

# Applied umwelt theory in the context of phenomenological triangulation and descriptive phenomenology

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**Abstract.** Even though Jakob von Uexküll’s umwelt theory has inspired biosemioticians and phenomenologists alike, most contemporary phenomenological methods are applicable only to studies of human phenomena. In this article I discuss how umwelt theory can be made use of in the contexts of phenomenological triangulation and descriptive phenomenology. This results in a methodological framework for applied umwelt theory in a phenomenological setting. Drawing on methodological advances in cognitive semiotics developed by Jordan Zlatev and his colleagues, I discuss how first-person, second-person and third-person perspectives can be combined in studies of human and animal phenomena. I further outline a more-than-human descriptive phenomenology that is applicable in behavioural sciences, in health and social studies, in the humanities and the arts, and in speculative studies, with field-specific considerations made. Overall, the aim of the article is to contribute to integrating biosemiotics and phenomenology and demonstrating the relevance of umwelt theory for phenomenology, and *vice versa*.

**Keywords:** biosemiotics; cognitive semiotics; descriptive phenomenology; Jakob von Uexküll; phenomenology; triangulation; umwelt theory

## 1. Introduction

In earlier work, I have argued that a genuine “Uexküllian phenomenology” can be derived from the umwelt theory of Jakob von Uexküll and that such a phenomenology is capable of accounting for the subjective experience of both humans and animals (Tønnessen 2011). With its foundation in contemporary biosemiotics, such a modern, empirically informed phenomenology is particularly relevant for the study of human–animal relations and interaction in societal and ecological settings. In a recent paper (Tønnessen 2023b), I have outlined a scientific method for conducting qualitative studies of human and animal lifeworlds by introducing a semiotically informed descriptive phenomenology. While descriptive

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phenomenology in its current forms is typically only applicable to the study of human lifeworlds, a reiteration of descriptive phenomenology that draws on umwelt theory can be designed to be non-anthropocentric and pluralistic.

Several scholars have noticed the fruitful exchange of ideas between semiotics and phenomenology (see for instance Bundgaard 2023; Sonesson 2012, 2015, 2022; Stjernfelt 2013; Tønnessen *et al.* 2018; Wąsik 2018). Silvi Salupere (2011: 272) remarks that the hybridity of semiotics is the most visible “when one considers that a large part of semiotics is closely associated with philosophy (especially phenomenology and hermeneutics; it has even been considered as identical with the latter)”. As Jordan Zlatev (2018: 15–16) points out, one of the attractions of the phenomenological approach is that it avoids what he calls “meaning reductionism, whether biological, mental, social, or linguistic”, which many academic approaches are guilty of, “by being resolutely pluralist and thus offers one of the best possible means for unifying our understanding of meaning making”. In a somewhat similar manner, Göran Sonesson (2009: 26) claimed that “an integrative semiotic theory can only be built on the basis of the phenomenological method in combination with empirical research”. While he observed a need for “actual empirical research, in the sense of experiments and observations of relevant situations” in semiotics, and championed this line of thought in cognitive semiotics, Sonesson (2009: 28) argued that “phenomenology is necessary, in order to conceive an adequate semiotic theory, as well as in the task of bringing together cognitive science and semiotics”.

Phenomenology as practised outside philosophy is sometimes referred to as ‘applied phenomenology’ (Zahavi 2019a, 2023; see also Dowling 2007; Giorgi 2010; Spiegelberg 1960, 1971). It is quite common to refer to phenomenology in certain fields of empirical studies, particularly health studies and psychology. Psychology stands out in that some of the most widely applied phenomenological methods, including Giorgi’s (2009) descriptive phenomenology and Interpretative Phenomenological Analysis (IPA) as developed by Smith (2018) and others, originated within the field of psychology. For some contexts of empirical study, different, competing methods that are framed as phenomenological methods have been developed, and some of these play an important role among contemporary qualitative research methods. However, whether or not all these methods are genuinely *phenomenological* is subject to ongoing debate (Van Manen 2017a, 2017b; Smith 2018; Zahavi 2019b, 2020).

In her introduction to methods in phenomenology, Cheryl Tatano Beck (2021: 1) claims that for qualitative researchers, no matter what experience is studied, “phenomenology allows a privileged view of the meaning of that experience from the perspective of the participants”. While that may be the case concerning *current*

participants in empirical phenomenological studies, a blatant shortcoming of contemporary phenomenology as it is practised for the task of addressing ‘lived experience’ (see e.g. Jackson *et al.* 2018) is that it lacks tools for studies of non-human phenomena and, more broadly, the phenomena of research subjects that are incapable of speech. Beck (2021) rightly emphasizes that the practices of *descriptive phenomenology* and *interpretative phenomenology* are central within contemporary qualitative research. Descriptive phenomenology is sometimes associated with thematic analysis (Sundler *et al.* 2019; see also Beck 2021: 86–87), whereas interpretative phenomenology is sometimes called hermeneutic phenomenology, and related to hermeneutics as “the science of interpretation” (Beck 2021: 2).

Beck (2021: 2–3) – who warns against “method slurring” which may result from combining different phenomenological methods in unwarranted ways or lack of methodological consistency – treats a variety of different approaches within both descriptive and interpretative phenomenology. Specifically, she presents five descriptive phenomenological methods (summarized in Beck 2021: 66–67), and four interpretive phenomenological methods (summarized in Beck 2021: 110–112). Despite their differences, these nine phenomenological methods, which include the approaches of Giorgi, Van Manen, and Smith, have a striking feature in common: as a rule, they are all textually oriented. The text that constitutes much, or all, of the data material is typically drawn from human respondents either directly or via transcription of verbal interviews or reports.<sup>2</sup> With some approaches, the focus on linguistic expression is further reinforced by methodical collection of verbal or written feedback on written representations of experiences. The orientation towards human language naturally limits the applicability of these phenomenological methods to human subjects capable of speech, in effect excluding not only all non-humans, but also any human who is incapable of speech, including all infants.

Both historically and currently, phenomenology has for the most part been applied primarily to humans. Today’s widespread use of a phenomenological approach outside philosophy is quite different from Husserl’s original approaches. Husserl’s development of the ‘*Lebenswelt*’ notion towards the end of his life, as reflected in the influential posthumously published work *Die Krisis der europäischen Wissenschaften und die Transzendente Phänomenologie* (Husserl 1954, 1970), is at the same time the aspect of Husserl’s work that is the most compatible with Uexküll’s umwelt theory, and the part of Husserl’s work that has most inspired application of a phenomenological approach in empirical research. Historically,

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<sup>2</sup> In Van Manen’s case, “writing is a reflective part of his interpretative phenomenological method. [...] To write phenomenologically is to reflect.” (Beck 2021: 77)

Uexküll's work influenced prominent phenomenologists such as Heidegger and Merleau-Ponty (Buchanan 2008), and contemporary scholars have made the case that studies of animal phenomena are reconcilable with Husserlian phenomenology (Venuta 2023) or pinpointed the relevance of umwelt theory for phenomenology (Tønnessen *et al.* 2018; Churchill *et al.* 2023). Towards the end of this article, I elaborate on a *more-than-human descriptive phenomenology* and explain how it can be applied within the humanities and social sciences as well as in a natural science context. The expression 'more-than-human', which I have appropriated for this purpose, was first introduced by eco-phenomenologist David Abram (1997), who also adopts a perspective on phenomenology that involves animals as well as humans. Overall, the aim of this article is to contribute to integrating biosemiotics and phenomenology and demonstrating the relevance of umwelt theory for phenomenology, and *vice versa*.

By and large, phenomena can be related to conscious experience, and thus to studies of consciousness (León, Zahavi 2022). Scholars such as Marc Champagne (2018) and Zlatev with Piotr Konderak (2023) have argued that consciousness can productively be approached with a semiotic perspective. Limiting umwelt theory, in the context of this article, to sentient organisms, we can safely state that applied umwelt theory relates to studies of consciousness.<sup>3</sup> A fundamentally important feature of the work of Jakob von Uexküll is to approach the phenomena of sentient organisms first and foremost as subjectively experienced, i.e. as first-person phenomena (though the second- and third-person perspectives enter the picture as we conduct research).<sup>4</sup> Uexküll's programme for a *subjective biology* is introduced in *Umwelt und Innenwelt der Tiere* (Uexküll 1909, 1921) and particularly pronounced in his book *Theoretische Biologie*, the first edition of which appeared as Uexküll 1920 (translated into English as Uexküll 1926), followed by a second edition (Uexküll 1928). His other major works, where umwelt theory is developed further, include *Streifzüge durch die Umwelten von Tieren und Menschen: Ein Bilderbuch unsichtbarer Welten* (Uexküll 1934; in English cf. Uexküll 2010), and *Bedeutungslehre* (Uexküll 1940; in English Uexküll 1982, 2010).

<sup>3</sup> The motivation for this framing of umwelt theory, for the purpose of this article, is to delimit the subject matter of the article in a suitable manner. It is not meant to suggest that the notion of 'umwelt' cannot meaningfully be applied to any non-sentient organisms. However, there is a decisive qualitative difference between sense-saturated umwelten and simpler umwelten.

<sup>4</sup> In modern terminology, we make a distinction between conscious and subconscious experience. Although this distinction has primarily been used in the human realm, it is probably equally relevant in the context of many animals. It might be the case that what makes phenomena appear as significant is not whether or not they are experienced consciously rather than subconsciously, but whether they are related to our (conscious or subconscious) intentionality. I thank an anonymous reviewer for pointing this out.

A biosemiotic understanding of phenomenology arguably necessarily involves adopting a more-than-human perspective on phenomena and phenomenology, and recognizing the experience of non-humans as relevant for phenomenological studies. In a biosemiotic perspective there is a correlation between biological complexity and phenomenal complexity. This implies that we can expect that the more biologically complex an organism is, the more complex phenomena it is capable of experiencing (Sharov, Tønnessen 2021: 277). Besides relying on the common biosemiotic view that all organisms make use of signs, this assumption draws on Uexküll's theorizing about how behaviour is to a large extent determined and constrained by physiology, and that an organism's behavioural repertoire is in turn telling of what has a function and therefore also a meaning for the organism in perceptual terms (cf. e.g. Uexküll 1934: 27). This gradualistic approach to phenomena warrants a distinction between simple lifeworlds called 'signal-worlds', typical of e.g. bacteria, and more complex lifeworlds which can be described as 'umwelten' (Sharov, Tønnessen 2021: 199). Such an outlook makes a biosemiotic understanding of phenomenology stand out from simplistic human-centred versions of phenomenology that recognize only human phenomena on the assumption that only human beings are capable of experiences that are sufficiently self-reflective to qualify as phenomenal. Simplistic phenomenology of this kind cannot account for how phenomena can have emerged in the natural world in the first place, given that it does not acknowledge the experience of any non-human precursors in evolutionary history as relevant for the study of phenomenology.

In this article, I discuss how umwelt theory can be made use of as part of a methodology of phenomenological triangulation in which first-person, second-person and third-person perspectives are combined in studies of one and the same study object. This methodology draws on ideas developed in cognitive semiotics by Jordan Zlatev and others. Applying phenomenological triangulation in the context of umwelt theory and biosemiotics could be seen as contributing to naturalizing semiotic concepts (Vehkavaara 2002). In qualitative research in general, triangulation is considered to enhance the credibility of qualitative analysis (Patton 1999; see also Carter *et al.* 2014; Denzin 2009, 2012).

I regard biosemiotics and cognitive semiotics as neighbouring and to some extent overlapping fields of study or approaches. Most importantly, they both apply semiotic thinking and perspectives to the analysis of living phenomena. It should be acknowledged, however, that there are also some substantial disagreements among scholars affiliated with the two approaches, notably with regard to semiotic thresholds, and conceptions of signs (see e.g. Zlatev 2009).<sup>5</sup> To what

<sup>5</sup> The following statement by Sonesson (2022: 304), which relies on a conception of signs radically different than that found in biosemiotics, is quite typical of a common view within

extent the methodology of cognitive semiotics does – or should – overlap with that of biosemiotics is an open question. However, I fully agree with Zlatev and Alexandra Mouratidou (2024: 1) who claim that “despite some theoretical differences, the focus on subjectivity and the explicit or implicit adoption of the principle of phenomenological triangulation can serve as common ground for cognitive semiotics and biosemiotics”. In this article I draw inspiration from recent work done in cognitive semiotics and build on an interest in the phenomenological outlook which I share with prominent scholars in cognitive semiotics. This results in development of a methodological approach that engages critically with current agendas in cognitive semiotics.

## 2. Phenomenological triangulation

In the work of Zlatev and other scholars in cognitive semiotics, the first-, second- and third-person perspective is presented as subjective, intersubjective, and objective respectively (Zlatev 2009: 178; Zlatev 2012: 15; Mendoza-Collazos 2022: 41).<sup>6</sup> Zlatev (2015: 1059) laments the fact that in the humanities, “a resolute rejection of third-person methods in the study of cultural world as ‘objectivist’ and distorting of the phenomena” has been common. Conversely, natural science has tended to be dismissive of first- and second-person perspectives, regarding only third-person perspectives as potentially scientific. Arguably, this has reduced the ability of natural science to contribute to analysis of phenomena that are inherently subjective. In Zlatev’s (2015: 1059) view, cognitive semiotics can help bridging natural science and the humanities; as he pinpoints, one of the aims of methodological triangulation generally is “to acknowledge the validity of all methods within their respective domain of inquiry”. In the context of semiotics, he adds that such triangulation also aims “to acknowledge the epistemological priority of first- and

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cognitive semiotics in which the term ‘sign’ is reserved for the most advanced meaning-making: “It remains difficult to determine whether some animals are capable of using signs or not, but systems of signs seem to be the exclusive property of human beings.”

<sup>6</sup> In Zlatev and Mouratidou’s recent study “Extending the life world: Phenomenological triangulation along two planes”, a distinction is made between an ontological plane involving Self, Others and Things, and an epistemological plane. The latter concerns the ways in which researchers access phenomena: “from a first-person (philosophical), second-person (empirical in a qualitative sense) and third-person (scientific in a quantitative sense) perspective” (Zlatev, Mouratidou 2024: 1; cf. also their Table 2 on p. 7), respectively. It was Sonesson (2022: 306; cf. Table 14.3 on p. 307) who first called for “distinguishing the modes of access employed and the phenomena on which they operate, both of which may pertain to the first, second and third person”.

second-person methods in the study of meaning” (Zlatev 2015: 1059). This does not simply amount to lumping together methods from different fields of study, but also requires methodological integration. For cognitive semiotics “to come into its own”, Zlatev (2012: 7) asserts, it “cannot be based only on a meta-analysis of the results of the cognitive sciences”, but “should go hand in hand with them to motivate specific empirical studies”. This entails developing “concrete research programs [...] that not only state programmatically that the ‘methods and theories’ of the humanities and sciences need to be integrated but actually *go ahead and do it*” (Zlatev 2012: 14). What Zlatev states about cognitive semiotics in this respect applies just as well to biosemiotics in its relation to the life sciences and any field of study involved with human phenomena.

### 2.1. The first-person perspective

Juan Carlos Mendoza-Collazos and Zlatev (Fig. 1 in 2022: 145) present the first-person perspective as being related to ‘conceptual analysis’ and ‘phenomenological analysis’ (cf. also Zlatev 2012: 15, where ‘conceptual analysis’ is likewise listed under the first-person perspective). In terms of justification, conceptual analysis is related to the postulate that “any investigation should begin [...] with careful reflections on the phenomenon under study, and the concepts used to analyse it” (Mendoza-Collazos, Zlatev 2022: 144), with an emphasis on avoiding prejudice. I find the inclusion of conceptual analysis under the first-person perspective problematic for at least two reasons. First, only in a trivial sense does everything within a lifeworld, or *umwelt*, fall within the first-person perspective – namely, in the sense that everything that we experience, we experience ourselves, first-hand. Still, that does not justify the categorization of every experience as belonging to the first-person perspective, since this logic would render any distinction between a first-person perspective and other perspectives meaningless. Second, conceptual analysis and similar activities typically rely on reading scientific literature written by others, and this might be better framed as intersubjective, given that reading what others have thought and written arguably implies relating to others, though not necessarily in the form of any mutual exchange. This makes also conceptual analysis an intersubjective process, rather than a subjective one. To the extent that thinking, or reflection, is based on what a researcher has read or discussed with others – which is typically the case – these activities, too, are contaminated, as it were, with intersubjectivity.

There is a stronger case for branding phenomenological analysis as a first-person perspective activity, insofar as it consists of some sort of exploration of the phenomena in one’s own lifeworld in a manner which does not rely on past

or current interaction with others. For such analysis to qualify as a first-person activity, the researcher's focus should be on qualitative, perceptual, and felt aspects of the phenomena, in a pre-reflective (and attempted non-linguistic) manner. Before putting this experience into words, as it were, as a preceding step the researcher needs to strive *not* to put it into words. This relates to the classic phenomenological view on experience as including a pre-reflective dimension. "Although phenomenologists do not always agree on important questions about method, focus, or even whether there is an ego or self," as Shaun Gallagher and Dan Zahavi (2023)<sup>7</sup> state, "they are in close to unanimous agreement about the idea that the experiential dimension always involves [...] an implicit prereflective self-consciousness." This is in turn associated with "the idea that experiences have a subjective 'feel' to them, a certain (phenomenal) quality of 'what it is like' or what it 'feels' like to have them" (Gallagher, Zahavi 2023).

In the doctoral dissertation of Mendoza-Collazos (Table 3 in 2022: 41), along with 'phenomenological analysis,' 'systematic intuitions' are said to be methods that fall under the first-person perspective, and their application is said to involve 'intuitive notions' and 'conceptual systematicity'.<sup>8</sup> The expression 'intuitive *notions*' (my emphasis, M. T.) is open to interpretation, but might conceivably imply either conceptions, or beliefs. Such terminology seems to suggest, again, that conceptual analysis can be placed under the first-person perspective. I acknowledge that applying one's intuition has been central in the history of phenomenology (Spiegelberg 1971), and it makes sense to associate phenomenological analysis with the use of intuition. What I question is whether it makes sense to regard any conscious relating to concepts, terminology, etc. as occurring in the first-person perspective. If language as such is an intersubjective phenomenon, then so, arguably, is any language use that draws on the inventions and expressions of others. Even the apparently individual, innovative activity of coining new terms and concepts would have been impossible if it were not for the intersubjective character of language. More broadly, one could with good reason claim that in experiential terms, intersubjectivity precedes, and makes possible, subjectivity in the first-person perspective – only after relating to others are we able to relate to ourselves as distinct from others.<sup>9</sup> Such reflections could be used to support the idea that phenomenologists (and any semioticians

<sup>7</sup> Gallagher, Shaun; Zahavi, Dan 2023. Phenomenological approaches to self-consciousness. In: Zalta, Edward N.; Nodelman, Uri (eds.), *The Stanford Encyclopedia of Philosophy* (Winter 2023 Edition) can be accessed at: <https://plato.stanford.edu/archives/win2023/entries/self-consciousness-phenomenological/>.

<sup>8</sup> Cf. also Zlatev 2012: 15, where "systematic intuitions" are likewise listed under the first-person perspective.

<sup>9</sup> I thank an anonymous reviewer for making this point.



who apply a phenomenological approach) should restrict reference to intuition, in the first-person perspective, to instances of intuitive realizations ('eureka moments') that come out of the blue, as it were, and not apply the term to instances of experience that are overburdened with conscious thought and linguistic expressions. As analytic philosophy in the Anglo-American tradition has demonstrated all too many times, beliefs that are claimed to be the progeny of a philosopher's intuition could often just as well be understood as the logical result of English grammar combined with a studied lack of imagination.

In the context of umwelt research, a researcher can be said to adopt a first-person perspective whenever he or she conducts a study by intently exploring his or her own umwelt without emphasizing interaction with or observation of others. This may include what is often referred to as 'introspection', i.e. self-reflective or intuitive exploration of one's own mental and emotional states or processes. While, in the first-person perspective, we have a sort of direct access to our own conscious mind, our access to our own thinking, feeling and experience is nevertheless not total, given that some mental and emotional phenomena are subconscious. For this reason, the dictum that we do not have full access to the experience of *others*, to some extent applies even to ourselves.

With reference to "the basic phenomenological principle to examine the phenomena without theoretical preconceptions, and without premature explanations", Zlatev (2018: 1) notes that cognitive semiotics should have "a focus on human experience, even when dealing with the 'biological' level of meaning". This statement could to some extent be read as reminiscent of Uexküll's portrayal of the umwelten of different natural scientists at the end of *A Foray into the Worlds of Humans and Animals* (Uexküll 2010: 133–135), i.e. those umwelten "that are dedicated to the investigation of Nature" (Uexküll 2010: 133). According to Uexküll, the astronomer's umwelt, for instance, "is only a tiny excerpt from Nature, tailored to the capacities of the human subject".<sup>10</sup> While any researcher whatsoever necessarily must study the natural world by way of his or her own umwelt, the spectre of field-specific perspectives we can apply to our own experience results in radical diversity. "The role Nature plays as an object in the various [umwelten] of natural scientists is highly contradictory," as Uexküll (2010: 135) writes, although the different worlds described by natural scientists "are equally real". Uexküll's perspective of field-specific umwelten clearly has something in common with Husserl's outlook on the lifeworlds of natural scientists as described in *Die Krisis der europäischen Wissenschaften und die Transzendente Phänomenologie* (Husserl 1954, 1970). As Sonesson (2009: 58) remarks regarding Husserl's message on this

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<sup>10</sup> Note that the use of technical aids is implied by Uexküll.

point, “[t]here is a danger of forgetting that the only real world of our experience is that of the Lifeworld, and that even the scientist, when he makes his experiments, is himself located in that world”. He goes on to say: “It is only from the point of view of the Lifeworld,” in fact, “that the scientific world can be conceived” at all (Sonesson 2009: 59).

With this in mind, I concur with Zlatev that biological meaning can be studied through human experience. However, one can question whether it is possible in practice for adult, educated people to “examine the phenomena without theoretical preconceptions” (Zlatev 2018: 1), and thus go beyond the field-specific meaning-filters they have been trained to apply in their study of the natural world.<sup>11</sup> In the introduction to the first edition of *Bedeutungslehre* (Uexküll 1940), translated into English as *The Theory of Meaning*, Uexküll (1982: 26) used the term ‘meaning-blind’ (*bedeutungsblind*) to describe the circumstance of a natural scientist who is not theoretically equipped to recognize patterns of meaning in nature, adding that such a researcher “perceives nature’s countenance like a chemist confronting the Sistine Madonna. Although he can see the colors, he cannot see the picture.” While examining phenomena in an entirely pre-theoretical fashion may not be attainable for researchers, there is at least a tried and tested cure for the kind of meaning-blindness that is caused by the “silo thinking” of one-sided reclusive disciplinarity, namely interdisciplinarity and the kind of broader orientation that triangulation can help provide.

## 2.2. The second-person perspective

Mendoza-Collazos (2022: 41 – Table 3) lists ‘intersubjective validations’, ‘participant observation’ and ‘interviews’ as methods that fall under the second-person perspective, whereas Zlatev (2012: 15) lists ‘empathy’ and ‘imaginative projection’ as second-person perspective methods (see also Sonesson 2009 concerning empathy).<sup>12</sup> Scott Churchill (2006, 2012) is a phenomenologist who has emphasized the use of empathy, and, in effect, participant observation, in studies of humans as well as animals. Commenting on Churchill’s work, Beck (2021: 149)

<sup>11</sup> Cf. Mendoza-Collazos (2022: 39), who in his doctoral dissertation sets out to reflect on and analyse his research topic while “avoiding any commitment with prior theories or paradigms”, aiming “to obtain a systematic first-person perspective on the phenomena”. Given that the dissertation is explicitly placed within cognitive semiotics theoretically, and furthermore draws on phenomenology, it is hard to see how it can live up to its promise of avoiding theoretical commitments.

<sup>12</sup> In Zlatev and Mouratidou (2024: 7), empathy is framed as belonging to the researcher’s first-person perspective epistemologically and to “Others” in the lifeworld ontologically (cf. a similar placement in Sonesson 2022: 307).

describes the second-person perspective as “all-important”, and remarks that as Churchill’s students (as described in Churchill 2012) “moved to the second person experience, there was a shift from being enveloped in oneself to a centering on the communication and gestures of the other, and a deeper encounter was possible”. The second-person perspective has also been emphasised by Dan Zahavi (2019c) and is implied in any kind of phenomenological methodology involving interviews (cf. also Zlatev, Mouratidou 2024: 7, 14).<sup>13</sup> The conduction of interviews is central e.g. in Giorgi’s approach to descriptive phenomenology (Giorgi 2005). In recent years, Høffding and Martiny’s (2016) framework for conducting a phenomenological interview has received recognition.

In “Über das Unsichtbare in der Natur”, Uexküll (1913: 62) frames his methodological approach in umwelt research as being about studying the overlap between the researcher’s own umwelt and the umwelt of an animal that is studied by the researcher.<sup>14</sup> Uexküll indicates that this involves a systematic study, part by part, of the researcher’s own umwelt, with the aid of observation and experiments. This might leave the impression of a first-person-perspective study, and there are admittedly elements of this. However, since the study of an animal’s umwelt concerns a subject (the researcher) relating to another subject (the animal), we can regard the conventional umwelt research situation as fundamentally intersubjective in that it involves a researcher adopting a second-person perspective on the animal’s observable behaviour. This will be the case insofar as the researcher adopts an attitude focused on understanding the animal’s subjectivity – its agency, apparent reasoning, etc.

In principle, the same would apply to the scientific study of another human being’s umwelt, even though intersubjective comparative studies of human umwelten have further methods to draw on, and typically make use of some kind of interaction with the researcher. In conventional umwelt research situations, interaction is optional as far as the research design is concerned. It is not always required or appropriate but may be informative in many cases. Whether or not it is suitable is first and foremost a matter of whether the researcher’s aim is to study inter- or intra-species behaviour.

<sup>13</sup> In Sonesson (2022: 307), interviews are placed under a third-person perspective (involving neutrality) in terms of mode of access, but under a second-person perspective in terms of the phenomena accessed.

<sup>14</sup> “Wir befinden uns folgende Sachlage gegenüber. Es ist uns ein fremdes Subjekt – ein Tier – gegeben, daß wir in unserer Umwelt beobachten können. Wir wissen, daß diese Umwelt ihr eigentümliches Gepräge durch uns selbst erhält. Das Gepräge, daß das fremde Subjekt seiner Umwelt gibt, können wir niemals kennen lernen. Die einzige Aufgabe, die für uns lösbar ist, besteht darin: durch Beobachtung und Experiment jene Teile unserer Umwelt herauszufinden, welche in die fremde Umwelt eingreifen.”

The second-person perspective in ethological studies is in effect stressed by Dominique Lestel (2011), who has advocated for a more interactive ethology. While the predominant epistemological research paradigm in the study of animal behaviour, motivated by avoiding anthropomorphism, emphasizes that “all observers can contaminate the behaviour of the animal and it is important to protect the results from this danger”, Lestel (2011: 89) suggests that in normal circumstances the “observation of an animal is an interactive process” in which the “observer and the observed play complementary roles which are even inverted occasionally”. What is often dismissed as anecdotal evidence without scientific rigour often refers to researchers’ experience with interactive and cooperative encounters with animals (Lestel 2011: 91). Lestel’s main point is that human–animal interaction is natural, and that by leaving human–animal interaction out of scientific studies of animal behaviour, we miss out on a proper understanding of key aspects of animal behaviour.

From Uexküll’s perspective, the study of an animal’s *umwelt* by way of comparison with the researcher’s own *umwelt* is made possible by the alleged fact that the human *umwelt* is “larger” or more complex than the animal’s.<sup>15</sup> A *caveat* worth mentioning is that it is not at all the case that the human *umwelt* includes everything any animal *umwelt* includes, and more. On the contrary, there are obvious examples of perceptual and behavioural capabilities in many animals which humans lack, for instance related to senses we lack but some animals have – such as the echolocation of bats, or the magnetoreception of many birds and several other animals; or behaviours we are incapable of, such as the ability to fly, or to breathe under water. While it is often methodologically fruitful to conduct comparative *umwelt* studies focused on overlaps, as Uexküll stipulates, we should acknowledge that our understanding of animal *umwelten* is in principle limited and wanting. This point is echoed by Lestel’s (2011: 89) assertion that “[t]here will always exist a part of the animal unsurmountable for human understanding”.

Many scholars have made a similar point concerning our understanding of other humans. Even when researchers are dealing with the same species-specific *umwelt* as their own – the human *umwelt* – they tend to acknowledge that their access to the experience of others is always only partial. This remains the case even if research data include verbal or written reports from the research subjects themselves. Apparently, there is a fundamental epistemological difference between a

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<sup>15</sup> In his writings Uexküll also stressed the rich diversity in physiology and behaviours that can be observed in the natural world, and underlined that radically different solutions to problems raised by functional needs have evolved. Such a view aligns well with a pluralist view on humans and non-humans (cf. Martinelli 2010).

first-person perspective and a second-person perspective, which means that some aspects of the being and experience of others will always elude us.

### 2.3. The third-person perspective

Mendoza-Collazos (Table 3 in 2022: 41) lists ‘experiments’ and ‘inferential statistics’ as methods that fall under the third-person perspective. Zlatev (2012: 15) lists ‘detached observation’, ‘experimentation’, ‘brain imaging’ and ‘computational modelling’ as methods falling under the third-person perspective. For a discussion of experiments in semiotics, see Sonesson 2019.

Also relevant in the context of a third-person perspective is Martin Buber’s seminal work *I and Thou*, where Buber (2010) advocates for an intersubjective perspective, and in effect contrasts the potentially empathic second-person perspective with an objectifying third-person perspective. In empirical research, Buber’s message can serve as a reminder that if, by applying a third-person perspective, we objectify and alienate research subjects, then we should reconsider our methodological approach. In my judgement, this applies in equal measure to studies of animals and to those of humans. The needed adjustment in methodological approach might not have to involve avoiding a third-person perspective entirely but might consist in making sure that any third-person study is conducted with respect and supplemented with second-person engagement that acknowledges the research subject’s agency and dignity. Concerning drawing a line between the second-person and third-person perspectives in interview settings, see León *et al.* 2022.

In a semiotic view, adopting the third-person perspective can involve observing the sign use of others with a detached attitude. This presupposes that the observer is not directly involved in the sign exchange that is studied and does not interfere with it. The sign use in question can occur among two or more organisms, or between an organism and its environment. In umwelt research, the researcher adopts a third-person perspective whenever he or she studies the umwelt of an animal with a detached attitude and applies a bird’s-eye view to the animal’s interactions with the environment. This may be the case whenever the researcher studies scientific texts or research reports in other formats. It is also the case if the researcher observes an animal, or conducts experiments with an animal, with a research design which entails that the researcher is hidden from view or in other ways designed to remain unnoticed by the animal. The latter category includes data obtained e.g. by use of wildlife cameras and GPS tracking. Third-person perspective studies also include studies of the bodies of dead animals – whether or not dissection (dismembering of the diseased animal) is involved – and any

material animals have left behind, including hair or feathers, skin and blood, and excrements, all of which can be informative in the context of behavioural studies. Finally, such research includes studies of any observable traces that animals have left behind, such as e.g. tracks or imprints. Summing up, in light of Uexküll's portrayal of *umwelt* research as involving the study of the overlap between the researcher's own *umwelt* and an animal's *umwelt* (Uexküll 1913: 62), we can say that conducting third-person perspective studies involves focusing on elements of our own *umwelt* that are *about* the animal in one way or another.

Applied to the context of human *umwelten*, we can state that the *umwelt* researcher adopts a third-person perspective whenever he or she studies the *umwelt* of some human individual or a group of humans with a detached attitude and focusing on a systems view of human interactions. Such research can be understood to be focused on elements of the researcher's own *umwelt* that are *about* the human research subjects in one way or another. Without going into detail, it can be said that data sources in this context include scientific texts, data drawn from non-participant observation, registry data, surveillance data, data obtained from autopsies, and material and traces that can be analysed for identification purposes, including footprints and fingerprints, teeth and hair, and blood and semen, whether or not these materials are subjected to DNA profiling.

Whether we are dealing with human or animal *umwelten*, it is often useful to distinguish between an organism's *umwelt* – involving its exterior world of signs – and its *Innenwelt*, involving its interior world of signs (Uexküll 1909, 1921). In “Human agency and ecology”, Chapter 11 of Sharov, Tønnessen 2021, we argue that on an Uexküllian basis we can methodologically distinguish between the *Innenwelt*, the *Umwelt*, and the *Umgebung* (physio-chemical surroundings) of an organism, and map how changes in one of these realms trigger changes in the others. This approach also involves the use of a distinction between *efficient causation*, which is predominant in the physio-chemical realm, and *semiotic causation*, which is at work whenever sign use acts as a cause of changes. According to Jesper Hoffmeyer, the originator of this concept as adopted by me, semiotic causation “cannot be reduced to efficient causality, but is dependent on efficient causality since interpretative activity, even in its most primitive modes, is connected to possible anticipatory action, and action unquestionably depends on efficient causality” (Hoffmeyer 2015: 10).<sup>16</sup>

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<sup>16</sup> Prior to Hoffmeyer's coinage, Hulswit (1998) discussed a Peircean notion of ‘*semiotic causation*’, as related to the role of causal elements, specifically efficient causation, final causation, and chance, within *semiosis*.

## 2.4. Scope and limitations of triangulation in different contexts

Commenting on Zlatev's triangulation scheme as presented in Zlatev 2009, Sonesson (2009: 43) cautions that the different methods applied in methodological triangulation

[...] may be applied to what is, from some point of view (notably a third-person perspective such as that of the natural sciences) described as being the same object or situation, but the kind of knowledge yielded will always be different, and therefore correlation or triangulation will never be straightforward.

Sonesson also indicates that the resulting triangulated knowledge may itself typically be knowledge in the third-person perspective, or possibly knowledge in the second-person perspective: "To the extent that we are involved with scientific methods, all the knowledge obtained will be of the objective or intersubjective kind" (Sonesson 2009: 43; cf. also Hammersley 2008).

On a positive note, emphasizing the value of triangulation in Zlatev's (2009) sense, Sonesson (2009: 45) posits that "we can only fully compare human beings and other animals, as well [as] adults and infants, if we can correlate first-person, second-person and third-person methods". In his view, only sufficiently mature human beings can be studied by first- and second-person methods, and only animals with sufficiently complex cognitive capacities and adequate training – "notably [...] humanly enculturated apes" – can be studied by second-person methods (Sonesson 2009: 45). In a somewhat simplifying manner, Sonesson states that "basically, we can only know animals from Third person methods", adding that "this really also applies to small children, before a certain age, which can be variable, whether the task requires the possession of language or some [other] semiotic means of communication will do".

I think that Sonesson's view on the application of a second-person perspective in studies of animals and small children is too restrictive. This disagreement can probably best be explained by reference to the different understanding, in cognitive semiotics and in biosemiotics, of semiotic thresholds. While in the perspective of cognitive semiotics only mature individuals belonging to a few cognitively complex species are capable of sign use, in a biosemiotic perspective, all individual organisms of any species are capable of sign use, even though we are then dealing with sign use of radically differing complexity. Within a biosemiotic outlook, intersubjective sign exchange between a researcher and a research subject is possible in the studies of animals and small children as well. However, even regardless of disagreements about how to conceptualize signs and sign use, it is highly conceivable that intersubjective meaning-making can take place between a

researcher and small children, as well as between a researcher and animals. While I agree with Sonesson that we can only interact intersubjectively with animals with sufficiently complex cognitive capacities, I think that by suggesting that perhaps only “humanly enculturated apes” (Sonesson 2009: 45) qualify, he is setting the bar far too high.

As Tommi Vehkavaara (2002) stresses, the fundamental difference between the meta-agent (observer, researcher) and the object-agent (the research subject) must be kept in mind in biosemiotic studies. He cautions that “there is a risk of falling into anthropomorphic errors if the semiotic concepts remain mentalistic” (Vehkavaara 2002: 293), and especially warns against referring to “objects of representation” in simple lifeworlds, such as those of bacteria. In his later work conducted with Alexei Sharov (Sharov, Vehkavaara 2015), he has resolved this challenge by conceptualizing agency with varying representation capacity. In the context of this article, Vehkavaara’s warning can serve as a reminder that we as humans can interact behaviourally with some species, but not with others. By interacting, I mean behaving towards another living being in a way that is responsive to its behaviour, which must in turn be responsive to yours. In practice, this limits the applicability of some second-person perspective methods, such as participant observation, to animals that can recognize and relate to human beings as coherent, individual creatures (rather than e.g. a habitat or some fuzzy natural force). As a minimum, this likely applies to all mature mammals and birds, and at least some amphibians and reptiles.

With reference to Uexküll’s aforementioned description of *umwelt* theory as the study of the overlap between the researcher’s own *umwelt* and the *umwelt* of some other living being (Uexküll 1913: 62), classic *umwelt* theory can be framed as implicitly involving elements of phenomenological triangulation: a first-person perspective study of the researcher’s own *umwelt*, followed by a second-person perspective study of the research subject’s *umwelt* based on behavioural observations focused on the animal’s subjectivity, and informed by third-person perspective studies of the research subject’s physiology. These elements are built into Table 1, and supplemented with further methods drawn from various approaches, including cognitive semiotics, phenomenology, and contemporary qualitative research in general.



Table 1. Outline of phenomenological triangulation in applied umwelt theory.

Perspective	Methods	Study objects	Applicable to animal studies?	Applicable to human studies?
First-person	<ul style="list-style-type: none"> <li>• Intuition</li> <li>• Introspection</li> <li>• Study of one's own experience and behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• One's own umwelt (in its pre-reflective experiential aspects)</li> </ul>	n/a	Yes
Second-person	<ul style="list-style-type: none"> <li>• Subjectivity-focused observation of human behaviour</li> <li>• Empathic observation of human behaviour</li> <li>• Interviews</li> <li>• Study of respondent texts</li> <li>• Participant observation of human behaviour</li> <li>• Participant observation of human–animal interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Another human umwelt</li> </ul>	No	Yes
Second-person	<ul style="list-style-type: none"> <li>• Subjectivity-focused observation of animal behaviour</li> <li>• Empathic observation of animal behaviour</li> <li>• Participant observation of animal behaviour</li> <li>• Participant observation of animal–human interaction</li> </ul>	<ul style="list-style-type: none"> <li>• An animal umwelt</li> </ul>	Yes	No
Third-person	<ul style="list-style-type: none"> <li>• Physiological studies</li> <li>• Detached/hidden observation</li> <li>• Expert interviews</li> <li>• Study of expert literature</li> <li>• Experiments/measurement</li> </ul>	<ul style="list-style-type: none"> <li>• Another human umwelt</li> <li>• An animal umwelt</li> </ul>	Yes	Yes

While the first-person methods listed in Table 1 are applicable only to human studies, most of the second-person perspective methods – in fact, all except interviews and studies of respondent texts – are applicable to animal studies as well. The third-person perspective methods are generally equally applicable to human and animal studies. As this should demonstrate, descriptive phenomenology informed by second- and third-person perspective studies is feasible in the context of studies of animal phenomena as well. The only *caveat*, as mentioned above, is that the use of interaction-based methods requires reciprocity in behavioural interaction. However, the core second-person perspective method, namely subjectivity-focused observation of behaviour, is not interaction-based. Whereas some intersubjective methods are only applicable to some animals, the core method is applicable to all animals.

In the table I distinguish between subjectivity-focused observation of behaviour and emphatic observation of behaviour, assuming that subjectivity-focused observation is attainable without the use of empathy. This indicates a higher degree of detachment in the former case than in the latter. Empathy, which is not strictly interaction-based, is a resource which in many cases enables us to understand others by drawing on our own experience. However, relying on empathy also runs the risk of misattributing, or projecting, our own experience to others. Empathic observation is therefore best used in combination with interaction-based methods. This in effect limits the reliable applicability of empathic observation to animals capable of reciprocity in behavioural interaction with humans.

### 3. Descriptive phenomenology

In what follows I will share some field-specific considerations about applying umwelt theory as part of a more-than-human descriptive phenomenology in various fields of study. Both semiotics and phenomenology are typically claimed to be widely applicable and relevant. Concerning phenomenology, Beck (2021) stresses the applicability of phenomenology in social, behavioural and health sciences, but also notes that the use of phenomenology “is not discipline limited” (Beck 2021: 1). In descriptive phenomenology, Giorgi’s approach is the one that is best known. Even though it has its origins in the context of psychology, it has been designed to be applicable in any part of social science (Beck 2021: 66) and is also presented as relevant for ‘the human sciences’ in general (Giorgi 2005).

There are different meaningful ways of subdividing science at large. The somewhat classic distinction between natural sciences, social sciences, and the humanities is not the best starting point in the context of this article, for one reason because

such a subdivision does not distinguish between fields of study that are related to perception and behaviour, and those that are not. Umwelt theory is perhaps the most obviously relevant for behavioural sciences and cognitive science, which overlap, but cut across natural sciences and various studies of human phenomena.

In the following I touch upon 17 different fields of study where, in my judgement, applied umwelt theory is relevant. These are placed in four major categories of scientific fields of study. The four categories I pragmatically divide science into are (1) behavioural sciences, (2) health and social studies, (3) the humanities and the arts, and (4) speculative studies. These are distinguished from one another by mainly focusing on behaviour in different contexts (behavioural sciences), various kinds of help in the context of health issues and social problems (health and social studies), various kinds of cultural and existential phenomena (the humanities and the arts), and imaginative theorizing about future or extraterrestrial perception and behaviour (speculative studies), respectively. All the 17 fields of study that I address in this article can be conceptualized as involving studies of the perception and behaviour of humans, or animals, or both.

### 3.1. In behavioural sciences

In this category, I will address eight different fields of studies. The first of these, *human ecology*, is not currently conceived of as primarily a behavioural science, but more generally understood as an interdisciplinary study of the relationship between humans and their environment. However, I think a behavioural (and perceptual) framing of human ecology makes sense, and that adopting an interspecies perspective on human ecology is fruitful. This also holds for the Anthropocene discourse, which is currently dominated by third-person perspective studies supplemented by humanities-oriented theorizing but suffers from a lack of systematic studies of subjectivity and intersubjectivity. A useful concept in the context of human ecology is ‘umwelt collapse’ (Maran 2023), which can be related to ecological research on biodiversity and conservation. See also Tønnessen 2020 for a discussion of applications of an umwelt perspective on different scales, and Sharov, Tønnessen 2021 for a treatment of how an umwelt perspective can be related to human agency with its impact on the physical environment.

In *ethology*, Churchill’s (2006) intersubjective approach to animal studies drawing on umwelt theory is a valuable starting point; see also Burghardt 2008 and 2020 for reflections on umwelt theory’s relevance for contemporary ethology, and Tønnessen 2022 for an overview of applications of semiotics in ethology and zoology. As mentioned above, Lestel (2011) has advocated a more interactive approach in ethology, in effect underlining the importance of adopting a second-person

perspective in studies of animal behaviour. Moreover, Lestel (2011: 89) points out that ethologists should be informed by the intersubjective experiences with animals of people “coming from other cultures and/or from professionals working with animals”. In addition to providing knowledge about the behavioural repertoire and variations of an animal, such an approach can be culturally sensitive, and informative also in the context of human ecology, anthropology, sociology, etc. See also Tønnessen 2023b for practical guidelines for ethologists in the context of descriptive phenomenology – where guidelines are also provided in the context of *zoo biology* (cf. also Churchill 2006).

In *psychology*, applied umwelt theory can supplement the currently dominating methods tailored for human research subjects, such as those of Giorgi’s (2009, 2012) approach, with further methods, focused on observation, thus enriching lifeworld studies (cf. Table 1). An umwelt perspective is particularly pertinent in socio-ecological contexts and settings that involve human-animal interaction. In the latter case, the perspective of comparative psychology (e.g. Burghardt 2008) is relevant, and a good fit for umwelt theory.

In *sociology*, Uexküll’s outlook on umwelten related to work life comes into play. As Uexküll (1913: 58–59) remarks, people who belong to the same profession or occupation have an umwelt that can be distinguished from other professional umwelten. This umwelt is characterized by the worker’s ability to recognize and relate to exactly those objects that are relevant in the context of the profession’s work life, with an associated specialized vocabulary and know-how. With its relevance for contributing to describing how societies are organized, the depiction of specific professional umwelten is highly relevant in the context of sociology, but also relevant in *anthropology*, perhaps especially with an emphasis on the degree of division of labour, in *political science*, with a special emphasis on government structures and more generally the public sector, and in *economics*, with a special emphasis on the private sector. In economics, it is also potentially productive to apply an umwelt perspective to *behavioural economics*.

### 3.2. In health and social studies

*Health studies* is influenced by the practice traditions and identities of several strong professions, including medical doctors or physicians, surgeons, psychiatrists, and nurses. Drawing on Uexküll’s notion of a professional umwelt (Uexküll 1913: 58–59), the doctor’s umwelt, the surgeon’s umwelt, the psychiatrist’s umwelt, and the nurse’s umwelt, and so on, can be studied and depicted. In many cases such professional umwelten should be seen in their relation to the patient’s umwelt. While many patients may have a lot in common in several different care contexts, it

is also fruitful to portray the umwelt of subgroups of patients, e.g. Myalgic encephalomyelitis (ME) patients, cancer patients, acute care patients, palliative patients, pediatric patients, etc.<sup>17</sup> Umwelt modelling can be enriched and informed by use of predominant empirical phenomenological methods such as e.g. those of Giorgi (2005, 2009) or Smith (2018) (see also Dowling 2007). Concerning interviews in psychiatry focused on the difference between second-person and third-person relations, see León *et al.* 2022. For a classic text on endosemiosis, a key notion for health studies, see T. von Uexküll, Geigges 1993; for a treatment of the relevance of semiotics and the umwelt theory in health studies, including on the relation between endosemiosis and umwelt theory, see Tønnessen 2023c.

Uexküll's aforementioned notion of a professional umwelt (Uexküll 1913: 58–59) is also relevant in *social studies*, where it can be applied e.g. to the profession of social workers and to trained professionals in child protection services, and in *veterinary science* where it can be applied to veterinarians and related professions. In the context of social studies, the depiction of professional umwelten should as a rule be accompanied by descriptions of the umwelten of the users of various public services, e.g. the unemployed, the homeless, children in foster care or residential care, etc. Practical guidelines for veterinarians concerning application of umwelt theory as part of descriptive phenomenology are provided in Tønnessen 2023b.

### 3.3. In the humanities and the arts

In the *environmental humanities*, modelling of the umwelten of humans and animals is highly relevant, including in any context related to the Anthropocene discourse. In *history*, past umwelten can be modelled or described. In the study of past umwelten there are usually no present organisms available for real-time observations and whole-body physiological studies, but as I argue in Tønnessen 2023a it is nevertheless often possible to reconstruct past umwelten by making qualified assumptions drawn from current, relevant knowledge and by reconstructing likely umwelt relations. In *philosophy*, modelling of umwelten is relevant e.g. in the context of phenomenology, existentialist philosophy, philosophy of mind, ontology, epistemology, political philosophy, moral theory, and what Thom van Dooren calls 'field philosophy', described as "an effort to interrogate the structures of meaning, valuing, and knowing that shape our worlds" (Van Dooren 2017: 60). Likewise, umwelt modelling is often relevant in *the arts*, perhaps particularly with emphasis on different aspects of sensory experience, and typically aided by imaginative projection.

<sup>17</sup> Some of these patient subgroups will intersect.

### 3.4. In speculative studies

In *futures studies*, umwelt modelling can be used in exploration of different scenarios of future developments. As I argue in Tønnessen 2019, by combining umwelt theory with current knowledge from various fields of study, we can meaningfully make some predictions about future umwelten (umwelt prediction) and draw up alternative scenarios for how current umwelten might possibly evolve in the future (umwelt scenarios). Development of umwelt scenarios can perhaps be particularly useful in policy development and policy discussions, where they can be used to emphasize what is at stake in various situations of choosing. The umwelt perspective can be combined with existing semiotic approaches in futures studies (Hiltunen 2008; Kuusi, Hiltunen 2011).

Finally, in *astrobiology*, David Dunér has, over several articles, demonstrated the relevance of cognitive semiotics for astrobiology (e.g. Dunér 2017), and a biosemiotic approach has been applied in a recent anthology (Sharov, Mikhailovsky 2024). In this field, umwelt modelling can be used both to help planning for the living conditions of humans involved in space exploration, given how stays in space alter human physiology, experience, and behaviour, and to anticipate the lifeworlds of tentatively existing lifeforms beyond Earth. In the latter case, such modelling can be based e.g. on Uexküll's (1920, 1926, 1928) outline of how spatial and temporal perception is configured differently in different animals, combined with knowledge about the physical conditions on various astronomical bodies.

## 4. Concluding remarks

In this article I have discussed how applied umwelt theory can fruitfully involve phenomenological triangulation, and how a more-than-human descriptive phenomenology can draw on umwelt theory in a number of different fields of study. By emphasizing the first-person and second-person perspectives in particular I have attempted to show that a broad spectre of scientific investigations can meaningfully incorporate studies of subjective experience. In biology and human studies alike, many have thought that while human subjective experience is accessible for studies, by means of language, animal subjective experience is not. As I have tried to show, animal subjective experience is also accessible for studies, and there are ways of accessing human subjective experience methodologically beyond language-based methods. If applied umwelt theory along the lines I have outlined is made use of, including in the context of descriptive phenomenology, then several fields of study have a potential for expanding their range of subject matters, and the depth of meaning they are equipped to investigate. A researcher

can confidently take advantage of some of the tools I have described without feeling obliged to make use of all of them. After all, if a field of study is not selective, it is hardly a field at all.

On a final note, I would like to point out that the futures perspective which I addressed in the previous section, which some may feel inclined to dismiss due to its speculative nature, is crucial in any ethically loaded discussion about human ecology. As a matter of fact, some of the many environmental problems caused by the current generation(s) will have repercussions for the future umwelten of humans and non-humans alike for hundreds or thousands of years, if not even longer. For instance, the sea level rise caused by our current anthropogenic climate gas emissions and land use will likely continue for most of this millennium. As a rule, biosemioticians and other umwelt scholars should in my judgement advocate solutions to environmental problems that are practically feasible to carry out conclusively within the time frame of our own generation or lifetime. Only in this way can we take proper responsibility for what we have collectively done over the last several decades. In contrast, we should avoid, and criticize, apparent “solutions” that in effect perpetuate environmental problems by leaving the responsibility for the problems of our making to future generations.

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## **Teoria aplicada da Umwelt no contexto da triangulação fenomenológica e da fenomenologia descritiva**

Apesar de a Teoria da Umwelt de Jakob von Uexküll ter inspirado tanto biosemióticistas quanto fenomenologistas, a maioria dos métodos fenomenológicos são aplicáveis somente aos fenômenos humanos. No presente artigo discutimos como a Teoria da Umwelt pode ser aplicada no contexto da triangulação fenomenológica e da fenomenologia descritiva. Esta aplicação resulta em abordagem metodológica da Teoria de Umwelt aplicada em um contexto fenomenológico. Apoiados nos avanços metodológicos da semiótica cognitiva desenvolvidos por Jordan Zlatev e colegas, discutimos como as perspectivas de primeira, segunda e terceira pessoas podem ser combinadas em estudos dos fenômenos humano e animal. Também esboçamos uma fenomenologia descritiva mais que humana que também é aplicável as ciências comportamentais, a área da saúde e ciências sociais, a área de humanas e das artes, bem como em áreas de estudos especulativos, após considerações específicas a respectiva área. O objetivo do presente artigo é contribuir para a integração das disciplinas biosemiótica e fenomenologia, e demonstrar a relevância da Teoria da Umwelt para a fenomenologia, e vice-versa.

## **Rakenduslik omailmateooria fenomenoloogilise triangulatsiooni ja deskriptiive fenomenoloogia kontekstis**

Kuigi Jakob von Uexkülli omailmateooria on ühevõrra inspireerinud nii biosemiootikuid kui ka fenomenolooge, on enamik kaasaegseid fenomenoloogilisi meetodeid rakendatavad üksnes inimlike nähtuste uurimisel. Käesolevas artiklis vaatlen, kuidas saab omailmateooriat kasutada fenomenoloogilise triangulatsiooni ja deskriptiivse fenomenoloogia kontekstis. Selle tulemuseks on metodoloogilise raamistus rakenduslikule omailmateooriale fenomenoloogilisel taustal. Kasutades Jordan Zlatevi ja tema kolleegide poolt välja töötatud kognitiivsemiootika metodoloogilisi edusamme, arutlen, kuidas esimese, teise ja kolmanda isiku perspektiive on võimalik kombineerida inim- ning loomnähtuste uurimisel. Edasi visandan deskriptiivse enam-kui-inim-fenomenoloogia, mida on võimalik rakendada käitumisteadustes, tervise- ja sotsiaalteadustes, humanitaaria ja kunstivallas ning spekulatiivsetes uuringutes, võttes arvesse valdkondlikke eripärasid. Kokkuvõttes on artikli eesmärgiks aidata kaasa biosemiootika ja fenomenoloogia lõimimisele ja demonstrearida omailmateooria tähtsust fenomenoloogiale ja vastupidi.