THREE ECOLOGIES DIFFRACTED. INTERSECTIONALITY FOR ECOLOGICAL CARING

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ABSTRACT

This essay commemorates the 30th anniversary of the publication of Félix Guattari's *The Three Ecologies*. It does so by proposing a 'diffractive' reading of the book, suggesting latent potential in each of the overlapping "ecologies" that conformed the *ecosophy* sketched by Guattari.

There are mainly two aspects of *The Three Ecologies* addressed in this essay. Firstly, the understanding of the general frame of the interrelation of the three ecologies *as* an "intersectional" approach. Secondly, the understanding of this form of intersectionality as a possible platform to acknowledge other-than-human 'intersections'. Through the essay I exemplify with one of my own design projects to help situating the claims and the questions raised. Finally, I propose a multimodal explorative framework of the three ecologies to explicitly articulate human and other-than-human beings inter and intra-relatedness.

"… phenomena—whether lizards, electrons, or humans—exist only as a result of, and as part of, the world's ongoing intra-activity, its dynamic and contingent differentiation into specific relationalities. 'We humans' don't make it so, not by dint of our own will, and not on our own. But through our advances, we participate in bringing forth the world in its specificity, including ourselves. We have to meet the universe halfway, to move toward what may come to be in ways that are accountable for our part in the world's differential becoming. All real living is meeting. And each meeting matters."

Karen Barad, *Meeting the Universe Halfway*

INTERSECTIONAL AND DIFFRACTED

In his book *The Three Ecologies*, Félix Guattari sketched an ethico-political articulation that he called an *ecosophy*, which was based on three ecological registers: a mental (or psychological) ecology, a social ecology and an environmental ecology, all simultaneously present and mutually influencing, 'overlapping' or 'intersecting'.

Interestingly, the term intersectionality was coined by Kimberlé Crenshaw in 1989, the same year of the publication of Guattari's *Les Trois Écologies*, translated eleven years later into English as *The Three Ecologies*. Both Crenshaw and Guattari gave names and created methods to articulate the inter and intra-related aspects that overlap and simultaneously coexist which influence the life conditions of human beings. Crenshaw was concerned with the articulation of the social dimensions of power dynamics oppressing women in the USA, more particularly, of "Black women" that will lead her to write a "black feminist criticism" (1989; 139). Crenshaw saw how "Black women" were "theoretically erased" (1989; 139) from feminist discourses of that time and used the concept of intersectionality to make theoretically explicit that the 'sections' or layers

understood separately partly enacted oppression. From the intersection of them emerged the possibility of creating new registers, new sensibilities by which we could make sense of things.[1] One could say that she 'diffracted' the "social register" of feminist thinkers of that time to render 'visible' power dynamics affecting some human groups. One could also say, in a Guattarian sense, that she added registers to a social ecology. However, Karen Barad, elaborating on Donna Haraway, has been careful to point out that the notion of diffraction relies on an optical metaphor which implies the difficulty, and the challenge to avoid thinking "reflexivity" in terms of representationalism:

"Reflexivity takes for granted the idea that representations reflect (social or natural) reality. That is, reflexivity is based on the belief that practices of representing have no effect on the objects of investigation and that we have a kind of access to representations that we don't have to the objects themselves. Reflexivity, like reflection, still holds the world at a distance… calling a method 'diffractive' in analogy with the physical phenomenon of diffraction does *not* imply that the method itself is analogical. On the contrary, my aim is to disrupt the widespread reliance on an existing optical metaphor —namely, reflection— that is set up to look for homologies and analogies between separate entities. By contrast, diffraction, as I argue, does not concern homologies but attends to specific material entanglements" (Barad 2007; 87-88 emphasis in the original).

Barad coined the term *intra-action* to explicate and study entanglements and relationalities through material-discursive practices. Intra-action is a dynamic concept (to be understood in terms of processes) that emphasizes agency, not as an inherent property of a thing or an individual (which might be taken for granted through the notion of inter-action) but as relational becoming. "Agency is not an attribute but the ongoing reconfigurings of the world" (2007; 141). Through this conception, 'things' are ethico-onto-epistemologically constitutive of each other. We are always in the middle.

Following Barad, the intra and inter-actions to be considered throughout this essay are meant to counteract binaries such as natural-artificial and allow us instead to conceive the continuum through differences of degree and intensity. It also implies that the diffractive approach expands the original visual metaphoric analogy. Guattari wrote "We need to 'kick the habit' of sedative discourse… in order to be able to apprehend the world through the interchangeable lenses or points of view of the three ecologies" (2008; 28). In this sense, we may nuance the transversal ethico-aesthetic paradigm that Guattari's process-oriented approach[2] sought to enact, with renewed concepts for "accounting for how practices matter" (Barad 2007; 90), expanding his primary visual metaphor of the "lenses" in an attempt to engage in a diffracting that disrupts anthropocentric visual registers and enacts multisensorial speculation.

I suggest that Guattari's 'macro intersectional' frame facilitates a relational approach that, if explored through diffraction, would allow to articulate and investigate registers, making sense of myriad aspects that affect and enact ecologies. If Crenshaw's diffraction of a social register made (and continues to make) possible to articulate certain human power dynamics and circumstances affecting particular groups of women[3], today, it is also possible to understand the more radical onto-epistemological erasure of other-than-human beings. If, for example, the diffraction of a social register gave Crenshaw the "intersection" sexism and racism as something "greater than the sum of racism and sexism" (1989; 140) because the laws of the time took for granted the norms of white women or those of black men, then, the diffraction of an environmental register, may unfold the multiple ways in which physical and chemical elements and conditions inter and intra-act with human beings, but also the behavioural aspects of myriad others that participate in the enaction of these realities at multiple scales. An environmental ecology that not only articulates the relations of a human as she is affected by the wind, the sun, the textures of the cotton buds that she collects and the chemicals of the cotton fields that she absorbs through her body, but also the semiotic registers of the wasp that parasitizes the eggs of the cotton weevil that has recently been feeding on the blade of the plant that releases these signs.[4] That is, an environmental ecology diffracted and conceived through the overlap with those of other beings.

FROM HUMAN-OTHER TO OTHER-THAN-HUMAN AND BACK, AND AGAIN, AND AGAIN

If we reconsider Guattari's three ecologies as a frame or conceptual model, as a device to think with, we could

[1] Ten years earlier, Gregory Bateson had written "two descriptions are better than one" (2002 [1979]; 63) and argued that "news of difference" (information) is produced when a second source imposes a sub classification that was previously impossible. For example, how information about depth is created by binocular vision (two eyes). From which emerges an aggregate that "is greater than the sum of its parts because the combining of the parts is not a simple adding but is of the nature of multiplication or a fractionation, or the creation of a logical product." Bateson 2002 [1979]; 80-81.

[2] A "logic of intensities or eco-logic" (Guattari 2008; 30). The notion of transversality was crucial to Guattari (see: Genosko in Guattari 2008; 46), and through this essay, transversality continues to be explored together with its potential for trans-dimensionality and trans-sensoriality.

[3] For a contemporary overview of intersectional approaches see Hill Collins and Bilge 2016.

[4] For a biosemiotic description of these type of multitrophic plant-herbivore-parasitoid-pathogen system see Bruni 2011.

appreciate that the psychological, the social and the environmental ecologies were conceived to articulate ecological complexity from a human point of view. Guattari's insight was not only the intersectional aspect —the understanding that from the overlap, from the confluence, of more than one section emerges something "greater than the parts"— but also the explict articulation of the psychological dimension as generative (desire-production)[5] and inextricably related to the social and environmental dimensions. For Guattari, to explicitly address the psychological register was a way to critically engage with production-consumption cycles of what he called "Integrated World Capitalism", which in his words "… tends increasingly to decentre its sites of power, moving away from structures producing goods and services towards structures producing signs, syntax and – in particular, through the control which it exercises over the media, advertising, opinion polls, etc. – subjectivity (2008; 32).[6] Through this framing, the human subject becomes prominent in its capacity to engage not only with and through environmental and social ecologies, but also with and through ecologies of ideas and sensibilities enacted in relation to sociological and environmental ecologies. In this way, and as a conceptual model, the three ecologies help us to appreciate the potential combination of signs and encounters, internal and external (intra-active) to any human being. The acknowledgement of this complexity requires firstly, the re-cognition and appreciation of intra-activity, and secondly the re-cognition and appreciation of others' differences and capabilities.

When speaking of a 'human point of view', I am not suggesting a homogenous conception of 'the human', on the contrary, there is no unitary 'human' view of 'nature'; there is only differential becoming, multiplicity and specificity. The same applies to other-than-humans, this triple overlapping register could also be used to frame studies and speculations upon other-than-human capacities and ways of being, to explore their differential becoming, multiplicity and specificity. Can we speak of psychological, social and environmental ecologies of all living beings? Even though what is understood as psychological in human beings differs from the processes of individuation of plants, all living beings establish degrees of social and environmental relations. If we follow what Guattari means by subjectivity, it is relevant to point out that for him subjectivity is, at the same time, both collective and auto-producing. Auto-producing, in reference to Maturana and Varela's notion of *autopoiesis*, and collective in its *sympoiesis*,[7] through emphasis on the relational, historical and situatedness of the collective becoming of subjectivity. This (transversalist) approach to subjectivity eludes the individual-social distinction as well as the conception of the subject either as a person or individual.[8] Through this definition the boundaries psychological-social get even more diffuse; Barad mentions that conceived intra-actively, beings, as phenomena, "exist only as a result of, and as part of, the world's ongoing intra-activity, its dynamic and contingent differentiation into specific relationalities… All real living is meeting. And each meeting matters." (2007; 353).

A CASE OF MATTERING AND WORLDING THROUGH DESIGN

These auto-producing and collective becomings enact *worlds*.[9] As mentioned earlier, human worlds are far from universal or homogenous. I will succinctly exemplify some aspects of how the intersections of psychological, social, and environmental ecologies may overlap and how the considerations of these overlaps may guide the design of artefacts with a project entitled "Spices-Species", from my postdoctoral work "Symbiotic tactics" (2013-2016)[10]. The project

[5] A recurring theme in Guattari as well as throughout his work with Gilles Deleuze. See: Deleuze and Guattari 2009; 1986; 2004; 1994. See also Antonioli 2015.

[6] Other models, such as the 'triple bottom line', the best-known frame for 'sustainability', also consider three factors: economic, environmental and social. However, by placing economy as a separate category (outside of the social and environmental) not only explicitly erases the register that makes possible to consider the role of human subjectivity, but also, by not being conceived as 'ecologies', miss the relational and dependent aspect on and to 'the environment'. The result is a conception that separates through metric categories that obscures the human dimension, social construction and situated nature (dependency of local environments) of economics. 'Economy' is fundamental to measure and create conditions for and of exchange (of all kind of material-semiotic flows) within society, but it is not bound to particular forms of social interactions and is always dependent on human values and material contexts. Relating to design, see our earlier critique and work based on *The Three Ecologies*, Ávila, Carpenter and Mazé 2010; also Antonioli 2015; Boenhert 2018.

[7] See: Maturana and Varela 1998. For *sympoiesis* see Haraway 2016.

[8] See: Gary Genosko in Guattari 2008; 71.

[9] Note that here, a 'world' differs from an 'environment'; in the words of Francisco Varela "On the one hand, a body interacts with its environment in a straight-forward way. These interactions are of the nature of macrophysical encounters – sensory transduction, mechanical performance, and so on– nothing surprising about them. However, this coupling is possible only if the encounters are embraced from the perspective of the system itself. This embrace requires the elaboration of a surplus signification based on this perspective; it is the origin of the cognitive agent's world. Whatever is encountered in the environment must be valued or not and interacted with or not. This basic assessment of surplus signification cannot be divorced from the way in which the coupling event encounters a functioning perceptuo-motor unit" (Varela 1999; 55-56).

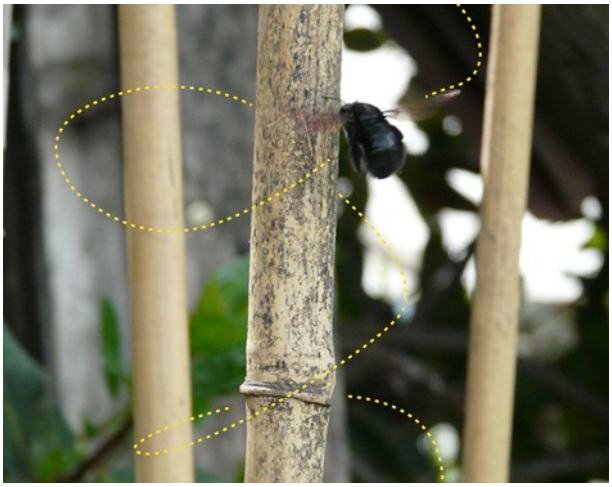
[10] Financed by the Swedish Research Council (project diary number: 438-2013-297). All projects developed within "Symbiotic tactics" were conceived keeping in mind the overlaps of this triple and diffracted register and with the

explicitly works with psychological and social aspects as they overlap with environmental ones. I briefly present it here as one of my efforts to articulate how the decisions to work with designs for and from local ecosystems and in relation to other-than-human beings can be understood as gestures of care through design (in all their tensions). Also, and more importantly, as a situated and contextualized effort that might help to imagine further and in other contexts what one might mean by intersectionality for ecological caring through design.

In "Ecologizing, decolonizing. An artefactual perspective", I wrote that the 'newness' of the artefact that we proposed, lied "in its attempt at de-linking from anthropocentrism to extend our sense of *self* so that ecological belonging acknowledges other scales of being, a becoming-*with*, a becoming-*through*, a becoming-*for and*… It exposes us to the short sightedness of not caring for the companion species that cohabit with us (whether we like them or not), and on which we are dependent upon" (2017; 6). The project does not propose an expansionist model, but the responsible use of local materials and understanding of local species for a reestablishment of affective bonds; a de-linking from 'growth' and a re-linking to the processes of living and dying.

The project was framed keeping in mind "species' correlations to human preferences", and in that case, "the general human predilection of floral plants, with the resulting presence or absence of certain plant species in the city of Córdoba [Argentina]" (2017; 1), which led to experimentation with different native plants and the selection of *Passiflora caerulea*, a local variety of passionflower, for its beauty as well as its use as medicinal and edible plant. For an explanation of the artefact designed see Ávila 2017, here, I will simply point out that the proposal included a material arrangement that made possible: a) the growth of the plant in different urban contexts (for example gardens or balconies); b) the use of the artefact by the plant's main pollinator, a carpenter bee (as a habitat for nesting, fig. 1); as well as c) the medicinal use of the plant by a human being (through a set to produce tinctures). This implies that the design is a result of the constraints imposed by the behavioural possibilities of at least three living beings (human, plant, bee).

1 – Female carpenter bee *(Xylocopa)* as it would ideally nest using the set to grow the passionflower.



2 – Carpenter bees of this species (*Xylocopa Artifex*) circumnavigate cane or *Eryngium* stems assessing the suitability of the plant for nesting, landing occasionally on its stalk and 'tapping' onto it before they decide on a place to perforate its wall.

Having designed with the concern for the environmental implications of human preferences for floral plants, the artefact materializes the *partial connections*[11] of (some) humans: those interested in traditional medicine, those interested in the plant for its fruits, or those that appreciate the beauty of its flowers; and those of (some) nonhumans: the carpenter bees that seek the passionflower for its abundant nectar and pollinate the plants they visit, the butterflies that lay eggs and feed on it as caterpillars, or the birds that feed on its fruits.

There are *partial connections* emerging from the intersections of the three ecologies, all of them

ambition to challenge anthropocentric ways of being and doing. The shortness of this essay does not allow me to expand on these and other potential examples. See also Ávila and Ernstson (Forthcoming 2019).

[11] *Partial connections* is a concept developed in dialogue between Donna Haraway and Marylin Strathern. The concept offers "the possibility of conceptualizing entities (or collectives) *with* relation integrally implied, thus disrupting them as units; emerging from the relation, entities are intra-related (Barad 2007) instead of being inter-related… instead of plurality (a feature premised on units) the mathematical image congenial to partial connections is that of fractals: they offer the possibility of describing irregular bodies that escape Euclidean geometrical measurements because their borders also allow other bodies in -whithout, however, touching each other everywhere… Thus intra-connected, and therefore not units, fractal bodies also resist being divided into 'parts and holes' (Strathern 2004), for this is a quality of units." (De la Cadena 2015; 32 emphasis in the original).

materially entangled, making differences for some-one, for some-thing, some-how. The "environmental ecology" is enacted by the relations of myriad organic and inorganic systems, and in the case of living beings, their own *worlds*, each species' *umwelt*. [12] This implies that within Guattari's environmental ecology we have to consider the *umwelten* of multiple beings. Each of the beings participating in an environment would have a "psychological" and a social ecology of their own. Like with the acknowledgement of human worlds, when we recognise the presence of other-than-human living beings, we must acknowledge their *worlds* and their behavioural modes of enaction. The triple register of the three ecologies is diffracted, and each world can be understood intra-actively in its overlapping and mutually constitutive interference.

In terms of care, and as a human user of this artefact, there are psychological (social and environmental) tensions through the relations with the plant by engaging with its maintenance, the food and medicine that it may provide to us, our appreciation of its beauty (ugliness, growth, decay), our apprehension or appreciation of the relation with the bees or the feeding on the plant by the caterpillars, to name a few. Regardless of the amount of questions that the artefact manages to respond to, from a human perspective, and rather than emphasizing cultural diversity, the project stresses how different modes of human understanding lead to the enactment of different worlds, in this example through the value systems that result in the contrasts between allopathic medicine and "alternative" medicine, and their ecological implications if care for the plant and species that relate to them are taken into account.

Considering the beings addressed by this artefact, the project also emphasizes the need to account for other beings' capacities for adaptation and cohabitation. While acknowledging power asymmetries, the project designs ecologies of practices that enable ecologies of care (Puig de la Bellacasa 2017) and a caring for ecologies.[13] In the same way that Guattari's transversalist conception of subjectivity escapes the individual-social distinction, this transversalist diffracted approach to the three ecologies seeks to escape the human-centred and dichotomies such as nature-culture. This project is an attempt in this direction, to re-link to the living and do otherwise, navigating the natureculture continuum to experiment with new forms of subjectivity and a design practice that questions degrees of anthropocentrism.

At times, Guattari sought to overcome dualism by working with triads (three ecologies) and also models of four (fluxes, phylums, universes, territories), and always understood that "transversality was only livable according to diverse modalities"[14]. Keeping in mind that features of transversality are attention to local contexts, diverse modalities and processes, a diffractive approach to the three ecologies should be conceived with attention to multiple dynamisms of the biotic-abiotic continuum.

MULTIMODAL AND DYNAMIC

Understanding the implications of all possible ecological inter and intra-actions is unachievable. Each of the three spheres occur simultaneously but not separately, diffracting each other's influence and resulting in the lived experience of organisms and in differences in the environmental reality of which they participate and enact. With this in mind, what I propose is a multimodal explorative framework that cannot explicate all implications, but that may allow us to remain sensitive to other's semiotic and behavioural capacities in an attempt to increase 'reflexivity', awareness and care. As such it departs from the intersectionality of the three ecologies as a relational conceptual frame to identify the intersections of different beings' *umwelten*. Each being identified will be constituted by: A psychological dimension to be considered that acknowledges the conditions for degrees of consciousness and semiotic freedom of the being in question. A social dimension to be considered that acknowledges the social capacities for inter and intra species communication of the being in question. An ecological dimension to be considered that acknowledges the physical, chemical, thermodynamic and metabolic processes that enact the possibilities of living.

By 'diffracting' the three ecologies, we may, methodologically, engage in the ethico-aesthetic paradigm that Guattari called "Chaosmosis", and its potential for engendering conditions for "unprecedented formations of subjectivity" (Guattari 1995; 91), by explicitly engaging in modes of sympoiesis and ecological becomings. The task involves the challenge

[12] Jacob von Uexküll's notion of *umwelt* designates a sphere of the senses, a perceptual world in which an organism exists and acts, and thus, indicates the partiality of every species' perceptions and constitution of their *world*. (Uexküll 2010). Uexküll's *welt* (world) is composed of the *Innenwelten, Umwelten* and *Gegenwelten,* which Yogi Hendlin summarises as follows; *Innenwelt*, the physiological self-guidance system; the *Gegenwelt*, the "counter-world" in the animal's nervous system that mirrors external impressions, and the *Umwelt*, the external world as it shows up to a given organism (Hendlin 2016; 96. Hendlin raises the question of "how to make sense of the multiplicity of intersecting [endo and exo]semiotic channels" (2016; 95), suggesting that the Uexküllian functional cycle of perception results and emerges through the diffracted "coincident interpenetrating layers of semiosis" (2016; 95). Hendlin asserts multiplicity and specificity by combining the Deleuzian (and Guattarian) concept of *multiplicity* with Jacob von Uexküll's through a diffractive reading of the notion of *Welt* (world).

[13] See also Stengers, "Introductory notes on an ecology of practices" (2005).

[14] Genosko in Guattari 2008; 77-78.

of inter/intraspecies communication, and the minimum of human consideration and acknowledgement of other-than-human modes of semiosis.

Throughout his work, Guattari paid attention to semiosis and questioned the centrality of structuralist linguistic-based semiotics and constantly attempted to explain and expand semiotic registers of pre-linguistic modes of signification. Although the work of Uexküll and Bateson[15] appear in Guattari's work, the field of studies today called "Ecosemiotics" and "Biosemiotics" had not emerged as a differentiated field of studies.[16] With the advent of Ecosemiotics/biosemiotics also comes a relational and enactive understanding of human semiosis or anthroposemiosis (which the structuralist and linguistic approaches developed and studied)[17], that influences the anthropocentrism of not only the field of semiotics, but also of ecology, evident through the scales at which it has traditionally operated (see Estes et al. 2018). To understand a semiotic event, ecosemiotician Timo Maran proposes a scheme for Semiotic Event Analysis (SEA)[18], that consists in the study of the stages of semiotic events:

1) General knowledge of human sign processes and systems; documenting significant semiotic events ad-hoc in the given place and time;

2) Describing the semiotic events qualitatively based on a), knowledge of species sign systems and umwelts (based on ethology and physiology), and b), knowledge about the particular environment (both ecosemiotic and ecological);

3) Creating typologies of semiotic events based on the participants (agencies) and meanings related to the particular events;

4) Making quantitative analysis of the given semiotic environment based on the total count of interactions, diversity (types of participants) and magnitude (types of interactions based on the typology) of the semiotic events.

Understanding that every design intervention brings something new to the world and modifies environments, that is, it creates differences that make differences (information; Bateson 2000; 318; Barad 2007; 36), and that these new configurations afford new possibilities of behaviour, then, a general knowledge of human sign processes and systems, as well as knowledge of species sign systems and umwelts (based on ethology and physiology), and knowledge about the particular environment (both ecosemiotic and ecological), would allow not only for analysis, but also for speculating upon the potential modes of intra/inter-action of those that participate and enact those worlds and environments.

Guattari, a political activist as much as a psychiatrist and a philosopher, cultivated dissensus and attended to the constant reconstitution of worlds, emphasising that "it is important not to homogenise various levels of practice or to make connections between them under some transcendental supervision, but instead engage the in processes of *heterogenesis*."[19] The monocultures that erase heterogeneity are not only those that we created through certain practices of agriculture, but more generally, those that we created (and still create) by material and anthropocentric practices that acknowledge no other but some human beings.

Returning to "Spices-species", one can question the materialisation of this artefact more systematically using SEA and study the stages of semiotic events. Exemplifying with the knowledge that helped us shape the artefact by paying attention to the carpenter bee, we addressed 2) and 3) (of Maran's SEA model) and asked; how does this species of bee seek and select the most

[15] *The Three Ecologies* starts with a quote of a famous paragraph from Bateson; "there is an ecology of bad ideas, just as there is an ecology of weeds" (Bateson 2000; 492). Guattari was, however, also critical of Bateson in some respects, which in my understanding makes Guattari more Uexküllian in the way he, in *The Three Ecologies*, understands "worlds", for example: "Gregory Bateson has clearly shown that what he calls the 'ecology of ideas' cannot be contained within the domain of the psychology of the individual, but organizes itself into systems or 'minds', the boundaries of which no longer coincide with the participant individuals. But I part company with Bateson when he treats action and enunciation as mere parts of an ecological subsystem called 'context'. I myself consider that existential taking on of context is always brought about by a praxis which is established in the rupture of the systemic 'pretext'. There is no overall hierarchy for locating and localizing the components of enunciation at a given level. They are composed of heterogeneous elements that take on a mutual consistency and persistence as they cross the thresholds that constitute one world at the expense of another" (2008; 36). Guattari's emphasis on the "existential taking" of context and the constitution of worlds at the expense of another, indicates his understanding of umwelt theory and even his and Deleuze's appreciation of the Uexküllian melodic conception of nature where beings act in "counterpoint" to each other. See for example Deleuze and Guattari 1994 [1991]; 185; and (antedating *The Tree Ecologies*) 2004 [1980]; 283, 346.

[16] These "fields" emerge more clearly during the 1990's and early 2000s; see: Hoffmeyer 2008; Maran and Kull 2014. During Guattari's lifetime ecology had been mostly under the influence of physics, reason why "the last decades focused mainly on the discovery or confirmation of universal natural laws, predominantly on absorption, transformation, and processing of energy and matter." (Bruni 2011; 145).

[17] See: Paul Bains' "Umwelten" (2001), especially as Bains weaves anthroposemiosis (John Deely) to comment on Deleuze and Guattari's "postulates of linguistics" p. 148-149.

[18] As presented by Timo Maran, "Semiotic Event Analysis (SEA) for Multispecies Environments", at the conference Semiotics of Hybrid Natures. Anthropogenic Ecosystems, Multimodalities, Transformed Umwelts. Tartu, Estonia. November 2018. Publication forthcoming.

[19] 2008; 34. Guattari continues "…Particular cultures should be left to deploy themselves in inventing other contracts of citizenship. Ways should be found to enable the singular, the exceptional, the rare, to coexist with a State structure that is the least burdensome possible" (2008; 34).

appropriate hollow wood for nesting? What are the perceptive clues that the bees seek, and that we as designers acknowledged in the material configurations? (Figure 2). Do the female offspring return to the place they were born for nesting when adults? Knowing that that is the case, is the artefact long-lasting or able to acknowledge somehow this need? These and many other questions helped us shape the artefact and decide on the potential processes once we acknowledged and studied the presence of other beings with different perceptual and behavioral capacities.

The list and the proposals are incomplete, what is important to emphasize is that design, conceived relationally, must "cultivate sensitivity to the various unexpected semiotic channels at work" (Hendlin 2016; 96), human and other-than-human. Read in this key, the efforts to design these artefacts can be understood as care in their life-affirming search, and as ecologies of practice that have the potential to maintain caring and develop new sensitivities and relations.[20] The overlap in the 'intersection' human-and-bee through this particular material configuration, leads to engaging with other scales and other tensions (possibilities to and for affect) than the more common human-and-plant relations and human-and-plant-and-soil relations. Something that alters the perception of all of them (an aggregate that is greater than the sum of its parts), increasing the perception of 'depth' of and in these entanglements. Something that may expand adaptive capabilities of all species involved.

CONCLUDING

One of the implications of understanding *The Three Ecologies* as a 'macro intersectional' methodology is that it highlights that what has normally been understood as "intersectionality", are issues at stake that enact a human social dimension. In this light, what has been historically understood as intersectionality can be expanded to think and nuance the intersections of not only human social dimensions but also the psychological and environmental in their interrelation with each other. The notion of "diffraction" in combination with "ecologies" help us better understand intra-relatedness and avoid thinking in terms of "units" (such as a "section" that can be divided into parts); something that the prefix "inter" (as in "intersection") still suggests; the relation between separate and defined entities. In spite of this, I believe that, like the concept of ecology, both intersectionality and diffraction, are relational concepts and, as such, useful to think modes of what Guattari called transversality.

Because design enacts novel configurations that affect all kind of beings, a relational approach should imply a decentring of the human, so that the differences that make a difference that humans generate could also acknowledge other-than-human ways of being. Designing ecologies of practices that enable ecologies of care and a caring for ecologies; design cultures can acknowledge the presence and the relational modes of other-than-human beings, to expand possibilities for cohabitation and learn new nuances of meaning by attending to the power asymmetries among humans as well as the power asymmetries with and among other-than-humans.

In his last book Guattari wrote; "An ecology of the virtual is thus just as pressing as ecologies of the visible world. And in this regard, poetry, music, the plastic arts, the cinema —particularly in their performance or performative modalities— have an important role to play, with their specific contribution and as a paradigm of reference in new social and analytic practices (psychoanalytic in the broadest sense). Beyond the relation of actualised forces, virtual ecology will not simply attempt to preserve the endangered species of cultural life but equally to engender conditions for the creation and development of unprecedented formations of subjectivity that have never been seen and never felt. This is to say that generalised ecology —or ecosophy— will work as a science of ecosystems, as a bid for political regeneration, and as an ethical, aesthetic and analytic engagement. It will tend to create new systems of valorisation, a new taste for life, a new gentleness" (1995; 91-92). A gentleness that might help us sense and care for whom and how our worldings matter.

[20] Other thoughts that consider the caring for the plant, for human health and urban ecosystems can be found in Ávila 2017.

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