

# The ontological primacy of umwelt

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**Abstract.** Where do the basic composite parts of an umwelt – the organism and the environment – come from? Customarily, in umwelt theory, the emphasis is on their mutual co-construction or constitution through functional cycles. But another question could be added to this inquiry: what is the origin, the genesis of organisms and their environments which are now to be indivisibly united once again? On the basis of the transactional conception of relations proposed by John Dewey, the concept of schismogenesis as described by Gregory Bateson, and the process of individuation as explicated by Gilbert Simondon, it is proposed that it is the umwelt which is ontologically primary, and that it is its internal division, separation and individuation, which results in the appearance of organisms with their environments.

**Keywords:** umwelt theory; ontology; dualism; transaction; schismogenesis; individuation

Difference [...] by itself articulates or draws together.

Gilles Deleuze

An umwelt is, to put it crudely, something which is constituted of two parts, the organism and the environment. These two parts are interlinked by means of functional cycles. Put in such terms, it would be an entirely usual and generic model, part and parcel of a myriad of others, which in the end reduce to the typical subject-object distinction. Yet umwelten are also unitary wholes, and thus comprise a particular kind of object: a unitary dyad, a disjunctive conjunction, a structure which binds and distinguishes at the same time. The organism and the environment are independent, yet inseparable, and the relations between them – the functional cycles – are simultaneously immanent and extrinsic: immanent, because they are the very ways in which the umwelt-bubbles are constituted, but also extrinsic, because their very necessity depends on there being two parts to be conjoined. Umwelten are an indivision, a coupling of the disjoint, unitary in

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their differentiation. As Uexküll himself writes: “The entire function-circle formed from inner world and surrounding-world [...] constitutes a whole which is built in conformity with plan, for *each part belongs to the others*” (Uexküll 1926: 127; my emphasis, S. R.).

The question arises: whence this mutual belonging? There is a kind of tension here. An *umwelt* consists of two poles, yet the two poles are inextricably inter-linked. But are the two the result of a conjoining, or of differentiation? Is an *umwelt* a result, or a starting point? This is the object of speculation in this paper: is an *umwelt* an ontologically primary phenomenon, or is it entirely about knowings?<sup>2</sup>

This paper is divided into two parts: first, a brief overview of the “decision to overcome” all the dualisms by deciding in favour of one part or the other, and thus reducing one to the other, and second, some preliminaries of the possibility of thinking about organisms and their environments as the result of division and separation within the originary ontological entity – the *umwelt*. This second part, however, does not put forward an argument in the traditional sense. Instead, it merely refers to a sort of resonance between the theories and concepts of certain thinkers – Gregory Bateson (*schismogenesis*), John Dewey (*transaction*) and Gilbert Simondon (*individuation*) – all of whom can be thought of as representing, within their very different fields, the basic idea that things appear as a result of a process of differentiation.

The speculative thesis towards which this paper gropes is this: the (genesis of a) relationship results from internal differentiation; the *relata* are generated as a result of this process. A relation is not an exterior and imposed addition, but an internal division. It is a process of separation, of *individuation*, rather than a drawing or bringing together, or a unison of the originally disparate. *Umwelt* is that field of relationships in which such a differentiation happens. Thus, the organism and its environment are not the preconditions of an *umwelt*; rather, the *umwelt* is the precondition of the differentiation and *individuation* of organism and its environment. It is this tension between the *umwelt* as an inseparable whole and its common depiction as consisting of two halves which need to be united, which is interrogated in this brief paper.

It may seem that I am about to argue against basic common sense, in that a division of an organism from its environment, from the cell membrane which holds within itself an environment distinct from the one outside, to the first-person subjective experience of being faced with external objects, seems to be the very basis for the existence, the possibility of life and experience as such. But such

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<sup>2</sup> If the former, there is a curious corollary: *umwelten* would then not be subjective, and *umwelt* theory would not be subjective biology. They would be world-makings, or worldings (cf. Rattasepp 2022).

is the risk of all speculative ventures, which are, after all, efforts to care for the possible. Moreover, it is precisely the good old Cartesian common sense, “defined subjectively by the supposed identity of a Self which provided the unity and ground of all the faculties, and objectively by the identity of whatever object served as a focus for all the faculties” (Deleuze 2004: 226) that is the very issue at hand. And in any case, we should always heed Deleuze’s warning that “[e]very time science, philosophy and good sense come together it is inevitable that good sense should take itself for a science and a philosophy (that is why such encounters must be avoided at all costs)” (Deleuze 2004: 224).

### **The trouble with overcoming dualisms**

It is broadly acknowledged that the nature–culture distinction is a problem, that Cartesian dualism is the worst insult, and that we should overcome it – and in many ways we have already overcome it, since, after all, the problem is so well recognized and thoroughly analysed that surely it has already been surpassed and the solution is at hand. As already Peirce told us, dualism is “the philosophy which performs its analyses with an axe, leaving as the ultimate elements, unrelated chunks of being” (CP 7.570; 1892). With such a prominent thinker as Peirce telling us where the problem lies, it would be natural to assume that everyone has taken heed of the problem, and fixed it.

True, dualisms come in many forms, all of them problematic, with culture–nature, along with subject–object, being merely their most common representatives. The list could be extended indefinitely: representation/reality, thought/being, mind/matter, transcendental/empirical, a myriad others; in fact, the basic distinction of ontology/epistemology, existence and knowledge, can be taken as the basic umbrella distinction for all the others. “Overcoming dualisms”, particularly those of the nature–culture, body–mind, organism–environment variety, is so widespread as to appear an already solved problem – an uninteresting one, in fact, a beating of a dead horse.

In a somewhat passing comment, Eduardo Viveiros de Castro complains about the two basic modes of overcoming dualisms: “one side reduces reality to representation (culturalism, relativism, textualism), the other reduces representation to reality (cognitivism, sociobiology, evolutionary psychology)”, so that as a result there seem to be only two options: “Every mode of being not assimilable to obdurate matter has had to be swallowed up by mind. The simplification of ontology has led to the enormous complication of epistemology” (Viveiros de Castro 2004: 483–484). It appears that the ways of “overcoming” are as established

and entrenched as the dualisms themselves, and the “decision” to overcome is to make a decision in favour of one or the other: to reduce the mind to biology or physics, or to uplift the body or the world to the phenomenal. In the biologist reduction, the mind is an organ of the body, and in phenomenology, the body is an organ of the mind. There is a constant oscillation between culture as explainable through adaptations and environmental constraints, or a recourse to any number of self-referential systems which, whatever their particular guise, end up being of signs with no other referent than other signs. Even theories of embodiment follow this pattern by suggesting to “upgrade” the merely physiological body as an object external to cognition to a functional part of the cognitive process. It is a spiritualization of the body as much as it is an embodiment of the mind. So too with umwelt theory as long as it is conceived of as “subjective biology”, for what else is a subjective world other than just another name for a known, represented world? “In the behaviorist’s environment of Nature, the body produces the mind, but, in the psychologist’s world, the mind produces the body,” writes Uexküll (2010[1934/1940]: 135).

This basic pattern of “overcoming” can be extended to other dualisms as well. And most importantly for present purposes, they all assume that there actually is an originary division which must be mended, that the two parts of the umwelt are always present as givens, there from the very beginning. In fact, the basic underlying dualisms and the choice presented between one or the other are derived from that most common philosophical question, “what is real, and how do we come to know it?”, and from the two most prevalent categories of answers to this question: realism and idealism. To summarise crudely, realism is the position that the structure of the real is independent and thus different from the structure of thought, and therefore the mind is a passive recipient, while idealism is the position that the structure of the real is in some sense dependent on the structure of thought, and therefore the mind is an active participant. This distinction is brought over wholesale into semiotics by Thomas A. Sebeok as a basic introductory depiction of meaning-making, so that either

[...] the structure of being is reflected in semiotic structures, which thus constitute models, or maps, of reality; or that the reverse is the case, namely, that semiotic structures are independent variables so that reality becomes the dependent variable. (Sebeok 2001: 27)

It appears that two is already too much, it must be reduced, and a philosophical decision must be pronounced, between the conditioned and its condition, between datum and factum. Thought sees an asymmetric dyad which presents itself as a

synthetic unity within which the coupling of the two parts of the dualism is at the same time their disjunction. What connects, differentiates, but in a lopsided manner: whether nature is the given, but conditioned by culture; or alternatively, culture is the given, but determined in its structure by nature (cf. Brassier 2003: 26). But one or the other side must have the upper hand; thus, Viveiros de Castro (2004: 482) can be referred to again: “Our monistic ontologies are always derived from some prior duality – they consist essentially in the erasure of one of the terms or in the absorption (sometimes “dialectical”) of the erased term by the remaining one”.

### **Transaction, schismogenesis, individuation**

If *umwelten* are ontologically prior to organisms and their environments, we must think about their genesis, the appearance of the polarity which *umwelt* theory strives so much to overcome. It may turn out that, at their inception at least, there is no distinction to overcome, and that problems which have their origin in habits of thought evaporate when those habits change.

John Dewey’s concept of transaction is relatively straightforward. It is intended to replace the more prevalent interactional model of relations. Whereas in the interactional conception “relations” are conceived of as yet another element in the system which intrudes between and then relates two pre-existing entities, a transactional relation is constitutive, and thus irreducible to the *relata*. In case of transactional relations, the *relata* are, in some sense, different from what they would be outside of that relation (or may not exist outside such a relation). An interaction is a manner of relating juxtaposed elements, but a transaction is situational, and the elements or participants are constituted within and through the situation as a whole. In Dewey and his long-time collaborator Arthur Bentley’s description, clumsily interspersed with quotation marks indicating their suspicion towards terms prone to objectification, a transaction is a type of analysis

[...] where systems of description and naming are employed to deal with aspects and phases of action, without final attribution to “elements” or other presumptively detachable or independent “entities,” “essences,” or “realities,” and without isolation of presumptively detachable “relations” from such detachable “elements”. (Dewey, Bentley 1949: 108)

The interactional model, to the contrary, is conceived to comprise of such independent entities, and the function of the transactional model of relationships is to avoid the reification of elements and the relations between them, for this would lead to losing sight of the entire situational event itself.

Whereas Dewey used the concept in almost all of his areas of interest, for present purposes we are interested in life. Thus, under the transactional gaze the separability of organisms and environments is, in the very first instance, simply empirically false:

[h]owever spatially isolated the individual appears at a crude glance, the more minutely he is examined, the more are his boundary lines found to melt into those of his environment, the more frequently are functions found which work through both individual and environment so that it cannot be told where the one ceases and the other begins. (Bentley 1954: 5)

Given this basic premise, life processes do not take place between two separate entities, the environment and the organism, but instead through them. Organic life is a “transaction extending beyond the spatial limits of the organism. An organism does not live in an environment; it lives by means of an environment” (Dewey 1938: 25). Thus, naming one part the organism and the other the environment amounts to drawing a convenient distinction, not discovering a separation.

Umwelten are obviously transactional in Dewey’s sense, for, to put crudely, it merely amounts to saying that there are no organisms without environment, no environments without organisms, and, most pertinently, both are what they are only insofar as they are related through functional cycles. The point of understanding relations transactionally is that none of the participants in a relational system can be reduced to the others, or elevated above the others; to do so would effectively destroy the phenomenon in question. All knowings and the knowns, all understanding of organisms and their environments, or subjects–objects must be treated transactionally, “since, in any full observation, if one vanishes, the other vanishes also” (Dewey, Bentley 1949: 82). It is a kind of “flat ontology” (cf. DeLanda 2002), in which nothing supersedes the others, or, as Bruno Latour (1988: 158) postulates it in his *Irreductions*, “Nothing is, by itself, either reducible or irreducible to anything else”.

Nevertheless, whence the division? Umwelten are indistinct, but comprising the distinguishable. Gregory Bateson describes, although unfortunately without much theoretical depth, a process he calls *schismogenesis* (Bateson 1935). Formulated in the context of anthropological fieldwork, the concept of schismogenesis describes a process by which two or more closely interlinked participants or groups become increasingly more differentiated and distanced precisely *because* of an originary close connection. The separation results from this connection and is a process of sustained differentiation.

The two types of schismogenesis identified by Bateson are complementary and symmetrical. In the former case two groups of people differentiate between

behaviours and beliefs that pertain only to themselves as the in-group, from the behaviours toward and beliefs about an out-group (and the out-group returns the favour). Thus the response from one group to the other is only targeted at what is shown externally, and essentially misses the internal beliefs entirely. However, the meeting point of the outward behaviours and beliefs is complementary by forming a pair (e.g. aggressiveness–submissiveness) and usually becomes increasingly progressive and exaggerated. In the case of symmetrical schismogenesis, the two groups share the behaviour, beliefs and aspirations, but their orientation is different. Thus the internal and the external are shared between the two groups, but schismogenesis results from mutual competition and rivalry for the same ends, each group constantly upping the ante. Both processes result in a kind of mirror image of the other, refracted differently, as either two distinct roles which both require the other to be meaningful, or in a similar role undergoing exaggeration. Furthermore, both kinds of schismogenesis may become culturally instituted, resulting in a common system of distinctions the purpose of which is to mutually enshrine differences: a disjunctive conjunction.

The application of the concept of schismogenesis in biosemiotics remains a matter of speculation. The takeaway is that the process of differentiation is derived from a relation. One example could be the emergence of intersubjectivity as a result of the process of objectivation in children, which amounts to, as Don Favareau (2002: 58) nicely summarizes it,

[...] the epiphanal and irreversible realization that one, too, is an “object” as well as a “subject” of experience. According to this view, social forces, primarily through language use, finalize irreversibly the invariant self-splitting and objectification of the (presumably) primal “unity” that nature has endowed – the autonomous locus of experience or self.

This means that “[w]e would try to grasp ontogenesis in the whole unfolding of its reality and *to know the individual through individuation rather than individuation starting from the individual*” (Simondon 2020: 3, emphasis in the original).<sup>3</sup> Gilbert Simondon’s theory of individuation, complex as it is, starts from a straightforward charge levied against previous attempts at answering the basic question of how things appear and become what they are: they all assume the pre-existence of certain individuals, and thus only explain the appearance and being of composites.

<sup>3</sup> The technical details of Simondon’s theory of individuation, the concepts of metastability, preindividual and transduction need not concern us here [for that, see his magnum opus, *Individuation in Light of Notions of Form and Information* (Simondon 2020[1964/1989]) or a handier summary in Simondon 2009, and, on its applicability in biosemiotics, Karatay, Denizhan, Ozansoy 2016].

Thus, in certain ancient Greek metaphysics (Simondon's own main field of interest next to contemporary physics), atoms are the indivisible primordial entities, and in Aristotelian hylomorphism, substances are composites of form and matter. Any such attempt at explaining individuals follows the logic of interaction as described by Dewey and Bentley – of a juxtaposition of preformed individuals connected by yet another additional element. As Simondon puts it, all such attempts

[...] suppose that there is a principle of individuation prior to individuation itself that is capable of explaining, producing, and guiding it. We are prompted to revisit the conditions of the individual's existence starting from the constituted and given individual. [...] *Such a perspective of research grants an ontological privilege to the constituted individual.* (Simondon 2020: 1, emphasis in the original)

Simondon's critique of theories of individuation is precisely the one advocated here, that is, one targeted against attempts to "compose the essence of a reality using a conceptual relation between two pre-existing extreme terms" (Simondon 2009: 10). Instead, his conception of relation is that of a "modality of being" which is "simultaneous to the terms for which it ensures the existence", which is to say, a transactional relation which resides within the things whose difference, and thus their very existence it brings about, instead of being a "simple relation between two terms that could be adequately known using concepts because they would have a separate and prior existence" (Simondon 2009: 10). Every relation is immanent to what it distinguishes, and not exterior to the terms that it engenders.

Simondon's own conception of a relation is "an aspect of the internal resonance of a system of individuation", that is, something which participates in and drives the process of individuation itself, and which is born during this very process:

Transduction is a discovery of dimensions whose system makes those of each of the terms communicate, such that the complete reality of each of the terms of the domain can become organized into newly discovered structures without loss or reduction; [...] that through which the terms are not identical to one another, that through which they are disparate [...] is integrated into the system of resolution and becomes a condition of signification. (Simondon 2020: 15)<sup>4</sup>

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<sup>4</sup> Or alternatively: "Transduction is the correlative appearance of dimensions and structures in a being of preindividual tension, that is to say in a being that is more than unity and more than identity, and that has not yet dephased itself into multiple dimensions. The extreme terms reached by the transductive operation *do not exist prior to this operation* [...]" (Simondon 2020: 11; emphasis mine, S. R.)

The preindividual potentiality does not exhaust itself during the process of individuation but is retained within the individuated being (at least in the case of living organisms). This retained potentiality implies that life is non-identical with itself, is always, in a sense, more than itself, whether in its potentiality for change (phylogenetically or ontogenetically), or in its capacity to both integrate the exterior into itself, or to objectify the internal into its exteriority, both of which are the basic modes of constituting the umwelt. Put another way, all bodies are affects, and affections are changes, and this applies to *all* participants in a situation. As Felice Cimatti (2020: 177) remarks: “It is clear, in fact, that the functional circle does not feature a subject on one side and an object on the other [...] In any functional circle it is indeed impossible to separate what pertains to the organism and what pertains to the environment.”

Umwelten could conceivably be thought of as ontologically primary loci, or fields (of immanence, as Deleuze might have argued), or webs of relationships within which processes of individuation take place, perhaps in a manner which could be called schismogenesis or the productive generation of differences, yet whose differences are transactional and thus never amount to any kind of separations, to be re-united again at some later stage. As Deleuze, an avid reader of Simondon, notes, an intensity – a becoming, or in any case something which finds or actualizes itself in the qualitative and quantitative phenomena (states of affairs) – “may be divided, but not without changing its nature. In a sense, it is therefore indivisible, but only because no part exists prior to the division and no part retains the same nature after division” (Deleuze 2004: 237).

Some biosemioticians, of course, have already explored this way of conceiving the semiotic nature of life. For example, Frederik Stjernfelt argues for processes of segmentation, subdivision, differentiation and autonomization in semiotic evolution, as opposed to a compositional conception:

Evolution then subdivides, sophisticates and articulates proto-propositions, gradually achieving growing autonomy of its parts. So, instead of an ongoing construction from building-blocks, semiotic evolution is the ongoing subdivision and autonomization of a reasoning process having its first proto-form in metabolism. (Stjernfelt 2012: 39)

Similarly, Kalevi Kull, in discussing consortia – “mutual relation between the organisms which turns them into a unity” (Kull 2010: 349) – draws the conclusion that “if umwelt is made of relations, of semiotic bonds, we can conclude that organisms are derivatives of (sign) relations, not vice versa” (Kull 2020: 353). Nevertheless, it is easy to notice in most descriptions of the umwelt a clear

preference for deriving it from pre-existent parts, rather than its mutual constitution in a process of division, differentiation, and individuation. What is missing is the genesis of these disparate sides of the relation, with the main theoretical issue seemingly being the strive to unite, once again, the two participants which have been postulated as distinct from the very beginning. Uexküll himself of course attributes their source to the *Bauplan* and the conformity-with-plan, metaphysical entities the usefulness of which for contemporary biosemiotics is dubious, to put it mildly. So Uexküll, too, attempts in various ways to explain the factual unity of the postulationally distinct, at least until realizing, in *The Theory of Meaning*, that

[t]he process by which the subject is progressively differentiated from cell-quality, through the melody of an organ to the symphony of the organism, stands in direct contrast to all mechanical processes, which consist of the action of one object upon another. (Uexküll 1982: 51)

## Conclusion

Despite repeated affirmations of the relationality of the *umwelt*, of the mutuality of organism and environment, despite the constitutive nature of functional cycles and discussions of species-specific *umwelten* as independent worlds of a given individual or species, *umwelt* theory has a tendency to collapse into the subjective, thereby replicating the asymmetric thought patterns of modern thought, according to which in case of every dualism one must discover the active, dominating, constructing part, with the corollary that, in most instances, the active part is to be found to reside independently in the mind, subject, or culture. Thus for example Thomas Sebeok, musing about the difficulties of translating the concept of the *umwelt* into English, presents a set of alternatives, all of which are essentially psychological or subject-centred:

[...] *ecological niche, experienced world, psychological or subjective or significant environment, behavioral life space, ambient extension, ipsefact*, or, expressions that I prefer, *cognitive map or scheme*, or even *mind set*. (Sebeok 1979: 194; emphasis in the original)

Sebeok has made his philosophical decision. In this list, the environment has almost entirely disappeared behind the organism's subjectivity as the conditioning factor. This is, in essence, idealism. But turning it around and emphasizing the environment fares no better, because the explanatory schema would remain exactly the same: an asymmetric, hierarchical search for the superior factor, this time merely to be found at a different location, the environment rather than the organism.

One plausible reason for this state of affairs in biosemiotics is of a sociology-of-science kind: it is a reaction to the expulsion of semiosis, of meaning-making from life as conceived of in biology. But the reaction to the mechanization of nature ought not to be the idealization of the subject. That would be, again, the philosophical decision in favour of the supposed opposite pole of the binary.

It is a curious quirk of Western metaphysics that the question “what is it?” is often first turned into the question “where is it?” – to provide a locus before attempting to analyse the phenomenon. Semiosis as fundamentally relational does not require such a “localizational” approach of trying to parse out the respective “locations” of minds, subjects, or bodies. Relationality is functional, not locational: the interpretant is not the mind or the subject, the immediate object is a matter of apprehension by the interpretant, and so on. Furthermore, “the body” is semiotic from the ground up – semiosis is not added to the otherwise physiological body. The environment, the body, and subjectivity are co-constituted in a relational semiotic field – but we should also ask, what is the genesis of these things that now need to be brought back to all these relations.

We ought to keep in mind Gilles Deleuze’s comment that “[t]here is only one form of thought, it’s the same thing: one can only think in a monistic or pluralistic manner. The only enemy is two” (Deleuze 1973: 3).<sup>5</sup> Uexküll rethought transactionally may be one possible alternative, for umwelt is indeed just an entire meshwork of functional cycles that make up both the organism’s world and the organism itself. The boundaries that separate an organism from its environment appear only as a function of particular sorts of transformations, be it distinction-making or effecting; the *Innenwelt* and the umwelt are the results of a process of individuation, they are transformations and continuations of each other. Rather than beginning with two pre-givens which then become conjoined, it is from the myriad perception–action cycles that the entirety of the umwelt grows, divides, articulates and generates. The organism–environment distinction is the result of a transactional processes of individuation and schismogenesis: it is a consequence, not a starting point.

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<sup>5</sup> Deleuze, Gilles 1973. Dualism, monism, and multiplicities. *The Deleuze Seminars: Anti-Oedipus II, Lecture 2*. was accessed at <https://deleuze.cla.purdue.edu/seminars/anti-oedipus-ii/lecture-02>.

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### Primauté ontologique de l'Umwelt

D'où les composantes de base d'un Umwelt – l'organisme et l'environnement – viennent-elles ? Par habitude, au sein de la théorie de l'Umwelt, l'accent est mis sur leur coconstruction mutuelle ou sur leur constitution à travers une série de cycles fonctionnels. Mais une autre question peut être ajoutée à cette problématique : quelle est l'origine, la genèse de ce qui doit être à présent réuni de manière indivisible ? Partant du concept de relation transactionnelle proposé par John Dewey, de celui de schismogenèse décrit par Gregory Bateson, et du processus d'individuation tel qu'expliqué par Gilbert Simondon, il est proposé ici de considérer l'Umwelt comme ontologiquement premier, et que ce soit ses divisions, séparations et individualisations internes qui résultent en l'apparition des organismes et de leurs environnements.

### Omailma ontoloogiline primaarsus

Kust pärinevad omailma kaks poolust, organism ja keskkond? Tavaliselt rõhutatakse omailmateoorias nende kahe koostoimimist funktsiooniringides. Lisaks võiks aga veel küsida, mis on nende kahe päritolu, selle kõige algupära, mida nüüd hakatakse taas kord ühte liitma? John Dewey transaktsiooni mõiste, Gregory Batesoni skismogeneesi mõiste ja Gilbert Simondoni individuatsiooniteooria põhjal väidetakse artiklis, et omailm on ontoloogiliselt primaarne ning et organismide ja nende keskkondade teke põhineb selle sisemisel jaotumisel, lahutumisel ja iseseisvumisel.