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Ecological Modes of Thinking in Times of Crisis

On Assemblage Theory and its Implications

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Image 1. Endosymbiosis: Homage to Lynn Margulis, by Shoshanah Dubiner.

> Not man as the king of creation, but rather as the being who is in intimate contact with the profound life of all forms or all types of Beings. (…) man and nature are not like two opposite terms confronting each other—not even in the sense of bipolar opposites within a relationship of causation, ideation, or expression (cause and effect, subject and object, etc.); rather, they are one and the same essential reality, the producer-product.
> – Deleuze and Guattari, *Anti-Oedipus*

> It is the story that makes the difference. (…) The trouble is, we've all let ourselves become part of the killer story, and so we may get finished along with it. Hence it is with a certain feeling of urgency that I seek the nature, subject, words of the other story, the untold one, the life story.
> – Le Guin, *The Carrier Bag Theory of Fiction*

Ending the Anthropocene

Western modes of thought have often categorized the world as being constituted by oppositional ontic categories, such as subject ↔ object, identity ↔ difference, and nature ↔ culture. In this dichotomous thinking, it has frequently been the case that one ontological category is granted hierarchical primacy over the other, as is seen in the dichotomy between nature and culture, for example. The domain of nature here is conceptualized as the external environment, something that exists outside of us (Haila 2000, 155). The domain of culture is where we as humans reside, it is the world of human artefacts and activities. Here, the latter is placed hierarchically above the former. On top of that, in this schema, human beings are often seen as occupying an exceptional position because of our ability to use reason. The underlying ontology thus puts human beings as fundamentally distinct from other living and non-living beings.

It is commonplace to point to the origin of the nature-culture split in the advent of Modernity and the Enlightenment. Whilst often criticised, this dichotomy is however still common today in many strands of environmental philosophy and poses major environmental implications (Whiteside 2004, 358; Haila 2000, 156-157; Possamai 2013, 838). Here, works in early modern philosophy, like those of René Descartes and Francis Bacon, are often cited as the epitome of this worldview. In the case of Descartes, authors point to his so-called substance dualism, with which he explained the world as consisting of two substances, namely *res cogitas* and *res extensa*—i.e., mind and extension/matter (Haila 2000, 157). Bacon is often cited because of his perspective on the sciences: according to him, nature should be subjected to 'torture' by science as to force it to give up its secrets; it should be controlled and enslaved in order to reduce it to blind obedience towards mankind (Possamai 2013, 838). Possamai mentions that Descartes shared Bacon's views of nature, by stating that the objective of science should be to seek domination and control over nature (2013, 839).

An outgrowth and heir to this kind of thinking, as originally posited by Descartes and Bacon, is the discourse surrounding the concept of the Anthropocene. The term was coined by Paul Crutzen and Eugene Stoermer in 2000. It was, and in almost all cases still is, meant to refer to the present era as one where the Earth has been profoundly impacted by human activity, for example, through anthropogenic climate change. The concept provides a tempting narrative for humanity's current predicament and for understandable reasons. The dangers of our changing climate do not loom on the horizon but are imminent, and so are the consequences of anthropogenic climate change already barrelling down upon us like the sword of Damocles that has been cut from its thread. Nevertheless, the concept is problematic.

The concept of the Anthropocene implies that our current time can essentially be characterized by 'The Human,' due to the way people have negatively impacted the earth. Thinking and talking about our current time in this manner, however, reinforces the kind of thinking that has arguably led us to this point of crisis in the first place. When labelling our current time 'The Anthropocene,' human beings again reinforce this hierarchical and anthropocentric categorization and uphold the aforementioned dichotomy between nature and culture. This attitude has been demonstrably destructive as it has led to a complete disregard of our natural environment, seeing it simply as a territory for extraction and exploitation, and leading to, among other things, the current disruption of the climate. As tempting as referring to our contemporary time as 'The Anthropocene' is, it does not offer an adequate understanding of the current situation.[1] The current crisis is neither a singular or a neutral event and should thus not be approached as such. We have to find a way to think differently about the situation.

Thus, the narrative of 'The Anthropocene,' as often embraced in cultural and philosophical discourses, together with a singular approach of the climate crisis, does not do justice to the complexity of the situation. The negative human impact on the Earth is not to be expressed in the announcement of a new epoch: The Age of Man. A different narrative needs to be formulated. It is from this position that I will engage with the works of Gilles Deleuze and Félix Guattari. These thinkers relationally decentre the concept of the human, meaning that they do not categorically position it above other living beings. Together

[1] Another major problem with the concept of the Anthropocene – which is slightly less relevant in this paper, but nonetheless critical to mention – is that the Anthropocene brings with it a certain singular political subjectification of people in general. The Anthropocene implies an abstract, singular, universal and unitary definition of human beings, categorizing all of them under the undifferentiated concept of 'The Human,' or 'Man,' seeing that the word 'Anthropos' meant 'man' in the original Greek. It is this undifferentiated concept of 'The Human' that does not do justice to the complexity of the current situation. The term is unnecessarily vague and unfair in attributing responsibility for the current changing climate, because it implies that every human being is equally responsible for what is happening. Historically, however, regions like North America and Europe have proportionally been responsible for most of the emitted greenhouse gasses (Rocha et al 2015, 8). These regions also have the (financial) means to better deal with what is coming at them. The most vulnerable nations, communities, and peoples will probably be hit hardest by the changes to the earth, despite these communities having historically emitted far less than their wealthier counterparts. On top of that, climate change is also associated with an inexhaustible number of latent risks that have worsening compounding effects on existing social, economic, political, and demographic inequalities (Sun & Yang 2016). Every person is, however, equally subsumed and held accountable under the Anthropocene, whilst it has been the Western attitude that has long upheld, and in many cases still upholds, the dichotomous distinction between 'Man' and 'his' environment. This, in turn, depoliticizes the responsibility of the human actors.

with decentring the human, they also differentiate the concept and embed human beings in an ecological web of relations, meaning that they look at the different kinds of relations and interdependencies that constitute both living and non-living things.

In this paper, I posit that we should think these webs of relations through the concept of the assemblage, as formulated by Deleuze and Guattari. The assemblage is chosen because it offers an ontological alternative to western anthropocentrism, as well as dichotomous thinking, and so I argue that we should think of ecology as a multitude of ever-changing assemblages. The ontology as posited in the concept of the assemblage is the same as the one that I read in the concept of ecology; consequently, when philosophizing about ecology we should think of it in the same ontological terms as the assemblage. Ecology finds its origins in natural scientific empirical research and is, when used in the context of philosophy, not equipped with a firm ontological grounding. My aim here is to provide this grounding using the concept of the assemblage, giving philosophical substance to the concept of ecology, and opening up new avenues for exploring what ecological thinking, moving away from dichotomous thinking about the environment, could possibly entail.

I will start with a brief overview of the concept of nature in Western philosophy, after which we will discuss the concept of ecology; this will show the falsity of the former and its inability to effectively formulate the troubles of contemporaneity. Following this, we will discuss the assemblage and make the link between ecology and the assemblage explicit. Our discussion here will be assisted by a short digression into the tendency of Western philosophy to focus on static unitary concepts (like nature and culture), the origin of which is often traced to Platonism. We will end with possible ways we could move forward, and what stories could be formulated once the concept of nature and the narrative of the Anthropocene have vanished.

From Nature to Ecology

As mentioned in the introduction, the Cartesian and Baconian worldviews are often seen as the epitome of anthropocentric and dichotomous thinking between nature and culture. The consequences of their ontological assumptions and philosophies of science are, not surprisingly, problematic. A good example of this is the mechanistic worldview Descartes developed in order to analyse the substance of *res extensa*. Here, movement was conceived as the change in spatial relationship between singular, inert, objects. The 'outside world,' *res extensa*, was thus reduced to the spatiality of passive singular objects. This creates "a generalized attitude of scientific reductionism," an attitude that attributes the functioning of a phenomenon to one basic or set of essential principles (Possamai 2013, 839). The functioning of the entire 'outside world' is reduced to the principle of cause and effect (Possamai 2013, 839). This becomes problematic when confronted with insights from contemporary ecology, which understands nature more as a holistic structure in which "apparently simple parts interact in complex structures to create previously unknown [emergent] properties" (Whiteside 2004, 359).[2]

Another reason for calling the worldviews of Descartes and Bacon environmentally problematic is their anthropocentrism. As mentioned above, both held the view that the objective of science, and of human knowledge production, should be to seek domination and control over nature. This approach positions human beings as being directly and ontologically opposed to the environment, and objectifies nature as something to be used for human needs (Haila 2000, 156-157). Following Rigby (2014, 63), I would like to say that the issue here is not necessarily with the validity and value of the scientific method employed by

[2] I added the term 'emergent' to the original quote. It refers to a phenomenon where an entity exhibits a property whose origin cannot be traced to the function of one part of the entity, nor to the sum of its parts. It is thus not something that is already present in existing components, but something that *emerges* from the working together of multiple differing components.

philosophers like Descartes and Bacon, and that this is of less of a concern in this analysis, but to show how nature is portrayed in this type of discourse. It frames nature as something that is only valuable insofar as resources can be extracted from it: a domain created by God for human mastery and exploitation. Although we might think of our view of nature as presently being more sympathetic, it is still deeply influenced by these early modern thinkers and anthropocentric views in general. Nature is often still seen as an external realm which is valuable only insofar as it is valuable to us. It is in this regard that I argue that we should replace the concept of nature with that of ecology.

The concept of ecology refers to the scientific discipline that studies the relationships between living organisms and their environments, the interactions of organisms with one another, and their heterogeneous spatial and temporal distribution. So, ecology could be described as a collection of organisms and the structures they co-create and inhabit. These structures are called ecosystems (Scheiner & Willig 2008). Ecology is, as emphasized by Catton (1994, 77), "the systems of interactions among differentiated organisms and between them and the non-living components of their environment". An important question of this field of research is the one of how these components of ecosystems organize themselves. Here, two important subsidiary concepts have emerged, autopoiesis and sympoiesis, which explain the functioning, becoming, and changing of ecosystems.

Autopoiesis was first presented by Humberto Maturana and Francisco Varela (1991). For them, the term deals with finding a common denominator which is able to define and answer the question of what life is and what discriminates it from non-living things (Luisi 2003, 49). The term can be translated as *self-organization*, meaning that, for Maturana and Varela, living things are to be distinguished from non-living things by this notion of self-organization. The analysis is based on the smallest biological unit, the cell. They observe that cells have a semi-permeable boundary, meaning that certain chemicals are able to get into the cell whilst others are not. Inside the boundary, a network process, pertaining to the different components, transforms the substances that have entered, so that they can be used for the cell's maintenance and stability. The interesting thing is that the cell undertakes this process itself, can both maintain and reproduce itself, and can interact with its environment for nutrient absorption. The definition of living things, according to Maturana and Varela, is this self-referential, self-defining, and material metabolic mechanism. This is constitutive of autopoiesis and the cells of all cellular and multicellular organisms (Luisi 2003, 50-51; Žukauskaitė 2020, 144-150). So, as explained by Luisi (2003, 52), a living system is a system "defined by a semipermeable chemical boundary which encompasses a reaction network that is capable of self-maintenance by a process of self-generation of the system's components from within." It is important to note that autopoiesis explains how these living systems relate to their environment *structurally*: each interaction with the environment triggers certain structural changes within the organism in order to keep it stable. What sort of responses can be mounted is also determined by this structure. So, although the focus seems to be on homeostasis, the theory does not rule out changes in the internal structure through interactions with its environment. The theory explains these systems as closed on the level of organization (the cell), but more open on the level of structure. Total structural closure (homeostasis) is not possible because of the system's metabolic dependency on the environment. Structural changes in autopoietic systems happen non-linearly based on environmental interactions. These changes are quite unpredictable. This differentiates autopoietic systems further from non-living things, which react linearly to their environment by mechanism of cause and effect. Autopoiesis also explains life as a property that emerges from this process (Žukauskaitė 2020, 145).

Three decades after the concept of autopoiesis was presented, the concept of *sympoiesis* was introduced, being developed "in generative friction with the model of autopoiesis" (Dempster 2000;

Bernava 2023, 85). Through the notion of sympoiesis, natural systems are described that do not have as clear or as definitive of a boundary as cells do. Such systems include ecosystems and natural-cultural systems (Bernava 2023, 85). Whereas autopoietic systems are organizationally closed, sympoietic systems have loosely defined boundaries. They are what is called allopoietic, meaning that these systems produce something other than themselves. Sympoietic systems have autopoietic components and the concept is thus often used to explain biological functioning at higher levels of complexity, such as multicellular organisms and ecosystems, for example. It explains the 'working together' of the many component parts which constitute complex organisms and systems, and how they are collectively produced. Because of their complexity, sympoietic systems are neither self-referential nor self-defining in the way autopoietic systems are but are able to be more flexible and adaptive to a changing environment, as well as produce new forms of organization. They have a bigger potential for change, are even more unpredictable than autopoietic systems, and are evolutionarily oriented (Bernava 2023, 85–86). Through sympoiesis, multiple differing (autopoietic) components are able to come together in an assembled process of interaction and becoming, i.e., different autopoietic systems have the potential to interact with each other and together become a different organism. They hereby create more complex life forms and give rise to certain emergent properties (Žukauskaitė 2020, 150–152). Symbiogenisis is thus the origin of all complex life, which problematizes traditional notions of individuality, both biologically *and* politically. The latter because it challenges both human exceptionalism and bounded individualism by stating that we are not ontologically different from other multicellular organisms and that we are not, in fact, undividable beings, but assembled through and constituted by a multitude of other organisms which are all dependent on each other.

It is through sympoiesis that we can conceive of natural-cultural systems not as two separately functioning entities, like in the Cartesian or Baconian schemas, but as sympoietic systems. Seeing that all human activity is implicated in ecological webs of relations, society is as well. The abstract structure and demarcations of a society in relation to nature cannot be presupposed. Societies are, like sympoietic systems, not structurally and organizationally closed. This also means that one cannot determine *a priori* what is 'natural' and what is 'cultural.' In fact, these categories become obsolete or, at least, need to be seen as a *continuum* of the same material reality, seeing that they develop concurrently and sympoietically. The presupposed boundaries between the two can thus be collapsed and we can start to look for different ways of describing the dynamics between people and their environment, such as with the concepts of ecology and sympoiesis.

When seeing ourselves not as bounded individuals, but as constitutively part of and constituted by ecosystems, we also come face to face with the material realities that form the basis of our existence; the interconnectedness that links all living and non-living things becomes clear to us (Smith 2021, VII–VIII). Ecology and ecosystems allow us to conceive of our environment and by extension ourselves not as an "unchanging artefact of divine manufacture, but as [a] process of perpetual becoming" (Rigby 2014, 65). Hence, ecology and ecosystems confront us with a view of our environment that is in opposition to the previously described dichotomous view of nature that stands outside the world of culture. The concept of nature has hereby become problematic due to it being understood in Western thinking as simply being the space that surrounds us, something that is passive, and that can be exploited by us. In this very limited understanding, it has become intertwined with an anthropocentric view of the world and has come into opposition with an ecological understanding of it. It is here that the antinomy between the concept of nature and ecology becomes a concern to philosophy, and so the need for philosophical reflection arises. To think of ourselves as separate from our environment, and to act accordingly, would be to ignore the insights granted to us by the ecological sciences and to stick to presupposed unitary concepts like nature and culture as definitive categorizing principles of reality. This in turn upholds the narrative surrounding the

Anthropocene. On top of that, ecology also challenges traditional ontological distinctions between objects and subjects. The question then becomes how we should change our philosophical outlook accordingly. It is here that I arrive at the concept of the assemblage in order to provide an alternative ontological grounding that I argue is necessary to give us an idea about what ecological thinking could entail.

The Assemblage

In the parts above I have repeatedly talked about the traditional dichotomous distinctions that are made in Western philosophy between perceived entities like nature and culture. Whilst I have submitted Descartes and Bacon as the epitome of this kind of thinking at the advent of Modernity, it could be said that this kind of thinking finds its origin in Platonism and its concept of the *Idea*. In Platonism, Ideas designate truth about the identity of beings and determine what differentiates them from other beings (Adkins 2015, 11; Bestegui 2012, 59; Schults 2024, 54). An Idea is being *as such*. They refer to being *qua* being – being *qua* being meaning something in its entirety, something universal and unchanging from which the particulars that we actually see in the world are derived. Ideas are transcendental and universal, meaning that they stand above (transcend) perceived particulars, and always constitute the necessary and unchanging conditions for an entity's identity. This universality can also be thought of as the *essence* of a thing. Particulars *resemble* the Ideas but are not the Ideas as such. What we see is a mere *representation* of the Ideas. The Ideas, originating in the world of Forms, are the cause of the appearances of things or phenomena we see in the world (Altamirano 2015, 510). The Idea is thus a transcendental concept, something that is only found in the intelligible (Altamirano 2015, 503). Because of Plato's use of the transcendental concept of the Idea, he favours ontological categories like *stasis* and sameness over those of *kinesis* and difference, with the category of *essence* taking the most primary place in his philosophy due to its close proximity to the Idea. Similarly, because of Plato's influence on Western philosophy, static ontological categories like *stasis*, sameness and essence have been strongly emphasized and more valued over categories like relation, motion and difference. The identity of a thing (its sameness) is typically thought of as more important than its difference from other things (Schults 2024, 54). Eternal essences are preferred over changing appearances (Altamirano 2015, 509).

One of the main criticisms of Plato is exactly this move: giving ontic categories like *stasis*, sameness, and essence primacy over those of relation, motion, and difference. The critique focusses itself especially on the inability of the analogy between essence and representation of actually explaining the becoming, being, and changing of existing things. The effort to develop a counter ontology is often called 'the reversal of Platonism' and is associated with thinkers like Deleuze (Beistegui 2012, 56).

Deleuze argues that transcendence should have no place in philosophy (Beistegui 2012, 58). Furthermore, as mentioned above, together with Guattari he adds that Plato's transcendental metaphysics is unable to actually describe the prescribed essences and give an explanation as to how there exists a connection between the intelligible and the sensible world if these are taken to be ontologically distinct. Hence, they critique Plato's doctrine of analogy. Alternatively, the Deleuzian task is described by Schults (2024, 52) as "the articulation of a flat ontology that can account for the morphogenesis of existing things (or the becoming of assemblages) through resources immanent within the world of matter and energy without any appeal to transcendence." A flat ontology is concerned with an explanation of being, and its becoming and changing, that does not rely on hierarchical categories (e.g., essence over difference), nor dualistic explanations. Deleuze's and Guattari's ontology is thus occupied with material immanence and monism, instead of transcendental dualism. They emphasise the importance of ontological categories that are the opposite of those favoured by Plato (e.g. difference over essence), hereby also critiquing Plato's discontinuity and dualism. Difference and change are not to be subsumed through the transcendental concept of the Idea. Rather, they argue that, instead of essence, the multiplicity of the world needs to be

recognized for a credible explanation of difference and change. It is in their effort to account for difference and continuity without having to rely on transcendence that Deleuze and Guattari introduce their own metaphysical concept, with its subsequent ontology: the *assemblage*.

The concept of the assemblage by Deleuze and Guattari has been described as 'the general logic' at work in their 1980 book *A Thousand Plateaus*; moreover, and maybe more importantly, everything is an assemblage according to Deleuze and Guattari (Nail 2017, 21, 28). In this way, it serves as the fundament of their metaphysics. A basic explanation of an assemblage would be to describe its structure as consisting of heterogenous elements that never form a unified whole and as always able to make new connections with different assemblages. Like a machine, it can constantly make different connections. An assemblage never has a fixed identity, and its functioning can consequently not be reduced to the functioning of one or a set of its component parts, nor can an assemblage be reduced to the sum of its relations. Assemblages have certain emergent properties and are external to their relations, meaning that their relations cannot be traced back or reduced to the components that form their makeup. Assemblages also function non-linearly; they are what Deleuze and Guattari (2005, 505) call *rhizomatic*. A rhizome is originally a botanical term, meaning a mass of roots that is organized horizontally instead of vertically. Deleuze and Guattari use it to describe networks where everything is connected to something else; networks consisting of a multitude of entities where the lines of relation are organized non-hierarchically.

The assemblage, with the help of the rhizome, is able to account for the becoming and changing of entities without having to appeal to any sort of representation of a fixed essence through transcendence. It does this by rejecting both unity and essence in favour of multiplicity and events. Unity is rejected by pointing to the fact that it is not able to account for change without a call for transcendence, only continued combination and recombination of heterogeneous elements can. This is because unity necessitates relations that are internal to that entity, which means that connections are limited to the parts that are already present within the boundary of a presupposed entity. Consequently, connections with elements outside of a unitary entity are impossible. This means that the logic of unity and the logic of change are irreconcilable. Assemblages, however, are external to their relations. They do not have a presupposed structure and boundary and never form a unified whole. They are always able to form new connections with different entities. In this way they can account for change, because assemblages themselves change when forming these connections. In tandem with the rejection of unity, any claim for essence in assemblages also becomes contradictory, because for assemblages it is not about what definitively and necessarily defines it, but about a specific context from which it emerges. This specific context is what is meant with 'events.' An assemblage is thus always an event, something that happens in and through time in the context of a material environment. Strictly speaking one should not ask what an assemblage *is*, but *where* it is, how it functions, how it is constructed and how it becomes (Nail 2017, 22-24). These questions are always empirical (Nail 2017, 26). This is because the structures, boundaries and functioning of specific assemblages cannot be presupposed *a priori*.

To begin with a more thorough description and analysis of the assemblage, a quick look at the word's etymology is useful. The original French term on which the translation of assemblages is based, *agencement*, is related to the Latin term *agens*, which means 'steering' or 'putting in motion.' This notion of steering points to a certain activity inherent in the concept of the assemblage; it expresses how assemblages are not solely dependent on external activity for their organisation and functioning, but how they are themselves active in organising, arranging and the putting together of their component parts. An assemblage does not, however, operate independently, and can also be influenced and changed by other assemblages.

Deleuze and Guattari identify two main dimensions (axis) of assemblages which lend them a sort of order and consistency: one vertical and one horizontal.

The vertical axis is the operation of deterritorialization and reterritorialization. This means that every assemblage is territorial. It inhabits a physical place, making the question of *where* it operates equally as relevant to *how* it operates, or how a specific assemblage can be identified. "The first concrete rule for assemblages is to discover what territoriality they envelop" (Deleuze and Guattari 2005, 503). Although assemblages are always territorial, this does not mean that there is no possibility for changes in territory. Assemblages have the possibility to deterriorialize since every sort of environment (*milieu*), and consequently territory, is confronted with exterior environments (and territories), which exert influence on one another. An assemblage and its territory are not able to maintain their form and structure indefinitely. There is a possibility of movement inherent to assemblages with which they can leave their territories, dismantle their structure, and reconfigure it anew. This makes deterritorialization possible. Deleuze and Guattari (2005, 55) call this movement a 'line of flight,' "the movement by which 'one' leaves the territory" (Deleuze and Guattari 2005, 508).

However, since 'leaving' a territory necessarily means encountering another, these lines of flight always bring with them a constant movement of both deterritorialization and reterritorialization. Both are caught up in one another. These sorts of movements are rhizomatic, can come about in a large variety of ways and move in many different directions, thus lines of flight are not singular. I would like to illustrate this process of constant deterritorialization and reterritorialization with an example that Deleuze and Guattari (2005, 55) themselves give concerning a wasp and an orchid. Certain orchids display the characteristics of female wasp's reproductive organs to get more attention from male wasps, this to be able to spread their pollen more numerously. Deleuze and Guattari explain that the orchid deterritorializes when forming this image of the female wasp. The wasp, however, reterritorializes on that image as an assemblage that does not solely consist of the wasp anymore: it is, at the same time, deterritorialized as the assemblage wasp, and reterritorialized as the assemblage wasp-orchid. The same goes for the orchid. Both are again deterritorialized and reterritorialized when the wasp moves away to transport the pollen (Deleuze and Guattari 2005, 10). Through this example we see the deterritorialization of both assemblages wasp and orchid and see the reterritorialization of the assemblage wasp-orchid, which is then again in turn deterritorialized. These lines of flight are primary to everything in assemblages, because they offer the possibility of movement and mobility in assemblages (Deleuze and Guattari 2005, 55).

Next to the vertical axis, they also identify a horizontal axis. This horizontal axis consists of two segments: one of content and one of expression. The segment regarding content could be said to be concerned with the material and non-discursive aspects (or components) of assemblages. This *machinic assemblage* is described to concern things like material bodies and actions (Deleuze and Guattari 2005, 88). This segment could be said to describe the assemblage's concrete elements/components that also give the assemblage a degree of material consistency (Nail 2017, 26). The non-material segment (expression) is called a *collective assemblage of enunciation* and concerns speech acts, statements and 'incorporeal transformations attributed to bodies.' It includes the implicit presuppositions that are inherent in linguistic relations and in many ways determine the possibilities of how bodies (be they persons, institutions, etc.) are able to interact with each other (Deleuze and Guattari 2005, 78, 88). Such as how the possible interactions between a judge and the accused are already largely determined by these subjects operating under the semiotic signs of 'judge' and 'accused' in the assemblage of courtroom, justice system, prosecutor, penitentiaries and other yet to be identified parts of that assemblage. This example of the interaction between a judge and the accused shows how assemblages both have a material and non-material segment that influence how it operates. The

segments of the machinic assemblage and the collective assemblage of enunciation both exist simultaneously and are inseparable (Deleuze and Guattari 2005, 504). It also shows how it is possible that assemblages are more than their territories, they belong to them and are firstly territorial, but are, once again, not solely defined by them (Deleuze and Guattari 2005, 502, 504).

Another important thing to mention about assemblages is that in every assemblage there is such a thing called an 'abstract machine.' Abstract machines operate within concrete assemblages. They form the conditions for connection with other assemblages and how certain potentials within assemblages can be realized when a connection with another assemblage is made. They are thus defined by the aspects deterritorialization and reterritorialization. They are abstract because they are not actual things in the world but rather encompass the different potentials that an assemblage has and determine which potentials of an assemblage become realized when encountering certain other assemblages. Not every potential can be realized with every connection, but they are nevertheless still there, albeit not physically present in the world (Deleuze and Guattari 2005, 510–511; Nail 2017, 24–26).

Taking into account the lines of flight that allow for continuous deterritorialization and reterritorialization on the vertical axis and the segments of content ana expression that account for its concrete and non-concrete components on the horizontal axis, we come to what Deleuze and Guattari (2005, 89) call 'the tetravalence of the assemblage.' This means that, when taking everything together, assemblages have a sort of 'four sidedness,' which is expressed concisely in the following passage by Deleuze and Guattari:

> Taking the feudal assemblage as an example, we would have to consider the intermingling of bodies defining feudalism: the body of the earth and the social body; the body of the overlord, vassal, and serf; the body of the knight and the horse and their new relation to the stirrup; the weapons and tools assuring a symbiosis of bodies. A whole machinic assemblage. We would also have to consider statements, expressions, the juridical regime of heraldry, all of the incorporeal transformations, in particular, oaths and their variables (the oath of obedience, but also the oath of love, etc.): the collective assemblage of enunciation. On the other axis, we would have to consider the feudal territorialities and reterritorializations, and at the same time the line of deterritorialization that carries away both the knight and his mount, statements and acts. We would have to consider how all this combines in the Crusades. (2005, 89)

Assembled Ecology

Now that we have discussed both concepts of ecology and assemblage, we can make their connection explicit and argue that the concept of ecology should be philosophically understood as functioning and consisting of a multitude of assemblages. The concept of the assemblage tries to explain the morphogenesis of existing things without having to appeal to any notion of transcendence, essence, or identity. These are ontological categories still paradigmatic in Western philosophy due to the influence of thinkers like Plato. As we have seen, however, these categories and their subsequent ontologies are unable to actually explain how things become and change overtime, i.e., they are unable to account for things like difference, movement, and relationality. Thus, if we stick to a transcendental ontology of essence and/or identity, we are unable to explain the becoming, changing, and workings of ecosystems. A unitary concept like the concept of nature (as discussed above) presupposes that there is a realm of reality (or territory) that exists separately from other realms of existence. It assumes a fixed identity or essence by which it can be wholly and definitively defined. However, when we take this as existing reality, how are we then to explain change in 'natural' systems? How are we able to explain that life adapts to the environment it finds itself in and consequently changes this environment with it? The only way to explain these phenomena effectively and convincingly is with the ontology of the assemblage and not through an unexplainable analogy between existing things and their essences. The assemblage explains how entities become and change overtime

through resources immanent in the world of matter and energy. It explains reality (the material world) as a continuous process of becoming; reality as a Harlequin's cloak of unevenly assembled patches. All that exists on the earth envelops a territory but is also always involved in a constant process of territorialization and deterritorialization. All entities are external to their relations and consist of heterogeneous parts, be they material or enunciated. Here, there is no unity to speak of: its logic is irreconcilable with the logic of change.

This certainly does not mean that we have to get rid of categories or classifications for understanding the world. What is vital, however, especially in our current time, is realizing that these categories are epistemic and not ontological; they are the product of empirical inquiry and consequent understanding of the world. Epistemic categories are based on perceived *similarities* between existing things and not *intelligible* essences; in this way, they always exist in relation to other categories. Categories are the products of humans trying to understand the world and hereby relating to it. This does mean that categories are never stable; luckily, they do not have to be because they exist in a world of perpetual change. Hence, ontologically, we should understand the concept of ecology in the context of the assemblage. How a particular ecosystem and the parts that make up its constitution function exactly is always an empirical question; this cannot be presupposed *a priori*. This is also why the two terms should be maintained and not merged. Every ecosystem is, ontologically speaking, an assemblage and every assemblage can, empirically speaking, be studied like an ecosystem. The concept of ecology thus refers to the empirical functioning of assemblages and the concept of the assemblage refers to how we should understand the concept of ecology ontologically.[3]

Staying with a Troubled Earth: *Speculatively Fabulating New Compositions*

It can be argued that the approach above makes everything infinitely more complex. However, the case for ontological complexity is strong, both from philosophical and scientific perspectives (Cudworth and Hobden 2013, 647). It should thus not be neglected. This is also why we should not speak of problems and pretend that there exist definitive solutions but instead speak of *troubles*. These troubles require an embrace of multiplicity and all its complexities, precisely because dualistic thinking has turned out to be demonstrably ineffective at understanding our contemporary 'problems.' The task that lies ahead is to articulate ways of acting with the Earth that try to compose with it, rather than promote those practices that actively decompose the webs of life.

How do we go about this? At a time when the old anthropocentric world is falling apart, we can turn towards thinkers like Donna Haraway in order to imagine new ways of thinking about the earth and our place in it. In her book *Staying with the Trouble* (2016), she employs a conceptual device she calls 'Speculative Fabulation,' partially based on a literary practice employed by writers like Ursula Le Guin in her book *A Carrier Bag Theory of Fiction* (1996). Haraway uses it as a theoretical tool in order to suggest different stories we can tell about ourselves and our place on the Earth (Wiame 2018, 525–540). Stories that are both based on so-called Science Facts, e.g., insights from ecology, and works of fiction. Haraway uses her Speculative Fabulation to propose new stories, ones that do away with human hero-master narratives, e.g., discourses that violently oppose 'Man' against 'his' environment. Instead, she uses it to situate people in the already ongoing sympoietic relations that make the Earth.

New stories like these need to be written, composed, and fabulated. Stories that can be developed into practices that will be able to deal with and keep the immanent troubles in sight. These stories will not

[3] The reader should know that I intend not to impose an absolute distinction between epistemology and ontology here, since this would very much undo the work we have done so far going against presupposed distinctions and dichotomies. This does not mean that the distinction between epistemology and ontology here is arbitrary, but that we should understand the two categories as much more intertwined and their borders as much more porous than dichotomous schemas allow.

be able to provide us with universal and definitive answers or concepts, nor should they. Philosophical universals are oppressive and so are their stories. Instead of universal master narratives, new and contingent paths need to be tried, and alternative futures need to be imagined; diligently and concisely. New assemblages need to be deployed or newly thought, told, and practiced in order to challenge those destructive assemblages, like the capitalist assemblage, which subsumes all under the destructive and oppressive logic of capital accumulation and mastery over nature. These alternatives and their discourses need not be accompanied by definitive solutions or paths of action, because these are fairytales in this world of ontological complexity. Instead, we should try to *stay with the trouble,'*to borrow the phrase from Haraway (2016). Staying with the trouble helps us to articulate the alternative words, stories and narratives that could serve as a guide on this troubled planet that is our home.

Ecological thinking with the concept of the assemblage has thus brought us here; to the realization that understands that the morphogenesis of existing things, including ourselves, comes about through a continuous process of perpetual becoming. This relationally implicates all entities with each other. This realization is of philosophical relevance, but also vital in staying with a troubled Earth. The Western practice of dualistic thinking cannot continue. New practices need to be deployed and developed that compose, fabulate and think with, instead of separately from, their respective environments. The sympoietic becoming that is vital to all life needs to be emphasized, which means insisting on processes of perpetual becoming, instead of universal being. It is here that practices of ecological care can replace violent mastery, and Man can once again become human in recognition of and humility to the Earth, to which it owes everything.[4]

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