

Umwelt as a trans-sign network or the implications of biosemiotics to humanities.

The revisited notions of culture and the ‘natural’ environment



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The presentation's overview

- The main problem: the complexity of relations between human and nonhuman subjects and their environment
- The Umwelt-theory and the Umwelt-inspired humanities
- Translation: Umwelt as a trans-sign network (net, web, network)
- Culture-nature: human and plants interdependency in the trans-sign network of Umwelt(en)
- The artistic project of Polish artist Diana Lelonek 'The Center for Living Things' (from 2016) and 'Wasteplants Atlas' (2021)

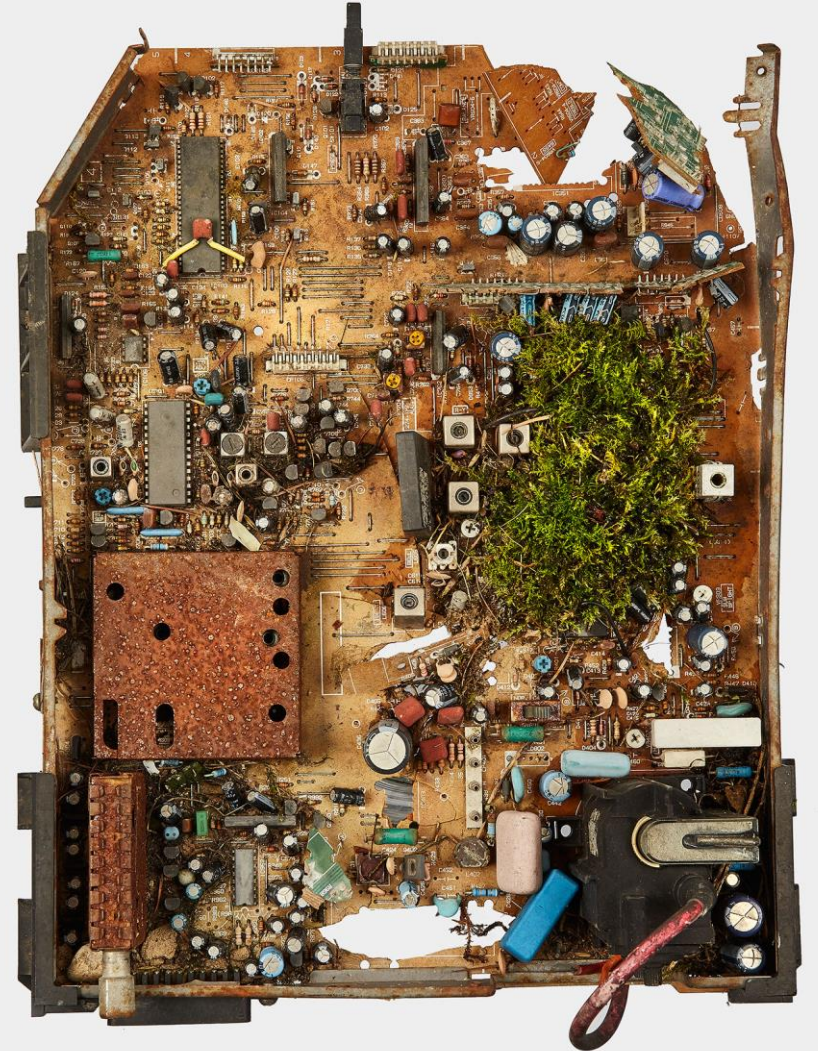
Life and art

“new forms are constantly breaking barriers, opening up **unexpected horizons**” - what is characteristic for art, but for nature as well (see: **semiotic freedom**). This is, among others, what life and art share (Kull, Velmezova: 2012).

Photograph of the found object from the series: “Center for the Living Things”, 100×70, 2016

Post-electronic habitats

Wall screw-moss (*Tortula muralis* Hedw.)
Motherboard for an electronic device
Illegal suburban dumping site, dry and sunlit terrain



The Center for Living Things, Diana Lelonek

- The Center for the Living Things was founded in 2016, in order to collect and popularise the knowledge concerning **new humanotic nature forms**.
- a collection of **found objects covered with mosses and plants**, a set of photographs, reaserch's documentation



Botanical Garden in Poznań - exposition view, Malta Festival, Poznań, 2017

The Center for Living Things, Diana Lelonek



The Center for Living Things - "it was under its auspices that the herbarium came to be; housed within the Botanical Garden of the Adam Mickiewicz University in Poznań".

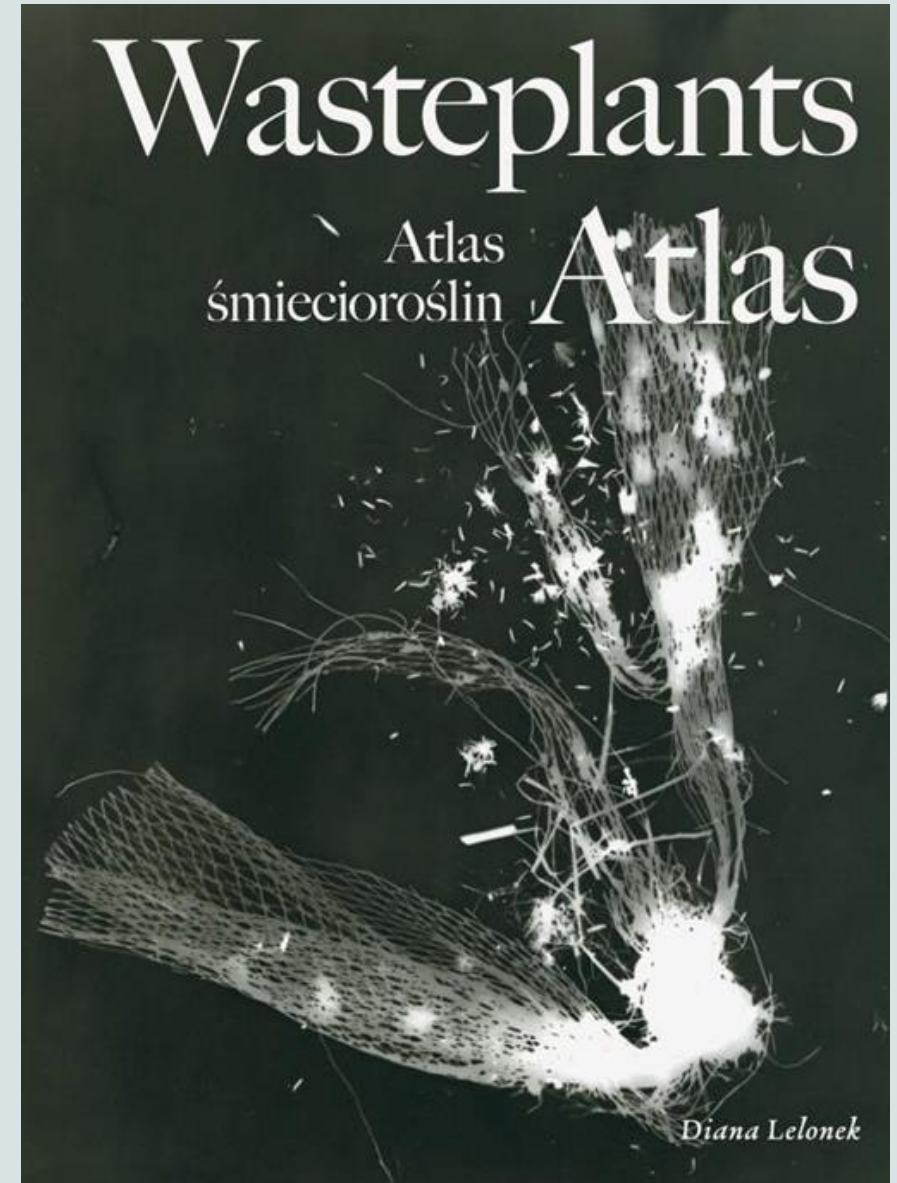
Botanical Garden in Poznań - exposition view, Malta Festival, Poznań, 2017

The Center for Living Things

- Interdisciplinarity - “to describe **complex human and nonhuman nets of interdependency** [...] to recognize **assemblages of mutual contingency**, and to finally move beyond [...] our fixation on human action toward a **deeper examination of interspecies relations**” (Wasilewski 2021: 4).
- “*The Center for Living Things* pursues the in-depth study **of ongoing and highly visible transformations in the biosphere**” (Wasilewski 2021: 4)

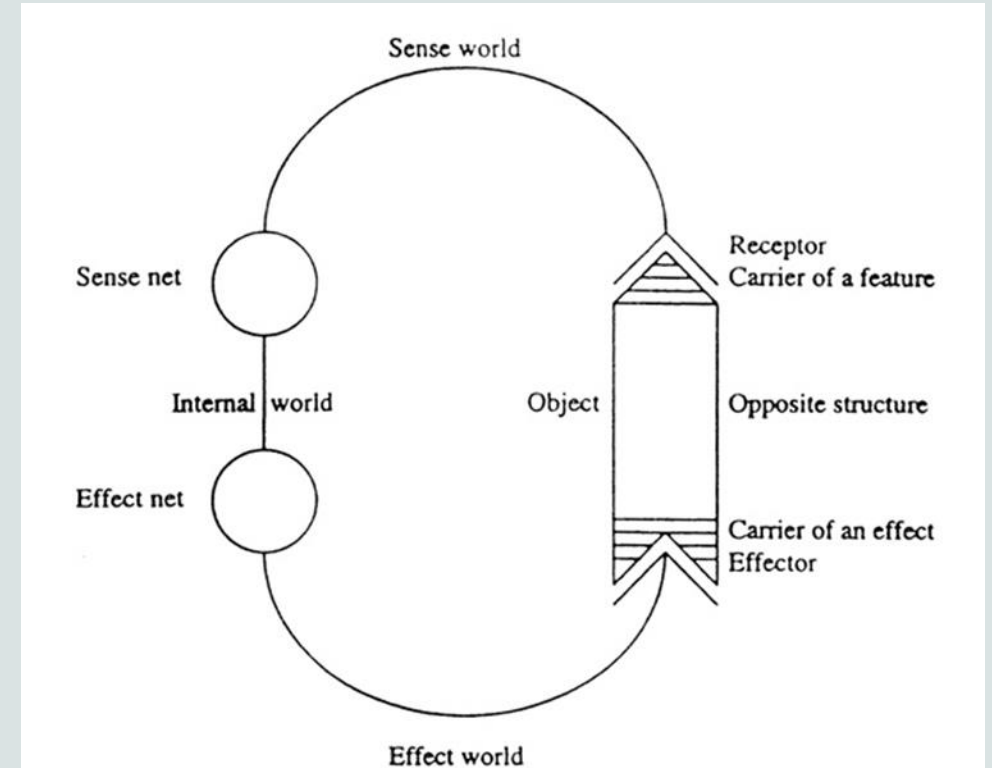
Wasteplants Atlas (2021)

- New kind of a herbarium
- It is not a collection of dried plants but a **"report on the effects of human activity on certain species of plants"**
- **De-humanized hybrid forms** [...] gain precedence over the flora we have thus far deemed 'natural'"
- Lelonek deals with the "humankind's supremacy over nature". Can we even still talk about nature? **Is nature something absolutely separate?**



Umwelt

- Jakob von Uexküll emphasizes the “**phenomenal world** or the **self-world** of the animal” ([1934] 1992 /1957/: 319).
- “We no longer regard **animals** as mere machines, but **as subjects whose essential activity consists of perceiving and acting**. We thus unlock the gates that lead to other realms, for all that a subject perceives becomes his perceptual world and all that he does, his effector world. Perceptual and effector worlds together form a closed unit, the Umwelt” (Uexküll 1992: 320).



Kalevi Kull's general remarks on Umwelt

Kalevi Kull, *Semiotic Fitting and Ecological Fitting: The open umwelt*, „Semiotic complexities. Theory & Analysis“ The 4th Conference of International Association for Cognitive Semiotics, Aachen, 15-18.08.2022 [online]

Kalevi Kull, *Umwelt-based semiotics: Sign and meaning-structure*, XV World Congress of Semiotics, Thessaloniki, 30.08-03.09.2022

„Umwelt theory is basic for general semiotics“

„Umwelt as the condition for signs to emerge“

“**Semiotic fitting** is the agent's capacity for making and preserving the local semiotic bonds, meaning the agent's functional or communicational match with its surrounding.“

An open Umwelt: with new distinctions: during learning there is always something new for the organism

Choice - interpretation makes choices

Signs emerge as a result of **simultaneous possibilities** that occur in time (choice and interpretation)

Complexity of Umwelten causes semiotic freedom!

Freedom, interpretation, choice, possibilities

- „**Semiotics is a study of freedom**, i.e. of all forms of arbitrariness“
- Freedom = arbitrariness (Saussure), interpretation (Peirce) and indeterminacy (semiotics vs. physics)
- Interpretation always presupposes choice
- “**Umwelt is the field of interpretation, of options and possibilities**”
- NOW - when the options are given in the same time

Semiotic freedom

"[...] **semiotic freedom or interpretance**, defined as the capacity of a system (a cell, organism, species etc.) to distinguish relevant sensible parameters in its surroundings or its own interior states and use them to produce signification and meaning. An increase in semiotic freedom implies an increased **capacity for responding to a variety of signs through the formation of (locally) 'meaningful' interpretants**. Since **semiotic freedom allows a system to 'read' many sorts of 'cues' in the surroundings** it will tend to have beneficial effects upon fitness." [Hoffmeyer 2010a: 34, cited by Cobley 2016: 2].

Semiotic freedom

- „Semiotic freedom (or interpretance) allows a system **to 'read' many sorts of 'cues' in the surroundings**, and this would normally have beneficial effects on **fitness**. (Hoffmeyer 2010b: 164)
- **„Thus, the semiotic freedom of organisms is responsible for its survival, for its evolution and contributes to changes in its environment.”** (Cobley 2016: 100)
- „Semiotic freedom necessarily involves **choice** of one course rather than another. In studying such freedom, there is often a need to investigate the choices that get rejected (and why), particularly as they may later become choices once more or there may be opportunities for the organism to revisit or relive the moment of choice.” (Cobley 2016: 100-101).

The agency and semiotic freedom

“Enough is it to consider **the agency of living beings**, i.e., their capacity for end-directed activity, agency, is such a deep foundational property of life that it seems meaningless to explain it away (usually through natural selection types of arguments)” (Hoffmeyer 2015: 5)

„Semiotic freedom can be seen as one among other **survival strategies in the evolutionary game**, and as such it would obviously have been best suited to life forms of free moving animals, because of the need in such species for coping with fast spatial variations” (Hoffmeyer 2015: 7)

“All non-animal species probably have very low or no capacity at all for individually initiated problem solving strategies being, in this respect, nearly fully dependent on their genetic predispositions” (Hoffmeyer 2015: 8)

...what about plants?

The agency and creative activity

"I have suggested that even non-human living systems might be said to be **subjects** in a very general sense of the word: <<Living creatures are self-referential, they have a history, they **react selectively to their surroundings** and they participate in the evolutionary incorporation of the present in the future.>>" (Hoffmeyer 1996a: 51). (Hoffmeyer 1998: 2)

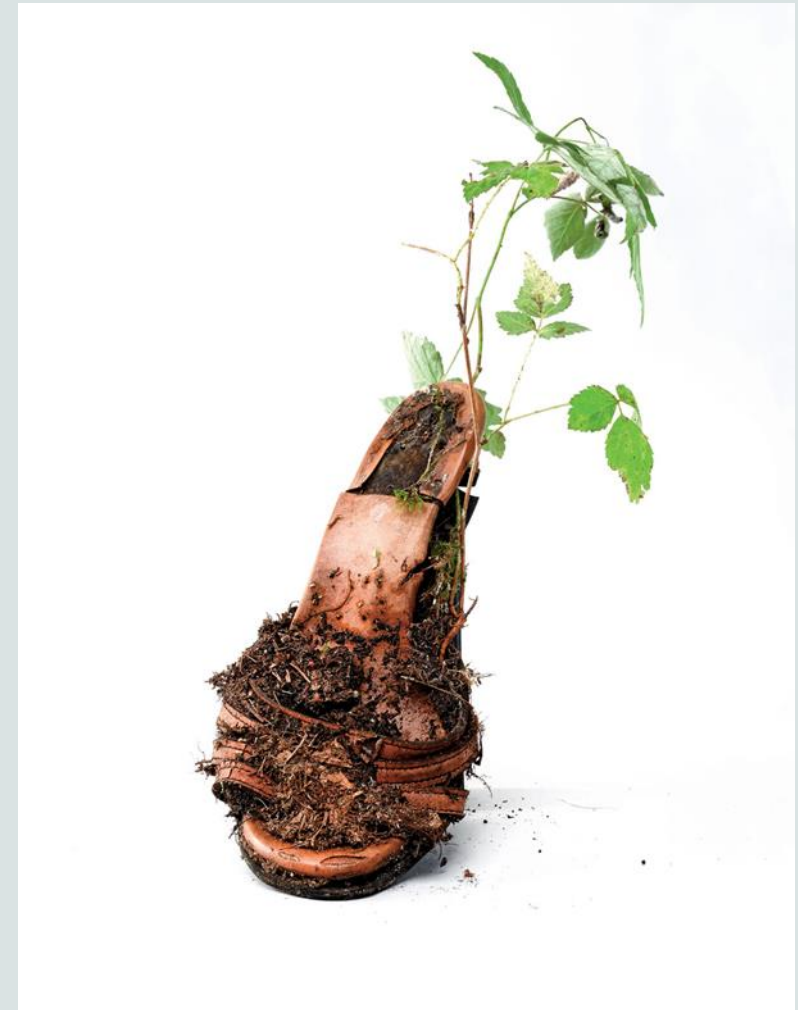
"the **creative activity** of an analogly coded version interacting with real world processes" (Hoffmeyer 1998: 3)

Creative agency of nonhuman actors

- “Human detritus consists [...] of emancipated objects that lead fleeting, generative, unfettered, and above all, **nonhuman lives**” (Marzec 2021: 8).
- “Wasteplants may be the clearest instance of **matter’s generative activity** and the underestimated **creative agency of nonhuman actors**” (Marzec 2021: 8).

Post-footwear environments

Blackberry (Rubus sp. L.)
Polyester fabric covered with a layer of plasticized polyvinyl chloride (faux leather / shoe)
Mixed forest
Plus: geographic position, latitude and longitude.



A constant state of transformation

Lelonek's "ephemeral and spontaneous objects exist in **a constant state of transformation** [...]. They are remarkably **flexible**: every day they are different. Their form is not fixed, for they exist in process: a production more so than reproduction" (Marzec 2021: 10).



Polymer habitats

Poa (Poa Sp. L.), red-stemmed feather-moss (Pleurozium schreberi (Willd. Ex Brid.) Mitt.)
Polypropylene (plastic packaging)
High humidity mixed forest, ditch by the road.



Polymer habitats

Biting stonecrop (Sedum acre L.)
Polyethylene terephthalate (PET bottle)
Illegal dumping site on a meadow, suburban wasteland in the vicinity of a pine forest.

Response-ability

- “Wasteplants are a collective: a coalition of allies and intimate nonhumans. Their bonds generate responsibility (**response-ability**)” (Marzec 2021: 8).

- Wasteplants “do not [...] qualify as an instance of bare life (zoe) [...] for they cannot exist if not through **constant creative activity**. In fact, by merely living, **they are works of art**” (Marzec 2021: 9).



Post-footwear environments

Rough-stalked feather moss (*Brachythecium rutabulum* (Hedw.) Schimp.), creeping feather-moss (*Amblystegium serpens* (Hedw.) Schimp.)

Poyester fabric (shoe)

Illegal dumping site in a pine forest, dry ground, shaded terrain in the vicinity of a village

Plus: geographic position, latitude and longitude.

Responsibility for the biosphere

- Petrilli's project is dedicated to "human responsibility for the effects of anthroposemiosis upon the biosphere as a living whole [...]", and the focus on analysing human action "upon **the whole network of earthly life** apart from which the human species could not exist to act at all". Deely (2017: viii)
- Petrilli discusses "the fundamental human phenomenon of responsibility for life on earth (for **human participation in biosemiosis as a whole**" (Deely 2017: xi).
- "inevitable involvement, of each and every one of us, in **the sign network of life over the entire planet** and [...] in the destiny of planetary semiosis" (Petrilli 2017: 3-4)

Umwelt of a plant?

- „**Both animals and plants build living houses for themselves**, i.e., their bodies, with whose help they lead their existence”.
- „The plant has no nervous system, receptors, or effectors; therefore, no meaning-carriers, functional circle, perceptual, or effector cues exist for the plant”.
- „The houses of animals are mobile and can move and carry about their receptors everywhere, with the help of their muscles. **The houses of plants** lack mobility. Because they possess neither receptor nor effector organs, plants are not able to construct and be in command of an Umwelt”.

(Uexküll: [1940] 1982: 33)

The building plan of plants

„**The plant** possesses no special Umwelt organs, but **is immersed directly in its habitat**. The relationships of the plant with its habitat are altogether different from those of the animals with their Umwelts. The building plans of animals and plants are the same in only one respect: Both **select precisely from among the stimuli that impinge upon them from the environment**“.

(Uexküll: [1940] 1982: 33)

How do plants dwell?

„Essential stimuli also exist for plants; they emerge as *meaning-factors out of all of those that impinge upon them from all sides. **The plant encounters these stimuli, not with the help of receptor or effector organs, but because it has a living cell-layer – the dwelling integument – that enables it to make its choice of stimuli**“.

(Uexküll: [1940] 1982: 34)

The habitat of a plant

„The habitat of the plant which is limited to the area around its location, transforms itself, from the plant’s point of view, into a dwelling-integument consisting of various meaning factors that are subject to regular change. The life-task of the animal and the plant consists of utilizing the meaning-carriers and the meaning-factors, respectively, according to their **particular building-plan”**

„In the case of a plant, one cannot speak of functional circles. However, the meaning of the plant's organs (which also consist of living cells) lies in the utilization of the meaning-factors of its dwelling-integument. **It masters this task due to its shape, built according to a plan, and the exquisite organization of its components”.**

(Uexküll: [1940] 1982: 36)

The habitat of a plant



Pseudo-stone substrate

Many-fruited leskea (*Leskea polycarpa* Hedw.)
Styrofoam
Mixed forest in a vicinity of a river

Ever changing plants & nonhuman creativity



- ▶ “wasteplants are ephemeral and **ever changing**. They are the products of multiple authors and reflect the collaborative efforts of a collective that remains more or less anonymous. [...] they speak to the power of **nonhuman creativity**”
- ▶ This kind of creativity “fully dissolves the human vision of art” (Marzec 2021: 7).

Binding the animal to living and nonliving entities in its environment

- „Uexküll’s Umwelt theory gives biosemiotics its **subject-centered perspectives**. Umwelt theory describes **an organism’s relations with its environment as shaped by its species-specific perceptual and cognitive capacities and organized by meanings that bind the animal to living and nonliving entities in its environment**”. (Maran 2016:29)
- An important principle for biosemiotics is to consider semiotic and biological processes as they appear to the organism and to treat **biological communities as the sum of interconnecting Umwelten**” (Maran 2016: 29).

Semiobiosphere

“from the perspective of global semiotics where semiosis converges with life, [...] the semiosphere identifies with the biosphere, and emerges therefore as the **'semiobiosphere'**” Petrilli (2017: 26)

The semiobiosphere is **“a sign network human beings have never left, and, to the extent that they are living beings, never will”** (Petrilli 2017: 27)

Biosemiosic network

- “Studies in biosemiotics evidence how **the sign network converges with life in its multiplicity of different forms proliferating over the entire planet.** [...] Human communication is part of **a global biosemiosic network where all life forms are interrelated and interdependent upon on all others** in indirect if not always direct ways” (Pterilli 2017: 31)
- “reciprocal involvement and interrelatedness among all aspects of life over the entire planet” (Petrilli 2017: 31)

Translation, trans-signs, trans-sign network

“Trans, inter, dia are prepositions and prefixes that specify the modality of being a sign, that is, of semiosis or sign activity: transposition, translation, transference [...]. **Semiosis is a trans-sign process, an intersign process**” (Petrilli 2017: 272).

“The Umwelt in which semiosis occurs is necessarily a trans-sign or intersign network”.

Two types of semiosis

1. **Modelling** → “that which constructs the network of signs forming the Umwelt, that is, semiosis which models the world in which the sign flourishes” (Petrilli 2017: 273)

Concerns the species - Phylogenetic order - during the course of evolution of the species - adaptation - prototranslation

2. **Communication** → “that which consists in communication, that is, the life of signs” (Petrilli 2017: 273)

Ontogenetic order concerns the development of the individual as programmed by the species, in a given Umwelt - eutranslation / “logotranslation” (humans)

“These two fundamental types of semiosis [...] involve relations among signs, trans-signs relations. Therefore we can speak of translation” (Petrilli 2017: 274)

Life and translation

"<<Life>>, <<signs>> and <<translation>> are closely interconnected in **the global semiotic web**" (Petrilli 2017: 274)

"Life in general [...] flourishes and survives thanks to translation processes **in semiotic fluxes**, across the great variety of different biosemiotic phenomena, across verbal and nonverbal sign systems, across generations." (Petrilli 2017: 275)

"**Translation is a life mode** where the relation among signs, among interpreted and interpretant signs, translated and translantant signs, is regulated [...] by **the responsive creativity**" (Petrilli 2017: 275)

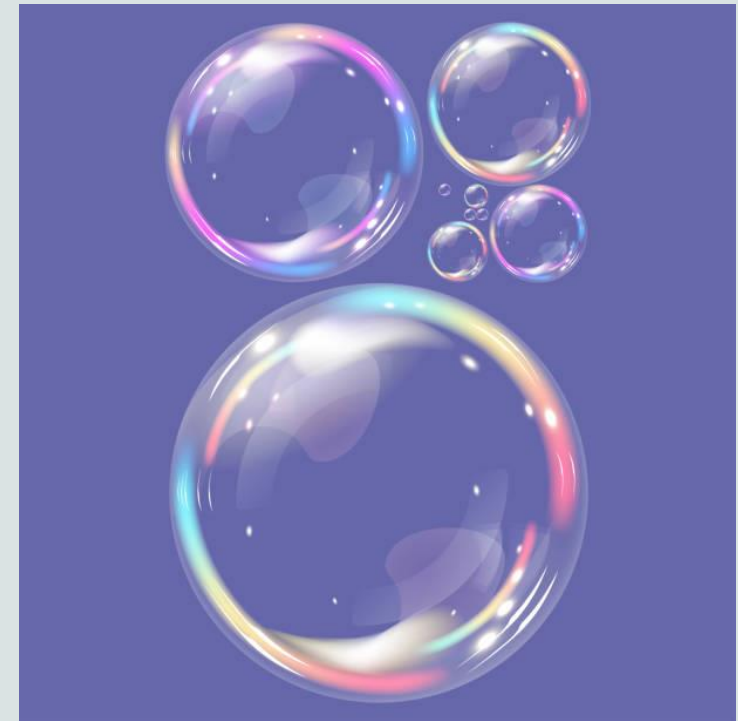
Coming back to the fundamental question:

If not culture then what?

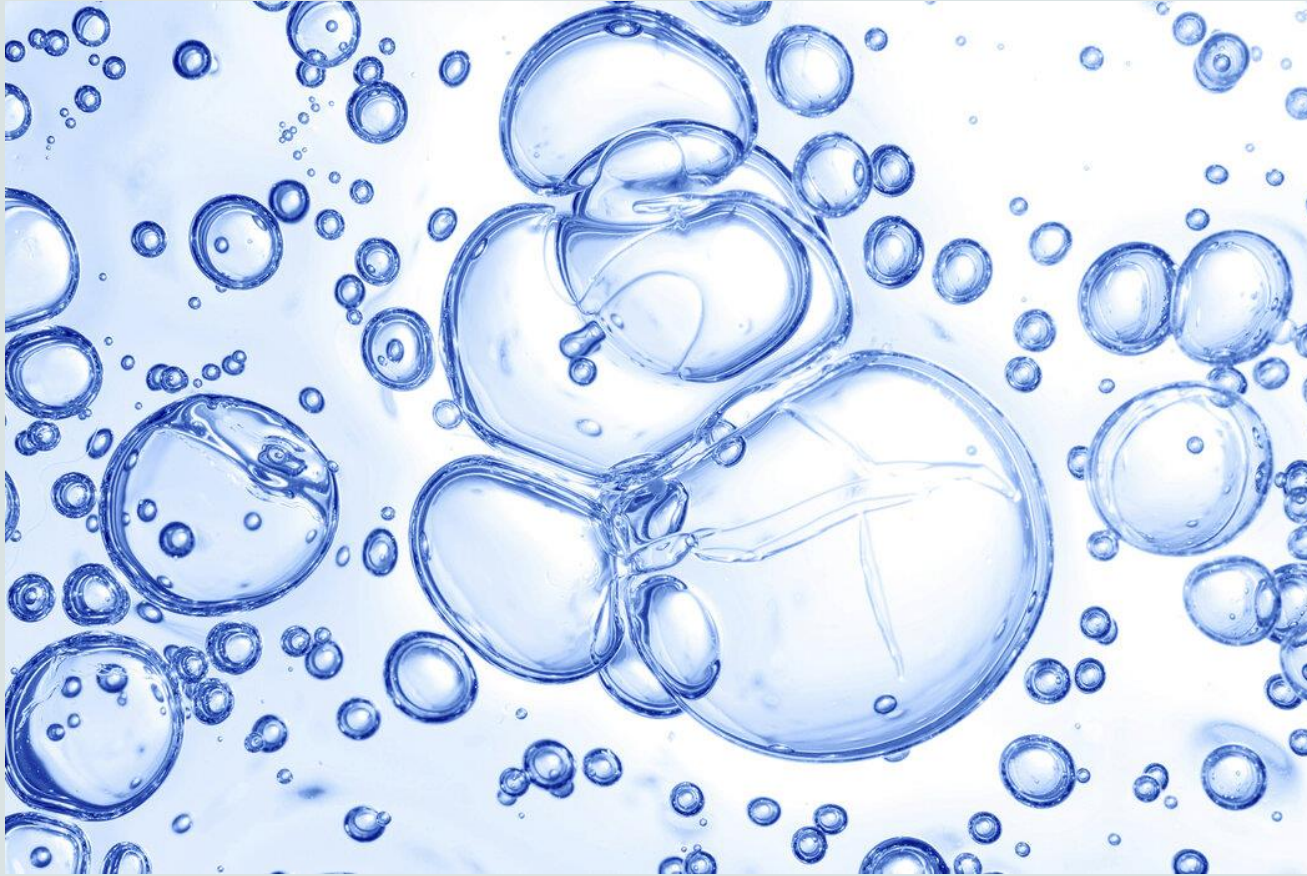
- Interrelated Umwelten
- Umwelt(en) as a trans-sign network

Soap bubble revisited...

„**a soap bubble around each creature to represent its own world** [...] Through the bubble we see the world of the burrowing worm, of the butterfly, or of the field mouse; the world as it appears to the animals themselves, not as it appears to us. This we may call **the phenomenal world or the self-world of the animal**” (Uexküll [1934] 1992 /1957/: 319)



From a set of single bubbles to a foam consisting of bubbles...

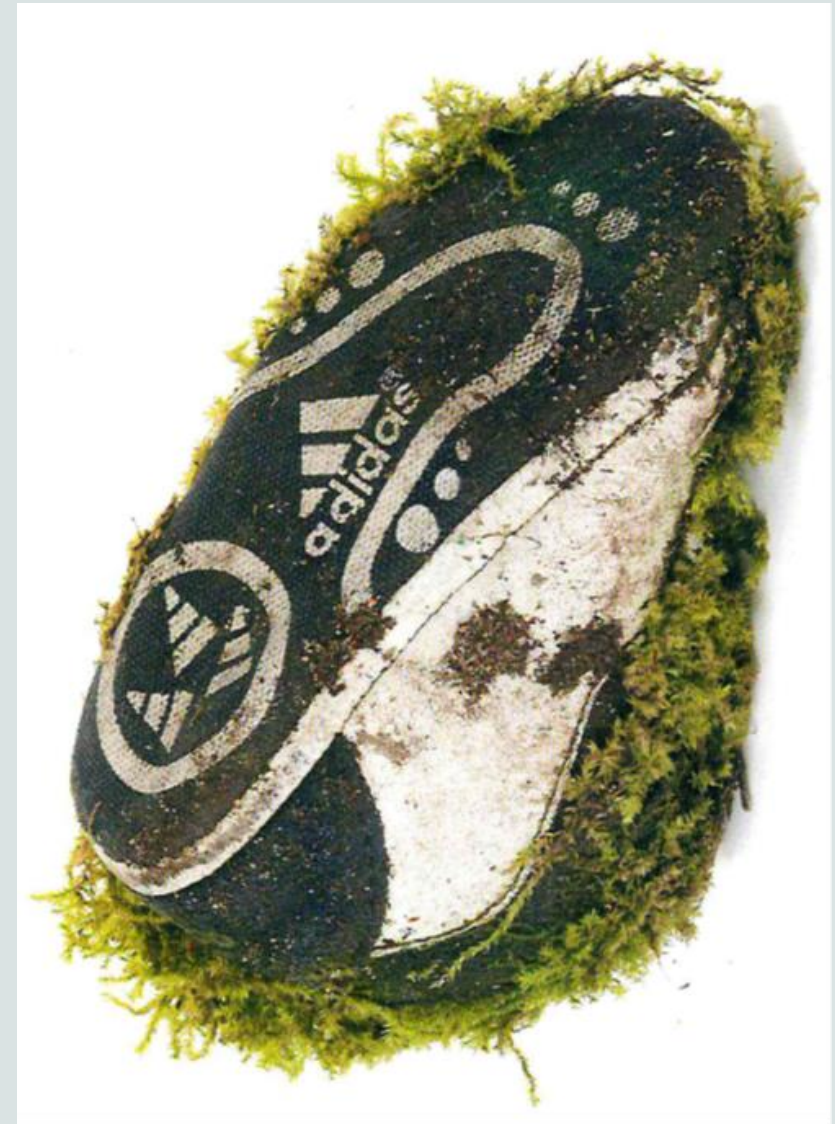


Umwelt as a trans-sign network



Conclusions

- **Plant's agency and creativity** to respond to its environment
- **Interconnected Umwelten of human and nonhuman subjects**
- **Non-human beings living in post-human environment:** plants bind to living and nonliving entities in their environment.
- **Semiotic freedom of plants?**



Post-footwear environments

Rough-stalked feather-moss (*Brachythecium rutabulum* (Hedw.) Schimp.),

Polyester fabric, cotton (shoe)

Shaded backyard in a city center, moist ground



Hybrid wasteplants as an example (bridging science and art) of a **trans-sign network**

Post-human material has become a home for non-human species.

„Culture“ and „nature“ meet in a complex Umwelt seen as a trans-sign network.

Pseudo-stone substrate

Rough-stalked feather moss (*Brachythecium rutabulum* (Hedw.) Schimp.),

wild strawberry (*Fragaria* sp. L.)

Styrofoam (expanded polystyrene, EPS)

Illegal dumping site in the vicinity of a river, urban wasteland, ruderal species

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