

Man, nature, and semiotic modelling or How to create forests and backyards with language

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Abstract. This paper explains how we create concepts such as the forest or the backyard through language. Reflecting on Andreas Weber's hope for a revolution of the life sciences and a re-evaluation of the role human beings play in nature, this paper adopts as a starting point Bruno Latour's characterization of the distinction between nature and culture as an illusion that came with Modernity. Theoretical notions from modelling systems theory and cognitive linguistics explain that while language plays a key role in constructing new models of NATURE, new cognitive habits and changes of belief depend on face-to-face and non-verbal communication with other organisms, human and non-human.

Keywords: nature/culture, human/non-human, modelling systems, cognitive metaphor, Juri Lotman, Thomas A. Sebeok, Bruno Latour, Andreas Weber, revolution of the life sciences, political ecology, economic geography.

Introduction

While walking a group of children across my university campus on a hot summer day, they noticed some large 'banana spiders' (golden silk orbweaver, *Nephila clavipes*) that are common in South Florida. When one of the children noticed a particularly large spider web, the whole group lunged sideways away from it with disgust. When I walked with the children again a few days later, they swerved away from the trees anticipating the spiders, some of them darting ahead so as to avoid even catching

another glimpse of these ‘critters’. This perception of the presence of spiders as a pest, an invasion or infestation, is symptomatic of the reaction of most adults and children I know. The concept of pest control invokes a widespread narrative of how most spiders and insects are perceived in the West. I could have used the ants at the Pre-School playground half a mile away, that are routinely exterminated by a squad from Building Services so that no 3-year-old ever has to encounter an ant crawling on the play equipment.

The despair over this widespread attitude of alienation from, disinterest or even disgust towards many animals around us inspired the biologist/philosopher Andreas Weber to articulate his own attitude towards nature in his book *Alles fühlt: Mensch, Natur, und die Revolution der Lebenswissenschaften* (2008). I imagined Weber encountering spiders in the woods around Berlin; or Jakob von Uexküll walking the meadows near Heidelberg or Hamburg or the Estonian island of Puhtu with his children, and how different their reaction to a spider web would have been. Or it could have been Goethe strolling through the woods near Weimar or the gardens in Rome, or Alexander von Humboldt on one of his voyages to the New World. In fact, I am certain Humboldt met an Orbweaver and took a good look at what these spiders can do, admiring the precision of the web’s architecture, its remarkable size, and the mechanical strength of its silk that shines like gold in the sunshine. Is my writing this a small link in a long chain of cognitive habits that originated in *German Romanticism*?

When I read a version of this paper at a conference, Lynn Margulis approached me during a coffee break and reminded me that what I am talking about here is, of course, *biophilia* (Wilson 1984). According to Margulis – and E. O. Wilson – you either have it or you don’t. You’re either drawn to nature or you’re not. This paper describes an alternative to the idea that there are people with *biophilia* who adore nature, and others who don’t care about it. Instead, this paper explains that our attitudes towards nature and the role we play in it are shaped by the languages we speak, and the concepts that refer to the natural world, and the narratives evoked by the specific concepts we use.

As a starting point, this paper addresses Bruno Latour’s proposal that, first, the distinction between nature and culture is a Modern illusion that determines how we see ourselves and other species; and, second, that our attitudes towards nature are constructed to a large degree through language.

Back to Weber, Uexküll and his children, Goethe, and Humboldt. Are those just reflexes of *German Romanticism*? Do the German tradition of *Naturphilosophie* going back to Kant, Goethe, Fichte and Schelling, to name a few; and all the cultural practices of *Romantic biology* in the 18th and 19th centuries; and all their good and bad complex cultural forms of the 20th century (cf. Harrington 1996) to the enduring 21st century practices that were characterized recently by an American textbook for

German language and culture as “the German obsession with recycling”¹) all attest to this cultural belief system? Maybe that explains why only a German biologist and philosopher like Andreas Weber (2008) could so fervently anticipate and describe a *new biology* that entails a new perspective on the role human beings play in nature that could take us back to a way of looking at all other organisms as subjects just like ourselves. A *Romantic biology* as it is anchored in the work of Goethe depends on the human perception of nature; in fact, according to this *Romantic* view any beauty in nature lies in the ability to perceive it. In other words, much like Uexküll’s *umwelt* is the subjective world that is created by each organism, the human perception of nature itself creates its perfect form and sees beauty in nature through a *Romantic biology*.

Weber’s self-effacing personal narrative is easily attached to this cultural belief system; and his choice of an Ernst Haeckel plate as a cover illustration of his book published in 2008 is a nod to 19th-century *Romantic biology*. What may be half self-irony and half reverence to this long chain of cognitive habits and cultural practices in the German-speaking world also attests to the Peircean dictum that the fixation of belief requires a community of believers. That Weber is not alone in his attitude towards nature in the German-speaking context is beyond doubt, but the reception of his work in translation can only further emphasize its anachronistic affinities with *German Romanticism*. As Lotman (2001[1990]: 123–124) explained: “while some parts of the semiosphere are still enjoying the poetics of Romanticism, others may have moved far on into post-Romanticism”.

But can the average 21st-century global citizen of this planet ever look at spiders again the way Alexander von Humboldt, Goethe, or Uexküll would have looked at them? Can we accept again that it is our perception that creates beauty in nature? And can we teach our children how to perceive/create nature?

The revolution of the life sciences

Weber (2008: 20)² is deeply concerned that “[we] are extinguishing life, because we have the wrong idea about its character. We can be cruel, because we are mistaking it for ‘stuff’ [*Gerümpel*]”. He uses two strategies to convince the reader that a new way of seeing nature, and a new concept of nature, is possible: The first strategy consists of personal narrative of his own relationship with and interest in other species. In

¹ See Abrams, Zsuzsanna 2008. *Deutsch im Blick*. University of Texas, Austin <http://www.coerll.utexas.edu/dib/credits.php>).

² Translations from Weber and Jakob von Uexküll are mine – P. A.

other words, he constructs and shares his own view of nature through his narrative, inviting the reader, for instance, to consider *communing with toads*:

Have you ever looked into the eyes of a toad? They are large and round like deep ponds; but the iris in which the pupil opens has the colour of gold. Don't be afraid. You can get very close. And you'll see dark gems project into space. The inside has thousands of small shiny folds, microscopic mountains and canyons and flickering stars. The toad's eye responds with the reflection of a night sky. That's fiction, you say? A toad is just an animal and our appreciation of this species a matter of taste? Maybe you find it ugly? Wait a minute. Take another good look. Fix your eyes on it like I have done; and you'll see that *someone* is looking back at you. Not a thing, but something that is alive. (Weber 2008: 23)

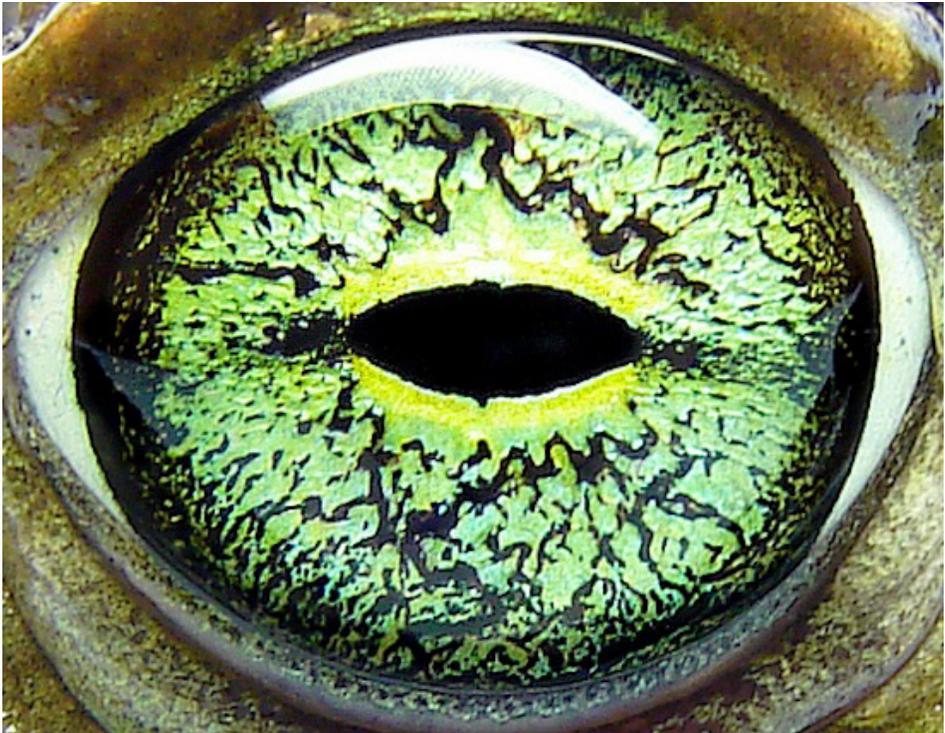


Figure 1. Toad eye (© Matt Reinbold).

Weber's description effectively reshapes the reader's perception of toads through poetic devices that construct a concept that invokes beauty and perfection where most existing narratives may have entailed ugliness. Weber's second strategy is to expose the reader to recent research in fields like neuroscience, ethology, and the philosophy of nature that exemplifies new directions in repositioning humanness in nature or questioning the conventional divide between human and non-human. An example of the type of recent research Weber offers is an overview of the affective neuroscience experiments by the neurobiologist Jaak Panksepp (2004). In these experiments, Panksepp measured the brain activity of young rats while stroking them on their bellies to show that the electrical currents are similar to those of humans when they are tickled (Weber 2008: 106). These are scientific facts. But as cognitive linguists tell us, frames always trump facts (cf. Lakoff 2004). And so Weber shifts back and forth between science writing and personal narrative to show the reader how much we have in common with other species; and how much we have constructed a reality that divides us from them. He makes it clear from the beginning that his motivation to write the book stems from a profound sense of despair over the fact that "biologists cannot say what *life* really is" (Weber 2008: 21).

Uexküll's notion of *umwelt* ranks high in Weber's armamentarium of theoretical concepts that could promote this revolution of the life sciences among biologists. Simple as it may sound to anyone who is intellectually immersed in semiotics, the notion that we create our own subjective reality is fundamental to an understanding of our relationship with nature. As Jakob von Uexküll explained "[no] matter how certain we are of the reality that surrounds us, it only exists in our capacities to perceive it. That is the threshold we have to cross before we can go any further" (Uexküll 1902: 213).

Thure von Uexküll outlined the main aspects of Jakob von Uexküll's *umwelt* theory (Uexküll, T. v. 1982: 4–8) as follows:

- (1) [True] reality (Jakob von Uexküll calls it *Natur*) that lies beyond or behind the nature that physicists, chemists, or microbiologists conceive of in their scientific systems reveals itself through signs. These signs are therefore the only true reality, and the rules and laws to which the signs and sign-processes are subject are the only real laws of nature. [...]
- (2) The methodology of *umwelt*-research, which aims to reconstruct this 'creating' of creative nature [...] means, therefore reconstructing the *Umwelt* of another living being. [...]
- (3) The aim of *umwelt* research is to create a theory of the composition of nature [...] [by exploring] the sign-processes that govern the behavior of living subjects.

Uexküll unequivocally approached nature and culture entirely through the analysis of signs and sign processes; and his concept of *Funktionskreis* has established itself as a general model of semiosis. This radical constructivist position attaches a different narrative to the concept of ecology; namely one that studies organisms as subjects *creating* their environment rather than simply interacting with it. According to Jesper Hoffmeyer (1996: 59), “one can never hope to understand the dynamic of an ecosystem without some kind of *umwelt* theory”. For Hoffmeyer, a revolution of the life sciences begins with a biology that is rooted in semiotics. This new biology

[...] does not turn experimental biology to metaphysics but instead replaces an outdated metaphysics – the thought that life is only chemistry and molecules – with a far better, more contemporary, and more coherent philosophy. Life rather than natural law – and signs rather than atoms – must become natural science’s fundamental phenomena. (Hoffmeyer 2008: 15)

Hybrids and the Modern Constitution

In his essay *We Have Never Been Modern* (1993[1991]), Bruno Latour lays out the Modern Constitution that separates “three regions of being” (Latour 1993: 39) – *nature*, *politics*, and *discourse* (Latour 1993: 3) – through the processes he calls *purification* and *translation* or *mediation* (Latour 1993: 10). While the work of *purification* separates nature from society and keeps the natural sciences as the domain of explaining natural phenomena separate from the social sciences as the domain of explaining the social order; the work of *mediation* how “mixing biology and society” makes it possible that “[all] of culture and all of nature get churned up again every day” (Latour 1993: 2). The work of *purification* is characterized by working within the strict disciplinary boundaries of the natural sciences, so that the facts of nature are, in fact, created in the laboratory. Practices of *purification* rely on “two different ontological zones: that of human beings on the one hand, and that of non-humans on the other” (Latour 1993: 10). Non-humans make much better informants in the lab. The work of *mediation* is the work of *hybrids*. The paradox of the Modern Constitution is that the separation of *nature* and *society* (= *purification*) both makes *mediation* possible, but marginalizes it and renders it invisible at the same time. Only *hybrids*, says Latour (1993: 11), “can change the future”.

Andreas Weber’s perspective then appears as a non-Modern analysis of what our relationship with the non-human could look like in the West and his work has the characteristics of a true hybrid. Latour (1993: 14) explains that while anthropologists who study non-Western cultures move effortlessly between the ontological zones and “tackl[e] everything at once” (Latour 1993: 14), *nature – social order – critical*

discourse, the Modern Constitution makes it impossible for the West. Latour basically wanted to show that *natural phenomena* and *natural science* should be connected to *politics* and the *social order* the way anthropologists do it automatically when they study non-Western cultures, or pre-Modern “natures/cultures” as Latour calls them. “If we consider hybrids, we are dealing only with mixtures of nature and culture; if we consider the work of purification, we confront a total separation between nature and culture” (Latour 1993: 30). There are no “cultures” for Latour. There are only natures/cultures. Hence, he says, *we have never been modern*.

“The essential point of this Constitution is that it renders the work of mediation that assembles hybrids invisible, unthinkable, unrepresentable” (Latour 1993: 34). The work of hybrids, according to Latour (1993: 35), always has the *odour of ideology*: “Sorting out the kernels of science from the chaff of ideology became the task for generations of well-meaning modernizers”. For those who live by the Modern Constitution, Andreas Weber is a “hopeless romantic”; seen as a hybrid, Weber’s work is effective and powerful mediation that has the potential to change things in the future. But can his description of a toad’s eye change our perception of toads?

Maybe Susan Petrilli and Augusto Ponzio’s notion of *semioethics* can also be understood as an imperative to practice the work of *mediation* by always connecting science with the social order and the critical discourse, because that is precisely the orientation in the study of signs that involves “the exquisitely human capacity for critique” (cf. Petrilli, Ponzio 2010: 162) and it situates (bio-)semiotics as precisely the “vast life science” that Sebeok envisioned in his *Global Semiotics* (2001). The notion of a *network* that crosses the ontological zones and institutionalized disciplines characterizes both Latour’s work of *mediation* and Sebeok’s *Global Semiotics*.

Can’t see the forest for the trees

In 1999, the tropical ecologist John Terborgh had announced that “nature [had] been extinguished” in El Salvador (Terborgh 1999). A Malthusian nightmare had supposedly come true in the most crowded country in Latin America and there were no more forests left. But when UCLA political ecologist Susanna Hecht (cf. 2006) came to El Salvador in 1999, she found plenty of forests; as long as she counted so-called “anthropogenic forests” there didn’t seem to be much of a problem at all. There were plenty of trees in El Salvador. Just the ‘old’ forests were gone, the ones that were believed to be pristine forests like the Amazon. Less than ten years later, at a conference on *The Social Life of Forests* held at the University of Chicago in May 2008, political ecologists came to the conclusion, that pristine forests were an “invention of the Western mind” rather than something found in the real world. The *real world* here, of course, refers to the perceived, so-called, ‘objective reality’ of old

forests that were there before any humans appeared in them. Of course, historically, there were at some point forests untouched by humans. The idea of the 21st century pristine forest, however, is a different concept. It turns out that what the forest researchers had believed to be pristine forests were not untouched by man at all. This was apparently one of the most important insights that came through at the 2008 conference. The other aspect that was acknowledged by economic geographers and cultural ecologists was that the linguistic concepts that refer to the things in the world we call a 'forest' differ from culture to culture; in other words, the different concepts of the FOREST in different languages and cultures are vastly dissimilar and evoke very different narratives. At the conference in Chicago, Susanna Hecht quoted an indigenous definition of the forest as, "[one] big thing. It has plants and it has animals – and it has people" (Mertens 2008).³ Apparently, this was when everyone realized that with the pristine forest the West had created a different narrative of places like the Amazon, namely an "idea of pure and untrammelled nature [that] has [...] served a more spiritual purpose, preserving the image of an unfallen world, untainted by war, industrialism, and other afflictions of civilization" (Mertens 2008).

While this idea of the pristine forest fits the Modern Constitution, it also created important associated narratives in the West such as deforestation and a host of ideas on how to go about nature conservation. If the pristine forest is perceived as "pure and untrammelled", it is no coincidence that for a long time, conservation efforts simply meant removing people from the nature that had to be conserved. It is only when this semiotic modelling through language in the West became apparent to *hybrids*, such as Susanna Hecht and other political ecologists, that the paradigm of traditional conservation policies (where conserving nature meant excluding or removing humans) could be changed. While nature conservation used to always mean keeping humans out, political ecologists and cultural or economic geographers are now advocating a move away from the traditional "fortress conservation" philosophies of the West, because they understand that they created them based on their own culture-specific concepts and narratives.⁴

³ See Mertens, Richard 2008. Can't see the forest for the trees. University of Chicago Magazine, September–October, available at http://magazine.uchicago.edu/0810/features/the_forest.shtml.

⁴ For example, political ecologist Roderick Neuman quotes Arusha National Park (opened in 1960) and Selous Game Preserve (opened in 1905) in Tanzania as the second-largest protected area in Africa, home to elephants, lions, and black rhinoceroses, by expelling 40,000 people. In the meantime, the European Union reversed the African "fortress conservation" philosophy. Instead of forcing people out of protected areas, EU policies now work to keep rural people in place by paying farmers, herders, and others, because human activity is now understood to increase biodiversity rather than to diminish it, and scientists have begun to discuss the "coevolution" of nature and culture (Mertens, Richard 2008. Can't see the forest for the trees. University of Chicago Magazine, September–October, available at http://magazine.uchicago.edu/0810/features/the_forest.shtml).

While the work of these political ecologists has the mark of what Latour calls the “old anthropological matrix”, it shows that the concept of the forest as it exists in the West is now understood to be different from other models of nature.

Mediating between the ontological zones, and transcending the modes of being, *nature, social order, and discourse*, is what semioticians do best. Juri Lotman (2001[1984]: 131f; see also Kull 1998) decades ago confidently explained the forest of the West through the medieval social order and the folklore that surrounds it:

[The forest in the West] represents chaos, the anti-world, unstructured chthonic space, inhabited by monsters, infernal powers or people associated with them. In the countryside the sorcerer, the miller and (sometimes) the smith had to live outside the village, as did the executioner in a medieval town. [...] People visit the sorcerer if he demands it by night. The robber lives in this anti-space: his home is the forest (the anti-home).

The forest as the anti-home is where Hänsel and Gretel got lost, where witches, dwarves and robbers live at least in some Western European contexts. For Lotman, humans create their concepts of nature predominantly through language as a modelling system. Language, understood as a cognitive tool with which we create reality and make inferences about it, connects us with a long chain of cognitive habits and cultural practices that include our models of nature. Even for one cultural/linguistic tradition, an analysis of the many transformations of the concept of the forest would go beyond the scope of this paper. In the German tradition, it would continue from Lotman’s medieval anti-home to the place of Goethe’s quest for the *Urpflanze* and nature’s *perfect form* to Grimm’s *Märchenwald* to a place of recreation during the period of industrialization and urbanization, the ideal natural landscape of the Nazis, back to the anti-home where drugs are dealt and bodies are dumped. Artists sometimes know this better than others. That’s why the forest is the backdrop of Manet’s scandalous *Breakfast in the Open Air* (1836), and Daniel Richter’s drug raid in *Tuanus* (2000) is a perfect representation of the contemporary narrative of the forest as anti-home. All this, the discourse that constructs this natural phenomenon we call the forest, is part of the multi-faceted narratives we have created and continue to create in the West. We create the forest with language and also with art.

Nature as art

A few years ago, I showed a visitor around my campus, an Italianist with an interest in Italian Futurism, of which we have a collection in our library. On the way to the library, she noticed a palm tree whose bright red seeds had dropped to the ground and formed a perfect circle around the stem of the palm. “Look, how beautiful...”

she said, “...like an art installation!” This illustrates perfectly what Andreas Weber means by seeing nature as stuff [*Gerümpel*], plants as props, as parts of our man-made infrastructure that is the opposite of seeing nature as *artful*. Lotman’s concept of the *semiosphere* (Lotman 2001[1990]; Kull 1998) helps clarify our dominant cognitive habit of seeing nature in art vs. art in nature. Seeing art in nature would be characteristic of the *umwelt* of Andreas Weber, who sees “gems” in the eyes of a toad in a book whose cover invokes Haeckel’s *Kunstformen der Natur* (Haeckel 1904). Weber is well aware that his *umwelt* differs from that of many of his fellow 21st century global citizens in that he sees nature *as art*. The *revolution of the life sciences* he demands is at the same time a desire to return to a golden age of *Romantic biology* or *natural organicism* that characterized precisely the intellectual currents in 19th century Germany that gave rise to Goethe’s or Humboldt’s naturalism and Uexküll’s *umwelt* theory. In Latour’s analysis, of course, Weber is also a hybrid, a pre-Modern thinker who sees no distinction between nature and culture, human and non-human, and wants us to realize that while we *are* nature we are constructing a reality that separates us from it.

Weber actually crafts a much more complex argument of nature as *artful* giving abundant examples of species that defy the Darwinian *survival of the fittest* that has become a cliché in the popular discourse. The notion of nature as *artful*, however, evokes complex narratives of many other concepts, whose analysis would lead far beyond the scope of this paper. Suffice it to say here that a closer analysis of concepts like the pristine forest or the nature reserve reveal the same complicated mechanisms of semiotic modelling that turn the seeds of a palm tree into an art installation, or the so-called wilderness into a museum.

The moral economy of the American lawn

The backyard is another concept that can illustrate the role of language as a modelling system that shapes our beliefs about nature. But as Latour has shown, the work of mediation is much more difficult *in our own backyard*. In a paper on “The moral economy of the American lawn”, economic geographers Paul Robbins and Julie Sharp (2003) examine the spread of lawn cover as a major force of ecological change in North America. With a conservative estimate of 23 percent of urban cover dedicated to lawns, they are particularly concerned that the “burgeoning application of fertilizers and pesticides to residential lawns has begun to offset the gains made in reducing the use of chemicals in agriculture” (Robbins, Sharp 2003: 425). They argue that

the peculiar growth and expansion of the moral economy of the lawn is the product of a threefold process in which (1) the lawn-chemical industry has implemented new and innovative styles of marketing that (2) help to produce an association of community, family, and environmental health with intensive turf-grass aesthetics and (3) reflect an increasing local demand by consumers for authentic experiences of community, family, and connection to the nonhuman biological world through meaningful work [in the backyard]. (Robbins, Sharp 2003: 425)

Their analysis adheres to the established social-science practices of quantitative analysis with a cautiously articulated hypothesis that the moral economy of the American lawn is influenced by the advertising campaigns of the lawn-chemical industry. Robbins and Sharp's analysis does not offer an examination of the role the backyard plays as a tool of *social distinction* (see, e.g., Bourdieu 1987) or an analysis of the *weed-and-feed* narrative that is connected precisely to the social order that gave rise to the spread of lawns in the first place. In short, lawns evolved from the landscape preferences of land-owners that made obvious how much was theirs, and made it difficult for anyone to come near their wealth unnoticed. Even today, lawns signify land ownership and are believed to provide security. Robbins and Sharp's work is a perfect example of a Modern analysis that separates nature from culture, the human from the non-human ontological zone. They analyze a natural phenomenon in isolation from the social order it exists in and the discourse or *language* that actually created it. To those who don't analyze the world by the Modern Constitution, it is not difficult to discern the meaning of such narratives as *weed-and-feed*; and consider what Latour (1993) called "the parliament of things" – *nature* – *social order* – and *discourse*.

Junk nature

I am not a biologist, botanist or horticulturist, but a homeowner who constructs a reality of this space. I used to see myself as the responsible homeowner who uses the backyard for recreational purposes, for children and pets to play, protecting my investment by making it look nice, but doing so by pulling the weeds by hand instead of using chemicals. I had a sense of responsibility for this space that I executed with an *environmentally conscious* approach. Please note that the clichés in my narrative are intentional. In the language of cognitive linguistics, they are the *metaphors I lived by* (cf. Lakoff, Johnson 1980), they were the way I *framed* (cf. Fillmore 1976) the backyard in my mind. That was my backyard as I constructed it as part of my subjective reality before I met Cornelius when I was looking for more plants a few years ago. Cornelius owns a nursery that specializes in rare species of *native* plants. I had taken pictures of particular areas in my backyard that I felt needed more

landscaping. When Cornelius looked at the pictures, he told me that everything I actually had in my backyard at that point was ‘junk’. I was profoundly perplexed. I couldn’t believe he called all these plants junk. How could nature be junk? I told him about some nice plants I had seen at the Zoo – a place known in our area for beautiful landscaping. It turns out Cornelius thinks everything at the Zoo is junk. I also learned that the weed I had been pulling for years was a ‘native’ wild flower. Not junk according to Cornelius. I had been pulling it because it grows abundantly and proliferates by needle-sharp seeds that stick to my children’s shoes and pant legs. They have a small white flower that resembles Chamomile, but they quickly dry out, turn into brown thistle-like structures of needle-sharp seeds. In Cornelius’ nursery, they were everywhere. For him, they are legitimate ‘native’ plants that contribute to the habitats of ‘native’ insects, birds, and other animals. Driving home from the nursery, everything I saw along the median, in people’s front yards, back yards, and along the highway – nothing but junk. All junk.

As a linguist who appreciates Fillmore’s *frame* (Fillmore 1976) and Lakoff and Johnson’s *metaphor* (Lakoff, Johnson 1980), I was struck by how much his use of the word ‘junk’ had affected me and shaken my beliefs about this space behind my house and my role as its creator. Junk as a *frame* evokes a narrative of being useless and superfluous stuff with no value or function. In cognitive linguistic terms, I could say that Cornelius *reframed* the backyard for me or caused a shift in my cognitive *metaphor* for the backyard (*sensu* Lakoff and Johnson 1980) from a recreational space to a habitat for other animals than humans. Nature, again, was stuff [*Gerümpel*]? Except now there was good stuff and bad stuff.

According to this new concept that could be entitled native gardening, bad stuff was ‘non-native’ or ‘invasive’; and good stuff was ‘native’. To understand the narrative behind the concept of native, I turned to Laura Sanagorski, an Environmental Horticulture Extension Agent for the University of Florida, who explained to me in an email that “the Florida Native Plant Society adopted the following definition in 1994”:

Florida native plants are those species occurring within the state boundaries prior to European contact, according to the best available scientific and historical documentation. More specifically, it includes those species understood as indigenous, occurring in natural associations in habitats that existed prior to significant human impacts and alterations of the landscape. (Sanagorski, personal communication)

Nature conservation here, again, excludes humans according to the Modern Constitution that separates the two ontological zones. The narratives of *weed-and-feed* and of *native gardening* alike perpetuate the Modern Constitution by separating (=purifying) human from non-human, nature from society. Latour (1993: 32)

describes the paradox of Nature and Society with three guarantees: (1) Even though we construct Nature, Nature is as if we did not construct it; (2) even though we do not construct Society, Society is as if we did construct it; and (3) Nature and Society must remain absolutely distinct. The work of purification must remain absolutely distinct from the work of mediation.

While cognitive linguistic concepts may not work well for formulating testable hypotheses about how individuals construct concepts of nature, they certainly work well in describing and understanding my own personal transformation of the concept of the backyard in light of the narratives evoked by my encounter with Cornelius and his pronouncement of the plants I had lived with as junk. It set in motion a series of inferential learning about alternative narratives that I have grown to *live by* in the meantime, such as the idea that plants can be in the wrong place (e.g. Simberloff, Rejmanek 2011). Andreas Weber certainly knows how to exploit *the linguistic creation of nature* as a possible fuel of the revolution of the life sciences he is hoping for. But is it enough to change people's beliefs? And will this work become visible outside of academic journals and conferences? And will these ideas manifest in the external pathways of the minds of those who come in touch with it?

The linguistic exchange of Cornelius' narrative of junk nature was powerful, abrupt, and perplexing only because it was embedded in the context of his own backyard and the look in his eyes to gauge my reaction to his statement that everything I had was 'junk'. He reframed my concept of the backyard in that moment, because he declared *my* backyard to be 'junk' as we stood there in *his* backyard (see Fig. 2), our pant legs covered with Spanish needle (*Bidens bipinnata*) seeds, surrounded by the skunky smell of a stopper (*Eugenia axillaris*). The power to reframe emanated from this context and the energy in Cornelius' presence and the beads of sweat on his forehead as a direct result of his dedication to put this narrative into practice day by day.

Cornelius' yard, I realized, is like the toad in Weber's narrative: "Don't be afraid. You can get very close. And you may see the gems project into space. That's fiction, you say? [...] A matter of taste? Maybe you find it ugly? Wait a minute. Take another good look. [...]" (Weber 2008: 23).

This may well be the only fuel for a *revolution of the life sciences* as Weber envisions it – to commune with other beings to understand how we construct our reality of nature and define our role in it by understanding the narratives and *umwelten* of others. It will take such *Cornelius moments* or looking into the eyes of a toad. It will take moments of being perplexed at how others construct reality, because only these moments can change our "cerebral habits that determine what we do in fancy and in action" (CP 3.160) that are our beliefs. What else shakes up our beliefs, *reframes* our concepts, replaces *metaphors we lived by* with different ones that can cause us to change our thinking habits and change the way we interact with other organisms?



Figure 2. Yard (© Carl Terwilliger).

Conclusion

What does it take for us to see beauty in the eyes of a toad and realize that *we* are the ones creating the forest and the backyard, and we are the ones determining what is a weed and what isn't?

"There are no cultures," says Latour (1993: 102). The toads and banana spiders, the forests and backyards, the homeowners and the lawn-chemical industry, political ecologists and economic geographers are all part of a *collective* (Latour 1993). While some strategies and theoretical concepts in cognitive linguistics and semiotics explain what it takes to change existing habits of thought, my conclusion is that the revolution that shifts our attention to all organisms as *subjects* will depend on face-to-face moments of communing with others, human and non-human, with an Uexküllian hybrid approach to the subjectivity of all possible *umwelten*. To convince people to think differently about their turf, they will have to see eye to eye with toads and other species to construct new narratives with or without the help of that powerful tool of semiotic modelling that is *language* (Sebeok 1991).

Will our mediation work ever become more visible than it is today? Will the economic geographers liberate themselves from the limitations of what's expected of good social scientists? Will the political ecologists learn to analyse language as a modelling system to understand the concept of the forest in the West and elsewhere? Bruno Latour, believes that

[seen] as networks, [...], the modern world, like revolutions, permits scarcely anything more than small extensions of practices, slight accelerations in the circulation of knowledge, a tiny extension of societies, miniscule increases in the number of actors, small modifications of old beliefs. When we see them as networks, Western innovations remain recognizable and important, but they no longer suffice as the stuff of saga, a vast saga of radical rupture, fatal destiny, irreversible good or bad fortune. (Latour 1993: 48)

But fellow hybrids recognizing each other across new fields like “environmental humanities, ecocriticism, ecophenomenology, cultural ecology, the study of embodiment, and posthumanism” (Cobley 2010: 226) may well sustain Weber’s hope of a world full of subjects and a new understanding of *life* that corresponds to a new orientation in the natural sciences (cf. Hoffmeyer 1996; Kull 2007: 15) and a gradual “modification of old beliefs” that make gems appear in the eyes of toads.

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Человек, природа и семиотическое моделирование, или как создавать с помощью языка леса и задние дворы

В статье разъясняется, как мы с помощью языка создаем такие понятия, как лес или задний двор. Опираясь на утверждение Андреаса Вебера, что в науках о жизни происходит революция и роль людей в контексте природы переоценивается, статья исходит из характеристики, данной Бруно Латуром разграничению природы и культуры как модернистской иллюзии. Теоретические понятия, взятые из теории моделирующих систем и когнитивной лингвистики, помогают понять, что, хотя язык играет ключевую роль в конструировании новых моделей природы, тем не менее, новые когнитивные привычки и изменения в верованиях находятся в зависимости от непосредственной и невербальной коммуникации с другими организмами, как человеческими так и нечеловеческими.

Inimene, loodus ja semiootiline modelleerimine ehk kuidas luua keele abil metsi ja tagahoove

Artiklis selgitatakse, kuidas me loome keele abil selliseid mõisteid nagu mets või tagahoov. Lähtudes Andreas Weberi lootusest, et eluteadustes toimub revolutsioon ning roll, mida inimenes looduses mängivad, hinnatakse ümber, võetakse artiklis lähtekohaks Bruno Latouri poolt antud iseloomustus looduse ja kultuuri vahelisele eristusele kui modernsusega saanud illusioonile. Modelleerivate süsteemide teoorias ning kognitiivlingvistikast pärinevad teoreetilised mõisted selgitavad, et samas kui keel mängib uute loodusmudelite konstrueerimisel võtmerolli, sõltuvad uued kognitiivsed harjumused ning muutused uskumustes vahetust ja mitteverbaalset kommunikatsioonist teiste organismidega, nii inimeste kui ka mitteinimestega.