge about our Umwelt (in the specific case, origins and development of the musical phenomenon). Invasive practices like vivisection also fall in this category. The opposite is acceptable as well: the presence of and the danger represented by cars, for instance, is a source of knowledge for many species who live in anthropised contexts. To cross a street, for a dog from the 20th century, requires quite a different attitude than the same action, as

¹⁰ Roger Fouts tells about the chimpanzee Washoe, who – playing with a few pictures – made up two groups of pictures: one with human portraits, the second one with other animals. Washoe then put the picture representing herself in the group of human portraits.

¹¹ Such an affirmation implies Sebeok’s conviction that scientific experiments involving a trainer-trainee emotional relation are not serious. With due respect, I do not share this point with the great zoosemiotician.

performed by a dog of the 19th century. Obviously, the presence of a source of knowledge within a given Umwelt implies important changes in the construction and the representation of that Umwelt. Similarly,

11) The non-human animal can be a *significational source* for the human being, and vice versa – The transformation of the non-human animal into an allegory, metaphor, myth, etc. is certainly a signification process, whose source (not the sole one, though) is the animal in question. However unexpected this may appear, I feel that such a process is not humanly species-specific, i.e. other animals, too, can in principle use humans as signification sources. The superb lyrebird *Menura superba*, who – among many others – imitates human sounds in order to compose his personal ‘serenade’ for the female partner, is in fact using the human being as a signification source in every respect. Finally,

12) The human being can be *defender/protector/promoter* of other species, and vice versa – Such is the case of associations for animal rights, wildlife protection, and so on, but it is also the case of different individual attitudes. Non-human animals can also be at least defenders and protectors of the human being: typical is the case of a dog barking against or attacking an individual potentially dangerous for his/her human host.

Another form of semiotic investigation I shall suggest in this paragraph refers to the great Greimasian tradition, through the re-adaptation of the semiotic square (Greimas 1987: xiv, 49). The human-other animal relationship, as any other relationship, is articulated in temporal-spatial units, i.e., in any relationship we have a *where*, a *when*, a *where from*, a *how long*, and so forth. Since at least temporal units are applicable to the human being only (at least, we do not have proofs of historical awareness in other species), I suggest to consider the following model in a unilateral sense. In other words, I will try to classify the human approach to other animals, and not the other way round. In speaking of space and time, thus, I will refer to human spaces and human times, while – when speaking of non-space and non-time – I will refer to non-human (i.e., non-anthropic or non-anthropised) spaces, and to the absence of temporal continuity (i.e., human-other animal relationship based on extemporaneity and/or discontinuity). The result is the square, wherein the following relations can be detected:

- *Space/Time*: most forms of domestication, manipulation, training and signification exploitation belong to this category. The relationship between humans and cats, for instance, was articulated continuously in time (producing significant genetic and behavioural changes in the species *felix catus*), and used – in most cases – typically anthropic spaces, such as houses, farms, etc.

- *Space/Non-Time*: The notion of non-time (or extemporaneity) is to be interpreted in two ways: on one hand, I refer to relations that are circumscribed in time, like those with extincted species, for example; on the other hand, I want to emphasise how certain relations, although continuous in time, are strongly related to the context they occur, so that neither the human or the non-human individual have an idea of ‘precedent’ in their genetic or behavioural repertoire. In other words, one issue is to meet a dog, another issue is to meet a shark. Examples for the space/non-time category are the recent trend of having exotic animal as pets, certain forms of amusement like zoos or circuses, etc.

- *Non-Space/Time*: Many forms of relation, e.g., prey-predator interaction (where humans are normally predators), occur in more or less non-anthropic areas, but – at the same time – they have been continuous in time, ending up modifying the behaviour of certain species (for instance, certain areas that birds would use as migration resting places, are not used anymore by those species because of the presence of hunters).

- *Non-Space/Non-Time*: Such is the case of any extemporary relation occurring in non-anthropic areas between humans and – normally – wild species (including the already mentioned not-so-pleasant meeting with a shark). I shall include in this category most forms of

defence/protection/promotion of non-human species, from the prohibition of hunting for endangered species (which is evidently circumscribed in time), up to the famous rammings performed by Greenpeace activists against whaling ships.

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