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# The Ethical Implications of Ecosemiotics: New Perspectives

*Las implicaciones éticas de la ecosemiótica: nuevas perspectivas*

Javier Romero*

*Universidad de Salamanca
jromero@usal.es
https://orcid.org/0000-0002-0204-1039

**Abstract**

This article proposes new perspectives for thinking about the relationship between signs in ecosystemic relationships (between humans, non-human animals and the rest of the biosphere). An extension of the semiotic paradigm to other areas of semiotics, such as biosemiotics and ecosemiotics, allows us to broaden the perspective from an epistemological (and ontological) point of view, overcoming any bias of "semiotic anthropocentrism". These conclusions have direct and indirect consequences in ethical terms by connecting theoretical issues with practical issues.

**Keywords:** Semiotics; Biosemiotics; Ecosemiotics; Ethics; Biosphere

**Resumen**

Este artículo propone nuevas perspectivas para reflexionar sobre la relación entre los signos en las relaciones ecosistémicas (entre los seres humanos, los animales no humanos y el resto de la biosfera). La ampliación del paradigma semiótico a otras áreas de la semiótica, como la biosemiótica y la ecosemiótica, nos permite ampliar la perspectiva desde un punto de vista epistemológico (y ontológico), superando cualquier sesgo de «antropocentrismo semiótico». Estas conclusiones tienen consecuencias directas e indirectas en términos éticos, al vincular las cuestiones teóricas con las prácticas.

**Palabras clave:** Semiótica; Biosemiótica; Ecosemiótica; Ética; Biosfera

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## 1. Introduction

Signs are present in our daily lives. The words we can read in a book are signs, any sign on the street, as well as different sounds in a forest, are signs. The colours of a traffic light, a spot on the skin, a map, the weather or even the signs that humans emit in terms of non-verbal communication are also signs. Every object of experience is a sign and are present in all living beings in a communicative sense (verbal or non-verbal). Thus, signs represent something and mean something.

Authors like Charles S. Peirce (1932) and Jakob von Uexküll (1982) defended these ideas at the beginning of the 20th century. Today, the question is whether there are signs in nature beyond the linguistic signs that are present only in humans (syntax, semantics and pragmatics). To answer this question, we will present in a first section the nature of a sign, its development, according to Anglo-American semiotics. This characterization allows us to present the triadic character of signification of signs in nature (in biosemiotic and ecosemiotic terms), beyond their linguistic characterization. Finally, a general vision of semiotics beyond *anthropocentrism* is presented. This idea offers the possibility of bidirectional dialogic ethics, inclusive and complementary with the rest of biosphere.

The main objective of this research is to provide a general overview of the ethical implications of ecosemiotics in metaethical terms for the future development of new research in this field. Semiotics is a fundamental element of communication between humans and non-humans at all levels of biological and ecological organization, as highlighted by new methodological approaches in qualitative research (Asenbaum, 2026), creating spaces for the perception of non-human natural presence. The increasing recognition of human entanglement with nonhuman agents, including animals, plants or natural entities, calls for new methodological approaches in semiotic research, that is, the idea that the capacity for action, choice, and purpose is not a strict "all-or-nothing" human trait. Instead, there is a gradualism from basic biological self-preservation to complex, highly reflective human decision-making.

## 2. The theory of signs: semiotics, biosemiotics and ecosemiotics

A different philosophical proposal of interaction with the environment beyond any metaphysical scope, as well as manipulation, domination, and instrumental control in the line of a "strong anthropocentrism" (Attfield, 2014: 30), can develop from the theory of signs or semiotics, i.e., the science that has signs as its object of study, including here any form of activity, behaviour or process that may contribute to the production of meaning. Moreover, if we assume that signs are present in linguistic and non-linguistic terms, the possibility of extending semiotics allows us to present a theory beyond human signs (that is, to other animals and even to the rest of the biosphere).

But then, *what is semiotics?* Since the 20th century, the theory of semiotics establishes the meaning of different signs through the triadic character of signification. This means that in every semiotic process "something takes into consideration another something mediately, that is, through a third something", following Charles S. Peirce (1932: 92) and William Morris (1938: 3). Considering that the structure of a sign for these two authors is not represented by a duality or two-part model of the sign in the line of Ferdinand de Saussure (2011), but by the process of semiosis (D-S-I), this theory understands that something becomes a sign for some organism. In effect, the semiotic relation in Peirce is not dyadic and dualistic as in Saussure (signified/signifier), but triadic and dialectic, as we can see in the Figure 1.

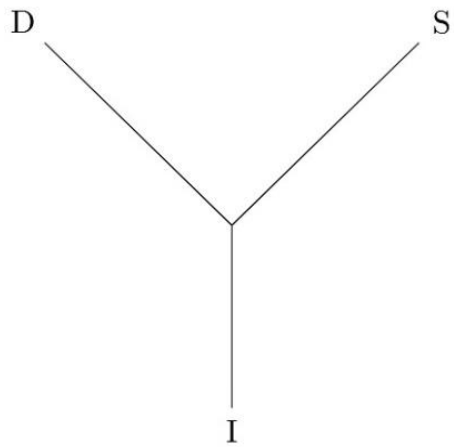


Figure 1. The process of semiosis (D-S-I)

Umberto Eco points out that, although several authors agree on a similar triadic distribution of the semiotic process, the name given to each element differs according to the author (Eco, 1976). Thus, for example, Peirce called *sign* a process that Ogden and Richards called *symbol*, or Morris called *sign vehicle* (S). There are also examples for *interpreter* (I) and *object* or *designatum* (D), following Peirce and Morris, respectively, although *object* in Peirce is not to be understood in the Cartesian subject/object model, as Karl-Otto Apel points out (1981). The nondualist semiotic triad understands that a *sign* (S) relates an *object*, or *designatum* (D), to an *interpreter* (I). Through these three elements semiosis is produced (Sebeok, 2001). That is:

D - S - I

The divisions or branches of semiotics are based on the relations that the sign keeps with the other elements. Thus, "a cry for help" is the *sign* (S) between the *designatum (*D) and the

*interpreter* (I) in a hypothetical emergency or say "hello" is the *sign* (S) between a boss (D) and his employee (I), among others. But beyond the evidence of linguistic signs in humans as, for example, in the semiotics theory of Umberto Eco (1976) or Karl-Otto Apel (1998), Morris points out with a basic example of semiosis the existence of signs in a sign process that is not linguistic, that is, "the barking of a dog" (Morris 1938: 3-5). Here, "the bark" is the *sign* (S), "the dog" is the *designatum* (D) and the preparatory response -the effect on the receiver of the sign- is the *interpreter* or *sign receptor* (I). In this way, the process of semiosis is connected to each other in non-linguistic terms. That is:

D (*dog*) - S (*bark*) - I (*sign receptor*)

In this example the sign is limited in linguistic terms even though there is a process of triadic semiosis as Thomas Sebeok pointed out with numerous examples, outlining new fields of semiotic research in non-human animals (Sebeok, 1972). Although it is not a linguistic sign, the mediator between "the dog" (D) and "the receiver of the sign" (I) is a sign, but a *non-linguistic gestural sign* that differs from non-gestural signs, such as lightning or rain (abiotic signs), because the *sign* is prior to a social act and the *designatum* constitutes a subsequent phase of that act. On the other hand, the relevance of the *sign* (S) in the process of semiosis indicates that the emitter of the sound (D) can perceive it as it happens to others (I), just as these signs can lead to other signs, noting that *I*, that is, the *interpreter*, must be understood as $I_1$, $I_2$, $I_3$,…,$I_n$, according to the participants in each *n* semiosis process (Romero and Dryzek, 2021). When signs relate to social acts -whether human or non-human animals-, the participants in the social act have, with a shared common sign (S) and with different functions in the act ($I_1$, $I_2$, $I_3$,…,$I_n$), a common *designatum* or *object* (D). This logical-pragmatic process constitutes networks of signs *ad infinitum* according to Peirce (1932: 92). In this way:

D - S - $I_1$, $I_2$, $I_3$,…,$I_n$

Several semiotic processes, especially those where the signs are biological, may occur with human independence as biosemiotics, ecosemiotics, and biocommunication theory point out (Hoffmeyer, 1996; Sebeok, 2001; Emmeche and Kull, 2011; Gordon and Seckbach, 2016; Maran, 2020). These semiotic ideas do not introduce metaphysical fields of subsistence as early highlighted by Morris in the line of Darwin's evolutionism (1938: 38), or Apel in terms of post-metaphysical and post-mentalist semiotics following Peirce (1981: 81). In short, semiosis occurs biologically and with different degrees in nature in the line -for example- of a "*weak* naturalism" (Habermas, 2003: 22-30; Mejía Fernández and Romero, 2022) and the idea of (eco)semiotics in biotic and abiotic terms (Romero and Dryzek, 2021), thanks to the

semiotic advances in animals (T. Sebeok), plants (M. Krampen), bacteria (S. Sonea) and, finally, cells (G. Prodi), following the general classification of Barbieri (2009).

According to W. Nöth (1994), the semiotics of nature integrates the organism into its environment through a broader approach than classical biosemiotics. In this regard, Nöth proposes that the study of signs should include the dynamic interaction between the organism and its environment (including physical entities), thereby uniting Darwinian evolutionary theory and semiosis.

Our point of view (Romero and Dryzek, 2021: 411-418), is to understand the semiosis process through a biotic and abiotic element, beyond reductionisms. That is:

**Semiosis**
- *Abiotic (non-gestural)*: climate, edaphic, and hydrographic
- *Biotic (gestural)*: linguistic and non-linguistic

At this point semiotics develops with non-linguistic acts, identifying processes of semiosis in living beings, from microscopic tardigrades to great blue whales, without forgetting the network of non-verbal communication present in human and non-human animals according to ethological and psychological studies. This new field of semiotic helps us to identify the different signs emitted by organisms (biosemiotics), and the environment (ecosemiotics), also helping us to identify the relationships between organisms, which from the human perspective can take on an (eco)ethical character thanks to a previous recognition (moral consciousness and (eco)communicative action).

## 3. Beyond linguistic signs: towards an inclusive view of semiotics and its ethical implications for the biosphere

It is true that linguistic signs have emerged only in the *Homo* after a long evolutionary, social, and cultural process (Tecumseh Fitch, 2010). But this fact does not lead to a legitimization of superiority, much less to a position of dominance and colonization based on dualisms as Val Plumwood points out (1993). Authors who speak of progress and superiority in humans thanks to language, or that language is the only way to communicate, begin with an arbitrary ontological bias in their discourse (*semiotic anthropocentrism*). Although the animal/human boundary has been present for centuries for different reasons and myths, choosing a characteristic that humans have more developed than other animals to justify a

supposed "superiority" is not only fallacious from a philosophical point of view, but also selfish, due to an "anthropocentric circularity" and cognitive bias.

Indeed, the judgments of general anthropocentrism discourse fall back on different "circular arguments" by considering that a demonstration can be explained as a chain of immediate inferences from a premise (Rahman, McConaughey, Klev, and Clerbout, 2018.). That an inference such as:

$$\frac{J_1 \cdots J_n}{J}$$

is valid means that the conclusion, the judgment *J*, can be made evident under the assumption of "knowing" $J_{1...}J_n$. This notion of *assumption*, that Göran Sundholm calls "epistemic assumption" (Sundholm, 2019), allows for an explanation of the notion of valid inference. However, we cannot understand "known" in the sense of "demonstrated", since we are then explaining the notion of inference in terms of demonstration, whereas demonstration has been explained in terms of inference. This discursive mechanism used by different anthropocentrism allows a free access way for *frontier discourses* based on conclusions (*J*) that start from an *arbitrary ontological bias* in their discourse ($J_{1...}J_n$). In this way the "logical form" directly affects the "content of the discourse" -as we see in several examples that draw on protectionist reasons, identity reasons, and religious boundaries.

But then, how to counteract the *anthropocentric discursive circularity*? What are the implications for ethics? From my point of view, an epistemological solution starts from not assuming that the premises are "known" in a qualitative sense, that is, that they have been demonstrated, but that they have simply been affirmed in a dialogical process. Thus, that a speaker X intends to say something by means of Y is equivalent to saying that X intended the utterance of Y to produce some effect on a hearer Z by means of recognizing this intention. In terms of the pragmatics of language this means that speaker X intends to produce an illocutionary effect Y on hearer Z by causing Z to recognize the intention on the part of X to produce Y by means of a *communicative action* (Habermas, 1985, 1990). The "effect" on the hearer Z consists in the understanding by Z (the hearer) of the utterance of X (the speaker) through a reciprocal recognition that makes communication between equals possible. This is equivalent to saying that X has taken a position by means of Y and now the question is whether Z takes responsibility for the conclusion or instead calls for an argumentation following, for example, the *discourse ethics* (Habermas, 1990; Apel, 2001).

Discourse ethics holds that a norm or action is just if it can be accepted by all those affected through rational dialogue free from coercion. This procedural approach grounds

justification in argumentative consensus and mutual recognition. Rather than imposing moral values based on a doctrine, tradition, or authority (monological ethics), discourse ethics defines a framework or "space" where all claims to validity are put to the test (dialogical ethics). The value of a norm does not derive from its utility or from imposition, but from the very structure of the argumentation. In this sense, following our reasoning, discourse ethics facilitates communicative processes among humans, even in ecological ethics terms (Romero, 2024a; Siurana and Romero, 2026), but it can also extend into ecological spaces of listening in terms of "ecological rationality" (Dryzek, 1987, 2000, 2022; Romero and Dryzek, 2021).

On the other hand, beyond the anthropocentric semiotic reductionism that only values human signs, the dialogical extensions developed by John S. Dryzek (1990) and Val Plumwood (2002) provide an epistemological solution to the problem of anthropocentric circularity, while proposing a bidirectional and inclusive *dialogical interspecies ethics* based on principles of "communicative justice" that in turn can be extended to the rest of the biosphere in ethical and political terms (Dryzek, 2000: 140; Romero and Dryzek, 2021; Plumwood, 2002; Romero, 2020, 2024b). These authors come from a tradition of Australian environmental philosophy, along with Richard Sylvan (Mulligan and Hill, 2001; Franklin, 2003; Siurana and Romero, 2026), where they do not simply present an ecological ethic, but a broad ecophilosophy in ontological, epistemological, ethical and political terms that affect the classical way of understanding philosophy (e.g. the *deep-green theory* of Sylvan and Bennett (1994), Val Plumwood´s critical ecofeminism (1993, 2002) or Dryzek´s theory of ecological democracy (1987, 2000, 2022), among others).

A first point is the recognition of agency in the natural world that supports the idea of an ethical respect for living beings and the natural processes where they develop. Biosemiotics and ecosemiotics help us to understand, recognize, highlight and value that there are agents in nature (D), that these agents emit signals (S), and that these signals can be interpreted by one or more organisms ($I_1$, $I_2$, $I_3$,..., $I_n$). From this point we observe that semiosis (D-S-I), beyond its linguistic function, is prior to a human judgment (*J*), and occurs independently of a later characterization. This means that, independently of humans, many semiotic processes have occurred, are occurring and will occur in natural processes highlighting the presence of agents (D) that emit signs and signals (S) that are interpreted ($I_1$, $I_2$, $I_3$,..., $I_n$). Here, the classic triadic structures on the generation of interspecific dialogical processes are maintained.

At this point, the agency must be understood from a *gradualist perspective* from basic biological self-preservation to complex, highly reflective human decision-making, without forgetting the geological formation and abiotic processes. This fact can be investigated, as Barbieri (2003: 229) points out, in the history of the Earth, especially in the Phanerozoic eon that comprises a temporal distance of about 543 million years since the famous "Cambrian explosion". In this time fragment protosemiotic processes of abiotic character settled in the

Precambrian were assumed together with transitional forms of early microbiological life as we see in the stromatolites (the oldest formations of this primitive form of life are found in Warrawoona, Australia, and date back to 3.5 billion years ago). Thus protosemiotics (D-S) has been joined for several thousand years by the semiotics of the origin of life and the genetic code in eukaryotes, multicellular organisms, pattern codes (animals, vertebrates, amniotes, mammals) and linguistic codes (humans), where semiotic famous triad is present (D-S-I). Thus, following Figure 2, the biosphere is composed of a multitude of abiotic and biotic signs without relying on anthropomorphic or anthropocentric hierarchies but following natural evolutionary processes in geological and biological terms.

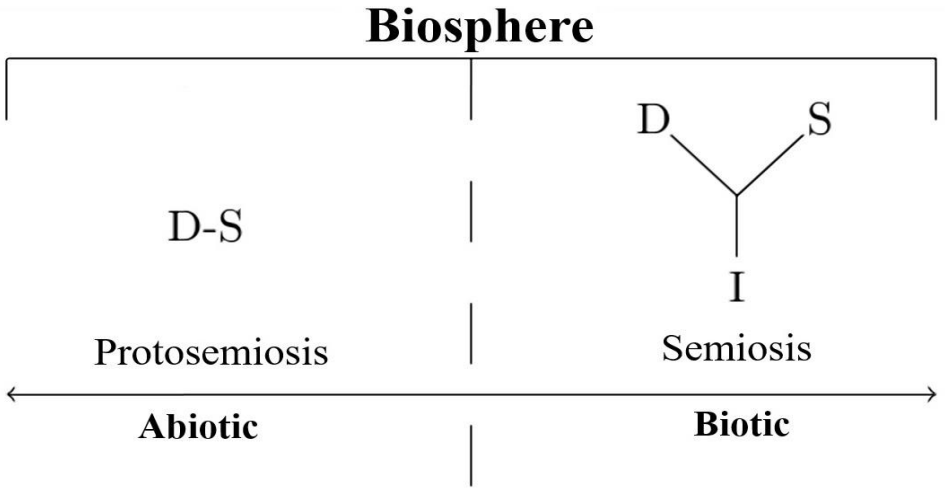


Figure 2. The semiotic of the biosphere

In this sense, there are different levels of agency (abiotic, biological, cognitive and social, and moral), which become more complex over time and through evolutionary development. The different levels of agency are:

a) *Abiotic Agency*. Simple physical and chemical interactions. Inorganic molecules utilize available energy -such as volcanic heat or lightning- to drive chemical reactions, laying the foundational groundwork for self-organization and the Oparin-Haldane "primordial soup" model. Here, semiosis should be understood as protosemiosis (D-S), that is, abiotic (non-gestural) semiosis: climate, edaphic, and hydrographic. This process will continue throughout geological evolution and will interact with biological evolution, where semiosis is established as it is currently known (D-S-I).

b) *Biological Agency*. With the advent of abiogenesis roughly 3.8 billion years ago, these organic compounds combined into replicating entities and early cells. At this level, agency becomes active and goal-directed (D-S-I). Organisms maintain their internal structure, metabolize, and actively adapt to environmental conditions to ensure their own persistence. From abiogenesis to the emergence of the genus *Homo* (2.5 to 2.8 million years ago), approximately 3.697 to 4.197 million years elapsed, which represents about 25-30% of Earth's total geological history. In this historical-evolutionary process, agency and semiosis have become more complex. Ecosemiotics (ecosystems in general) is beginning to be related to biosemiotics (individuals) in different communicative processes. In addition to abiotic semiosis, there is biotic (gestural) semiosis, that is, linguistic and non-linguistic.

c) *Cognitive and Social Agency*. This leap is fundamentally driven by the development of specific neurological and cognitive traits as the executive function and planning, flexible goal-directed action, and the social cognition. In complex social species, agency manifests as the ability to navigate relationships, predict the behaviours of others, and engage in tactical cooperation or deception, as we see in some primates (from chimpanzees to *Homo sapiens*). The complex development of semiotics (D-S-I) affects non-human animals and humans, each with their own different social and cultural form.

d) *Moral Agency*. Humans possess the cognitive ability to make ethical judgments, evaluate right and wrong, and be held accountable for their actions. Moral agency is the result of an evolutionary process of approximately 2.5 million years. Human evolution involved a dramatic, nearly threefold increase in relative brain size and encephalization. This neurological expansion co-evolved with cultural innovations like stone tool manufacturing, abstract thought, and articulate language, creating a continuous feedback loop between biology and culture. Here we have a complex development of semiotics (D-S-I), restricted to humans, in relation to moral considerations and normative codes.

In this sense, we cannot see any anthropocentrism or an Aristotelian "chain of being", but rather a gradual and contextualized process that depends on the elements of the ecosystem (abiotic and biotic). Hence, ecosemiotics encompasses abiotic and biotic signals at different levels. Moreover, if we take these ideas to their logical conclusion, when a *human moral subject* dies -and unless their biological and geological decomposition in the ecosystem is prevented by isolating the body in concrete and steel coffins and urns-"ecological death" alters the state and agency of this individual, shifting from biological, cognitive, social, and moral agency to abiotic (lifeless) agency (Plumwood, 2012: 91–96). The elements resulting from the decomposition of matter are transformed, depending on environmental conditions, through the incorporation of human corpse into food chains and, finally, to the

permineralization, that is, a fossilization process in which mineral-rich groundwater seeps into the porous spaces of bones, shells, or plant tissues, replacing the organic material with a fossil (e.g., Devonian ammonites, Permian petrified wood, or Jurassic dinosaurs, among others as Anne Offit (2017) points out). Thus, agency also undergoes a transformation, there are no sudden leaps or gaps but rather changes in state across the different levels of agency.

In terms of a *dialogical ecoethics for the Biosphere* (Dryzek, 1990; Plumwood, 2002; Romero, 2020, 2026), it is true that linguistic signs are the best known and most worked on in the last century, but a recognition of non-linguistic signs in nature opens the possibility of analysing biosemiotic and ecosemiotic structures that can be considered for a *dialogical ecoethics*. Val Plumwood presented a possible line of dialogical ecoethics beyond anthropocentrism based on fourteen characteristics (Plumwood, 2002: 194). These are:

1. Recognising continuity with the non-human to counter dualistic construction of human/nature difference as radical discontinuity.
2. Reconstructing human identity in ways that acknowledge our animality, decentre rationality and abandon exclusionary concepts of rationality.
3. Acknowledging difference, non-humans as "other nations", as "positively other-than", including a non-hierarchical conception of more-than human difference.
4. Decentring the human/nature contrast to allow a more inclusive, interspecies ethics.
5. De-homogenisation of both "nature" and "human" categories.
6. Openness to the non-human other as potentially an intentional and communicative being (the intentional recognition stance).
7. Listening to the other (attentiveness stance).
8. Active invitation to communicative interaction.
9. Redistribution (generosity stance).
10. Ethical consideration without closure directed towards an excluded class.
11. Non-ranking stance minimising interspecies ranking and ranking contexts.
12. "Studying up" in problem contexts (self-critical stance).
13. Negotiation, a two-way, mutual adjustment stance.
14. Attention to the other's complexity, outrunning of our knowledge.

These characteristics can help structure a dialogical ecoethics for the Biosphere at all levels of biological and ecological organization, creating spaces for the perception of non-human natural presence, that allows for broader decision-making in terms of the ethics of discourse, as Karl-Otto Apel pointed out regarding the possibilities of implementing an ecological ethics in his project when he says that we should "treat natural beings here as something similar or analogous to human co-subjects of communication" (Apel, 1992: 249). The increasing recognition of human entanglement with nonhuman agents, including animals, plants or natural entities, calls for new methodological approaches in semiotic research, that

is, the idea that the capacity for communication is not a strict "all-or-nothing" human trait, but rather a gradualism where human beings are part of a broad ecological (and communicative) network.

## 4. Conclusion

Plumwood points out that one of the most important among these characteristics is *listening and paying attention to the other*, a posture that can help counteract the deafness and background that obscures the non-human other activity (Plumwood 2002, 194-195). In turn, it allows us to be receptive to the possibilities and unforeseen aspects of the non-human other in nature, by recognizing it as a potentially communicative being with whom we ourselves must negotiate and adjust to different forms of communication as, for example, when a snake sends us numerous warnings, through aposematic signs and signals such as the rattle or the deployment of the hood in cobras, before attacking (or when corals with their whitish colour warn us of the thermal stress they suffer due to anthropogenic climate change and ocean acidification). These possibilities can be developed and incorporated into some proposals of ecological ethics when it comes to influence the fair equality of taking signs into consideration (previous phase to a human valuation). In this way we understand that *(a)* any semiotic model has as its starting point Peirce´s tripartite division (D-S-I), as well as its primitive proto-semiotic bases (D-S), and *(b)* the consideration of signs ($I_1$, $I_2$, $I_3$,..., $I_n$) depends of each organism, and only in humans is there linguistic semiotics (e.g., for an argumentation process). In turn, signs are not only biotic (as in animals), but also abiotic (Romero and Dryzek, 2021), allowing us to extend semiotics from the small to the big, from simple to complex. In short, a general ecosemiotics for the biosphere.

The metaethical consequences of *moral agency*, in terms of ecological ethics (Attfield, 2014; Siurana and Romero, 2026), indicate the human capacity for moral evaluation and decision-making (*moral agent*), the entities that fall within the scope of application of moral reflection according to a specific normative conception (*moral object*), and the entity that suffers a moral action or decision (*moral patient*). The question of which beings matter from an ethical standpoint and which beings should be considered when making decisions inevitably leads to the question of moral position. Furthermore, our understanding of ethics in general, and ecological ethics in particular, depends largely on the answers we give to these questions. From this point forward, different ranges of affected entities will be considered (affected communities).

Recognizing biosemiotic and ecosemiotic signs can enable us to understand sign systems beyond the human sphere, in a relationship of complementarity, while allowing us to seek new ways of widening the *circle of moral consideration* beyond anthropocentric axes, including value-related issues (derived and non-derived). Humans, as *moral agents*, do not exhaust the

possibilities of widening their moral -and political- circle once they take into consideration other *moral patients* and *objects of moral consideration* when we metaethically observe that the difficulties stem from ontological and epistemological biases, not from nature. This contribution paves the way for new epistemological perspectives on the implications of the signs of nature for ethics, as a space of freedom and liberation. As Plumwood (2002: 136) points out, "the liberation model does not demand that we humans perform the impossible feat of abandoning a human epistemological location, but it does demand that we abandon the human ethical and political equivalent of self-centeredness".

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