5. An ecological understanding of the commons

In this chapter, I would like to turn to a category that is of central importance to our discussion of the commons, but is almost entirely neglected in the work of Elinor Ostrom: nature. For Elinor, it appears as though nature tends to be reduced to the role of a passive resource in the "drama of the commons" (Ostrom et al. 2002). Nature is the stage on which the human drama takes place. Here, the relationship between human beings and nature is implicitly instrumental. Although such an interpretation of nature might appear to be sufficient for dealing with environmental problems and "planetary boundaries" (Steffen et al. 2015), I would argue that its underlying society–nature dualism is both conceptually false and problematic. The dualism is false, because human beings and human society are always a part of nature: there is no outside of nature. The dualism is problematic, because the external environment is primarily understood as a limit to one's individual freedom – and not as an interdependent precondition of it. Furthermore, this instrumental and antagonistic relationship also leaves the door open for a hierarchical and exploitative relationship of man over nature. It would be absolutely wrong to say that Elinor Ostrom intended this, but I believe that her analysis critically questions neither prevailing understandings of nature nor the Malthusian-Hardinian "stage" that she found herself on. Despite her insightful solutions to the tragedy of the commons, the unregulated commons, as an ahistorical model of the place of humans in nature, continues to dominate academic debates and the social imaginary. In order to overcome this framework, it is therefore necessary to develop an understanding of nature that is more conducive to a free and sustainable society. Or in the words of Robyn Eckersley, I aim to shift our understanding of the environmental problem from a "crisis of survival" to an "opportunity for emancipation" (Eckersley 1992: 11-21).

In this chapter, I therefore proceed as follows. Firstly, I discuss the relationship between nature, language and social arrangements and argue that humans' social practices and institutions are always interrelated with their conceptions of nature. Secondly, I then attempt to develop a more timely understanding of nature that is more conducive to the principles of freedom and ecological sustainability. Here, I will develop a notion of nature based on new insights in diverse fields of thought, in

which organisms self-organize and dynamically adapt to their changing environments. With reference to a number authors, I conceptualize nature as a web of life that is constituted by interdependent organisms and ecosystems. Thirdly, I discuss the importance of this ecological interdependence for human beings, which constitutes a shared, common reality as the backbone of their individual freedom. Next, I flesh out an ecological understanding of democracy with reference to a principle of care and the civic tradition of democracy. Finally, with reference to the work of Ugo Mattei and Fritjof Capra I develop an ecological concept of the commons, which goes beyond common pool resources and emphasizes the civic practices of commoning in, with and through nature.

5.1 Nature, language and social relations

Before I begin to elaborate my specific understanding of nature, I would like to explain why the way nature is understood is so crucially important for any discussion of commons. A more sophisticated analysis of nature aims not only to determine where the "safe operating space" within planetary boundaries may lie (Rockström et al. 2009). Instead, I argue that a society's understanding of its natural world is central to the way humans interact with that world and with each other.

As just mentioned in the introduction to this chapter, the fundamental premise of my approach is that humans and society are always a part of nature. This apparently naïve claim receives a little more depth if understood in the light of Marx and Engels's *German Ideology*, in which they write,

> The first premise of all human history is, of course, the existence of living human individuals. Thus the first fact to be established is the physical organization of these individuals and their consequent relation to the rest of nature. […] All historical writing must set out from these natural bases and their modification in the course of history through the action of men. (Marx/Engels 1998: 37)

While we must understand human existence as embedded in nature, we should conversely also understand our ideas of nature as a specific result of our social relations. Or again in the well-known words of Marx and Engels: "The ruling ideas are nothing more than the ideal expression of the dominant material relations, the dominant material relations grasped as ideas."[1] (ibid.: 67) This classical "materialist" notion of ideas implies that the prevalent ideas of society and nature are largely historical results of contingent power relationships, which they legitimate. In this manner, social institutions are naturalized and our conceptions of nature reflect

1 According to the rather well-known slogan, "it is not consciousness that determines life, but life that determines consciousness" (Marx/Engels 1998: 42).

the dominant form of social organization. In turn, the symbolic ordering of these representations also constitutes and reproduces a specific organization of nature.

In contrast to a crude deterministic interpretation of Marx's base-superstructure relationship between social relations and ideas, I contend that our ideas (of nature) are not only a result of prevailing social relations but can also transform them. Marx admits this himself in his discussion of the labor process, which makes ideas real (Marx 1982a: 284).[2] Elsewhere, he also claims that ideas can be used for political collective action when they influence a wider population: "Theory, too, becomes a material force once it seizes the masses." (Marx 1982b: 137) I do not want to pursue a detailed discussion of Marx's theory of historical materialism and social practice here. Nevertheless, this very short discussion of Marx aims to underline the embeddedness of language in both physical nature and its social arrangements. Furthermore, it emphasizes that ideas can, in turn, be used to transform social action and the organization of the material world. It is in this sense that language and concepts are of utmost importance in the reproduction and transformation of what we generally understand as 'life'.

In a similar manner, Vincent Ostrom discusses the relationship between language, reality and social relations in his book *The Meaning of Democracy and the Vulnerabilities of Democracies* (1997). There he writes:

> The meaning associated with the triangulation of images [mental states], events and relations [the objects and states of the world referred to] and words or symbols [names assigned to events and relations] involves a shared community of understanding among language users. Tacit levels of understanding go beyond the mere use of words and of definitions stated in a more profuse use of words, as in dictionaries. In a sense, an 'organic' tie pervades intelligible communication by reference to the tacit common understandings that are fashioned by communities of language users. […] *The essential link is language*. Language associates thoughts, ideas, and knowledgeable articulations of skill in actions to what gets done – ideas to deeds. (V. Ostrom 1997: 130; emphasis added)

It could thus be said that, for Vincent Ostrom language constitutes the relationship between ideas, things and social relations. In other words, it is not merely social relations that determine one's ideas and the distribution of power within society, but it is also language that constitutes individual action and, in turn, these

2 In Marx's words: "At the end of every labour process, a result emerges which had already been *conceived* by the worker at the beginning, hence already existed *ideally*. Man not only effects a change of form in the materials of nature; he also realizes [verwirklicht] his own purpose in those materials. And this is a purpose he is conscious of, it determines the mode of his activity with the rigidity of a law, and he must subordinate his will to it. This subordination is no mere momentary act." (Marx 1982a: 284)

specific arrangements. Societies use language and ideas in specific ways that are, however, not always fully transparent to the individuals using them. This tacit common understanding can be compared with Marx's notion of a consciousness that is organically and often unconsciously determined by social arrangements (Marx/Engels 1998: 42). These tacit "ruling ideas" (ibid.: 67) bring about specific patterns of action and, in turn, what Ostrom calls with reference to Searle "institutional facts" (V. Ostrom 1997: 128). For Vincent Ostrom, an institutional fact is the "social reality that is itself an artifactual construction […] relying on norms and rule-ordered relationships" (ibid.). He utilizes the term artifactual to connote that social reality is constructed by humans and their (tacit) concepts of society.

For this reason, Elinor Ostrom also maintains in her book *Governing the Commons* that we must critically reflect on our "metaphorical use of models" due to their powerful influence on policy prescription and both individual and collective action (E. Ostrom 2008a: 8). With Elinor Ostrom we could therefore say that the reformulation of metaphors, concepts and ideas provides us with new "heuristics, strategies, norms […] [and] rules of thumb" (E. Ostrom 2003: 40). These "focal points" (ibid.: 41) help us (re-)orient ourselves in our interactions with one another and with the world. Thus, reflecting on of our use of language and concepts, in turn, opens up choices in the way we organize society and can "increasingly transform the material conditions of [our] environment" (V. Ostrom 1997: 128). Within this framework, language and ideas are thus understood as key determinants in the reproduction and transformation of social order and material reality. In line with the thoughts of Cornelius Castoriadis (1987), Michel Foucault (2002) and Bruno Latour (1993), we can therefore maintain that concepts not only provide us with abstract ideas that help us understand an objectively given reality, but rather co-constitute the symbolic-material order of things.

Along these lines, it can therefore be argued that our (tacit) common understanding of nature holds an important position in this process of reproduction and transformation. The reason for this is that our knowledge and concepts of nature are both a result of material conditions and social relations, on the one hand, and a constituting force of the political organization of the environment, on the other. As Jason W. Moore generally puts it in his book *Capitalism in the Web of Life*:

> Modernity's structures of knowledge, its dominant relations of power, re/production, and wealth, its patterns of environment-making: these form an organic whole. Power, production, and perception entwine; they cannot be disentangled because they are unified, albeit unevenly and in evolving fashion. (Moore 2015: 3)

Although Moore speaks of modernity here, the point can be applied to all of human history: "humans make environments and environments make humans" (ibid.). Society and nature or "human history" and "natural evolution" are intertwined and coproduce each other both symbolically and materially. Jason Moore calls this the

"double internality" of the society-nature relationship (ibid.: 5). The reason why our knowledge and concepts of nature are of such great importance is therefore because they provide the material or, rather, organic backdrop of reality that structures our possibilities of how to act and arrange society. In his article "The Nature of Environment" (1993) David Harvey therefore argues,

> If all socio-political projects are ecological projects and *vice versa*, then some conception of 'nature' and of 'environment' is omnipresent in everything we say and do. If, furthermore, concepts, discourses and theories can operate, when internalized in socio-ecological practices and actions, as 'material forces' that shape history, then the present battles being waged over the concepts of 'nature' and of 'environment' are of immense importance. All critical examinations of the relation to nature are simultaneously critical examinations of society. (Harvey 1993: 39)

Due to the inherent interrelation of language, nature and social relations, I would therefore contend that the different ecological, economic and political crises that contemporary societies are facing today are also a result of *specific* conceptions of nature. Following in the footsteps of John Dewey (1930) and Bruno Latour (2004, 2013), I believe that in order to deal with these problems, we therefore also have to rethink our central concepts that constitute this relationship, such as the mind-body, subject-object, individual-society and human-nature dichotomies. As I will show, this shift should move us beyond a reductionist, mechanistic and deterministic to a more systemic, processual and adaptive understanding of nature and society. Or more specifically, it is a shift from a dualistic and anthropocentric to an interrelated and ecocentric model, in which humans are conceived as interdependent, creative components of the natural world (Dewey 1929; Eckersley 1992; Stengers 2010/2011).

Before continuing, it is of utmost importance to stress that this does not imply that we can simply create another reality by describing it differently. That would be solipsistic and naïve, especially considering the interests of those who are not interested in such social change. Nevertheless, the aim is to develop a new "shared common understanding" of nature that will influence people's patterns of (inter)action and possibly become a "material force" of social change towards a more democratic society. In order to see how this might be done, let us therefore now turn to a few preliminary reflections on this new concept of nature.

5.2 Concepts of nature and social reality

In order to develop a different interpretation of nature that is conducive to commons and commoning, I would like to focus on two pieces of writing: *The Ecology of*

Law: Toward a Legal System in Tune with Nature and Community (2015) by Fritjof Capra and Ugo Mattei and *Enlivenment: Towards a fundamental shift in the concepts of nature, culture and politics* (2013) by Andreas Weber.[3] As Capra and Mattei emphasize, their critique revolves around the rise of a rationalist and mechanistic understanding of the world through the Scientific Revolution and Enlightenment constituted by scholars like Galileo, Descartes, Hobbes, Newton and Locke. For Weber, the problem lies not only in this reductionism, but also in deterministic interpretations of competition and natural selection. These interpretations of reality, in turn, provide us with a biological "metaphysics of our culture" (Weber 2013: 23) and with conceptual cornerstones of how human society can, and therefore should, be organized.

A key moment for these three authors in the development of contemporary Western worldviews is Descartes' differentiation between *res cogitans* and *res extensa* through which the subjective human spirit is separated from – and placed above – objective, material reality. While the realm of life and freedom is accessible only to the spirit, the material world is understood as a mechanistic machine that is determined by universal laws of nature. Despite advances in evolutionary theory, Weber argues that, following Descartes, Malthusian and Social Darwinist "laws of nature" created an understanding of the economy in which subjectivity and freedom were ultimately negated (Weber 2013: 23).[4] The biologist Richard Dawkins, for example, expresses this worldview most clearly in his book *The Selfish Gene*, as he writes: "We are survival machines – robot vehicles blindly programmed to preserve the selfish molecules known as genes." (Dawkins 2006: xxi) Here, we are reminded of Garrett Hardin's assumption that the default position of people's strategy of action is to maximize one's offspring and gains (Hardin 1968; Hardin 1993: 97). More generally put, this biologically framed understanding of human action underlies the widespread belief that humans are egotistical utility maximizers or *homo oeconomici*. Due to the law-like nature of human action and, thus, social reality, Weber therefore goes so far as to say that the "deep metaphysics of our age, is a science of the non-living" (Weber 2013: 23). Or, as Alfred North Whitehead ironically points out in his discussion of the notion "survival of the fittest": "The art of persistence [in comparison to the art of living] is to be dead. Only inorganic things persist for great lengths of time." (Whitehead 1958: 4)

3 Andreas Weber reformulated these thoughts in his more recent book *Enlivenment: Toward a Poetics for the Anthropocene* published by MIT Press in 2019. However, I have chosen to focus on the original essay published by the Heinrich Böll Stiftung in 2013, which was then later also published in German under the title *Enlivenment: Eine Kultur des Lebens – Versuch einer Poetik für das Anthropozän* by Matthes & Seitz in 2016.

4 Weber explains: "The [economic] process is subject-less and self-organized in the sense that eternal, external laws (that of selection and that of economic survival) punish or reward the behaviour of atomistic black boxes called 'Homo economicus' – economic man – or in a more modern telling, the 'selfish gene'." (Weber 2013: 23)

Although many intellectuals and scientists would not go so far as to deny the freedom of the individual, it is important to note that the belief that people exist in antagonistic and therefore competitive relationships is deeply rooted in Western thought, including that of Hobbes, Kant and Freud (Hobbes 1985: 183-8; Kant 2001: 6:27; Freud 1962: 58). In simple terms, the antagonistic competition between atomistic individuals is often assumed to be a universal law of nature.[5] This is what Andreas Weber and others understand as bio-economics: the biological foundations of the open and competitive market (Arnhart 2015). Generally speaking, it can be said that the universalization of the principles of machine-like mechanisms of antagonistic competition has to some extent become a (tacit) metaphysical framework within Western society, according to which its social and natural world has been interpreted and organized. According to Capra and Mattei, this conception of laws of nature was then adopted by legal scholars to create an objective legal framework based on private ownership and state sovereignty, generally understood as "legal absolutism" (Capra/Mattei 2015: 6). Additionally, and as we have already discussed, it is this universalist institutional framework of the competitive market that has largely brought about contemporary, interrelated ecological, socio-economic and political crises.

This being said, Capra, Mattei and Weber maintain that in order to deal with these crises a paradigm shift in our fundamental understanding of the world is necessary. Andreas Weber, for example, propagates a paradigm shift from that of the Enlightenment to one of "Enlivenment". With reference to romantic and critical responses to the rationalism of the Enlightenment, Weber argues, however, that rationality should not be abandoned, but should instead be linked with the subjectivity and sentience that exist in all living beings. For this to occur, he explains,

> it is necessary to explore a new narrative for what life is, for what it is to be alive, for what living systems do, and what their goals are. We need to explore how values are created by the realization of the living, and how we, as living beings in a living biosphere, can adapt the production needed for livelihoods to that reality, the only reality we have. (Weber 2013: 21)

With Alfred North Whitehead we could thus say that the individual or *res cogitans* is not understood as a separate entity from material reality but as a creative force within the process of the living world (Whitehead 1978). For Capra and Mattei, this

5 Here it must be noted that although all three authors argue that people have a predisposition to rivalry and aggression, they are not forever caught in this form of being. All three argue that humans have the capacity to overcome these negative drives and this destructive state of affairs through reason or, in the words of Freud, through the subjugation and sublimation of the id by the super-ego. Nevertheless, while Hobbes and Freud assumed these negative impulses to be innate and natural, Kant argues that they are "vices of *culture*" (Kant 2001: 6:27; original emphasis).

implies a shift from thinking in terms of a "mechanism of law" toward an "ecology of law" which, in turn, is inherently associated with the concept of the commons. They explain,

> In the strict scientific sense, ecology is the science of relationships between the members of an ecological community and their environment. In this sense, then, the ecology of law refers to a legal order that is consistent with and honors the basic principles of ecology. *The ecology of law implies a process of transforming legal institutions from being machines of extraction, rooted in the mechanistic functioning of private property and state authority, into institutions based on ecological communities.* The ecology of law seeks a quality of economic life aimed at nurturing and preserving nature in the interest of future generations and overall human survival. The law should mimic the natural strategies of long-term ecological survival, including the reduction of waste and consumption. […] In other words, an ecological vision of law does not reduce law to a professionalized, preexisting, objective framework 'out there,' separate from the behavior it regulates and tries to determine. Instead, law is always a process of '*commoning*,' a long-term collective action in which communities, sharing a common purpose and culture, institutionalize their collective will to maintain order and stability in the pursuit of social reproduction. Thus the commons – an open network of relationships – rather than the individual, is the building block of the ecology of law and what we call an ecological order. (Capra/Mattei 2015: 14-15; emphasis added)

In other words, the basic idea here is to overcome the dualism of laws. on the one hand. and individuals. on the other, by contextualizing our understanding of law historically, socially and ecologically. This would enable us to understand law as a second-order commons that is created by humans and that should thus perpetually be reformed and adapted by the communities affected by these laws. The general point to be made here is that by widening our understanding of 'nature', we further increase the number of ways in which we can organize social arrangements. Again, this is not to say that we can then realize any form of social organization whatsoever, irrespective of the existing conditions. Instead, it implies that we can learn from our 'first nature' so we can attempt to bring social arrangements (i.e. our 'second nature') into existence that are more or less well-adapted – and that can continuously adapt – to existing ecological conditions. This type of learning is what Capra and Mattei call eco-literacy and eco-design (Capra/Mattei 2015: 174-9). Interpreted in a less dualistic and more poetic manner, according to Weber it does not imply that we "copy nature's objects, but rather follow [and participate in] its […] process of creative unfolding" (Weber 2015).

Before I continue, I would like to consider a criticism that might arise here. I can assume that some people believe this general approach to be a naturalistic fallacy. Here, it could be argued that I – and authors like Capra, Mattei and Weber

– wish to transfer principles that we perceive in nature ('facts') into human society and assume that the 'is' should determine the 'ought'. It therefore might appear as though I am simply repeating the same mistake that Social Darwinists have made, yet the only difference is that I presuppose a different model of nature. This is also the argument that I have used against limiting our understanding of democracy: the mere fact that representative democracy is the most prevalent form of democracy in the world does not imply that it is the best or most desirable. However, in this case I argue that the analysis of nature precisely does *not* provide humans with fixed forms and parameters of organization that must be transposed onto human society. Instead, the conception of nature I am elaborating enables us to define a process of human freedom in and with nature. In this sense, I would agree with Andreas Weber when he says that

> only if [an] organism is conceived of as a deterministic system are we trapped in the danger of the naturalistic fallacy, imposing value from the outside on something which is [supposedly] neutral. Living beings, however, exist according to embodied values. Their nature is to live according to values. The ontology proposed here is non-deterministic because of biological reasons. (Weber 2016a: 39)

The point being made here is that this new interpretation of nature does not understand its functioning as something bound by strict, neutral laws. This would be a naturalistic fallacy because we define how we should act and organize society according to rules that supposedly exist externally and in independence of human beings. In this model, human beings look onto life as if from the outside – and the laws of nature are assumed to work inside of us, independently of our observation of them. But as Bruno Latour lucidly argues in his book *The Politics of Nature* (2004), human beings are not only a part of nature, but co-create it. For this reason, I would agree with Latour that we must "get out of the [platonic metaphor of the] cave" (Latour 2004: 10), which divides reality into a realm of subjective, social opinions (in the cave) and the "unchangeable nature of inhuman laws" (ibid.: 17).[6]

6 According to Bruno Latour, this dichotomy is highly problematic, as he explains: "By dividing public life into two incommensurable houses, the old Constitution [i.e. the old interpretation of nature] led only to paralysis, since it achieved only premature unity for nature and endless dispersion for cultures. The old Constitution thus finally resulted in the formation of two equally illicit assemblies: the first [i.e. the existence of an independent, objective reality], brought together under the auspices of Science, was illegal, because it defined the common world without resource to due process; the second [i.e. subjective, social opinion] was illegitimate by birth, since it lacked the reality of the things that had been given over to the other house and had to settle for 'power relations,' for a multiplicity of irreconcilable viewpoints, for Machiavellian cleverness alone. The first had reality but no politics [and thus no freedom]; the second had politics [and freedom] and mere 'social construction.'" (Latour 2004: 53-4)

According to Latour, we must in fact get rid of this reified notion of nature or, possibly, secularize our notion of nature, in order to understand the human-nature relationship as one of a "common world" of "association" (ibid.: 25, 28, 37, 53). By rejecting the simplistic dualism of realism and constructivism, Latour argues that we can hopefully "move toward the multiplicity of nature […] something that might be called the pluriverse" (ibid.: 40; emphasis omitted). Thus, by understanding human beings as an integral part of nature and nature as a plurality of realities that are co-created with and by human beings, human nature is itself conceived as an open and creative force. Here, we open up possibilities for human action in the process of socio-ecological co-creation.

In order to understand this notion of interdependent co-creation a little better, I would also like to briefly turn to Karen Barad's book *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (2007). Here, Barad philosophically explores Niels Bohr's quantum model of the atom and argues that Bohr actually "rejects the atomistic metaphysics that takes 'things' as ontologically basic entities" (Barad 2006: 138). Furthermore, Bohr ultimately "calls into question the related Cartesian [and Newtonian] belief in the inherent distinction between subject and object, and knower and known" (ibid.). With Bohr's empirical findings Barad develops what she understands as a relational "agential realist ontology" (ibid.). She explains,

> In summary, the primary ontological units are not 'things' but phenomena – dynamic topological reconfigurings/entanglements/relationalities/(re)articulations of the world. And the primary semantic units are not 'words' but material-discursive practices through which (ontic and semantic) boundaries are constituted. This dynamism is agency. Agency is not an attribute but the ongoing reconfigurings of the world. The universe is agential intra-activity in its becoming. (Barad 2007: 141)

Here, matter – and the universe or nature – is not a thing that has a substance, but a perpetual process of development. And because no entity has an essence, it is inherently co-constituted by its interaction in and with the world, with the other. Barad therefore argues that matter – and the linguistic description of matter – is "not a thing but a doing, a congealing of agency" (ibid.: 151). Here, the material and the discursive are inherently intertwined in what she calls an "intra-active" relationship, which ultimately results in the dynamic "co-constitution of subjects along with objects" (ibid.: 145). For me, these reflections on Bohr's quantum theory are insightful because they support a notion of nature in which entities are not subject to abstract and universal laws but ultimately co-create their reality in and through their interdependent discursive-material relationships. Here, we might even say that this very ontological openness and creative capacity lie implicitly at the heart of the Ostroms' theory of subjectivity and the commons, in which people can learn and adapt their actions and institutions in socio-ecological systems.

Such an interpretation would provide some depth to Elinor Ostrom's proclaimed shift from necessity to a world of possibilities (E. Ostrom 2003: 62). As we have seen in our discussion of the competitive market, some institutions impede this process of socio-ecological co-creation and adaptation. And as I will now show, the notion of the commons supports adaptation because commons enable societies to perpetually alter their institutions according to changing conditions, needs and desires.

This preliminary discussion demonstrates, however, that 'nature' is a highly contested concept and that no one true understanding of nature has ever existed in human history.[7] Although it is true that interpretations of nature have varied throughout human history, I must nevertheless again emphasize that a purely discursive or constructivist interpretation of nature is flawed. This would lead us into a solipsistic position in which we deny the existence (and resistance) of the other and assume that humans can arbitrarily shape and form reality as they please. I believe this position to be flawed because knowing and learning must itself be understood as an embodied and interactive process in and with the world. Thus, symbolic descriptions of the material world will never be grounded on one ultimate truth but will change and adapt with new empirical insights and scientific hypotheses. And with each (new) description of our natural world, we also implicitly bring a certain symbolic order of reality about. This is most obvious in reference to our understanding of 'human nature' and the self-fulfilling prophecies of the *homo oeconomicus* (Kapeller 2008: 34-40). Here, social arrangements are created on the assumption that individuals are largely self-interested (e.g. individual private property and open and competitive markets), which in turn confirm the belief that people are egotistical. As empirical studies have shown, however, people already act differently when similar social situations are simply *named* differently (Liberman et al. 2004).[8] That being said, our symbolic interpretation of (human) nature

7 In reference to the contested question whether nature pursues a teleological purpose, Andreas Weber and Francisco Varela, for example, explain how the interpretation of this problem has changed throughout Western history: "The Greeks experienced nature as an ever-present horizon, most clearly set in Aristotle's dictum: the final cause is a necessary precondition for the mechanical cause. But in medieval times the idea of finality radically shifted to divine will and design, the source of all meaning and purpose. The enlightenment opposed to that the even more radical position of human mind as the measure of things, where nature is only seen as mere object for the human subject. Recent times have shifted to post-modern views on nature as a purely historical locus, contingent and relative."(Weber/Varela 2002: 98)

8 Varda Liberman, Steven M. Samuels and Lee Ross, for example, discovered that people act differently in similar social settings, depending on how these arrangements are named. They performed two experiments, one with American college students and the other with Israeli pilots and their instructors. Each group played either an N-move Prisoner's Dilemma game called "the Community Game" or "the Wallstreet Game", each respectively connoting more cooperative or more competitive norms. The rules of the two games were, however identical.

is never simply a neutral representation of an objective fact, but always implicitly conveys certain values of society and performatively brings a certain reality about. In this sense, our question about nature turns into a more normative question: What society do we want to live in and how can it be realized given the knowledge of the conditions of our existence? This implies a shift from the merely empirical to the normative, yet without completely disregarding the former. Or, more precisely, it attempts to integrate the normative in the empirical because life itself – and therefore science as well – is not a distinct and objective entity separated from the symbolic, but also always a creative expression of the meaning we give ourselves and the world. And I would argue that it is this understanding of nature that is ultimately more conducive to commons and commoning.

5.3 Autopoiesis and the interdependent co-creation of reality

As previously mentioned, the understanding of the natural world as a machine was developed during the Early Modern period by numerous thinkers, most notably René Descartes (1596-1650) and Isaac Newton (1642-1726). Here, René Descartes' dualism of mind and matter or *res cogitans* and *res extensa* is of central importance. This Cartesian dualism assumes that the realm of freedom is limited to the mind while the sphere of material reality remains unfree and determined (Des Chene 2001). With the aid of Isaac Newton's mathematical understanding of the natural laws that underlie all of material reality, the entire universe was ultimately conceived as a clock-like machine, determined by its laws (Dolnick 2011). In this dualistic worldview, the mind receives the semi-divine position of a director who is subject to yet stands above the laws of nature and can, or, rather, should control the machine. For individuals, this implies mastery of the spirit over the desires of the body; for society, it means the rule of those with insight into the underlying

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Interestingly, the results of the experiment demonstrate that the levels of cooperation and defection varied depending on the label of the game. Liberman et al. conclude, "When told they were playing the Bursa [Wallstreet] Game, participants expected defection to be the most likely response; when told they were playing the Kommuna [Community] Game, they expected cooperation to be the most likely response. […] [T]he effect of expectations regarding other's choices on own choices depended on the name of the game, and thus on the way the participants construed the game. The result of these tendencies over successive rounds, in which defection begot defection and cooperation was sustained only when it was mutual, was inevitable; that is, first-round responses tended to dictate later-round responses, and as a consequence, overall rates of cooperation— especially mutual cooperation — were significantly higher in the Community/Kommuna Game than in the Wall Street/Bursa Game." (Liberman et al. 2004: 1182)

laws of nature and society over the ignorant and passionate masses; and for individuals' relationship to nature, it implies the imperative to subdue (and exploit) the natural world according to one's supposedly higher needs and desires. The claim I am making here is that in order to realize a democratic and sustainable society, we need to overcome this problematic dualism.

For this reason, let us now turn to a new understanding of the natural world that various philosophers and biologists have been developing at least since the beginning of the 20th century. These intellectuals include, for example, the pragmatists Charles Peirce (1839-1914) and George Herbert Mead (1863-1931), the neurophysiologist Warren S. McCulloch (1898-1969), the social scientist Gregory Bateson (1904-1980), the chemist Ilya Prigogine (1917-2003) and the biosemioticists Thure von Uexküll (1908-2004), Thomas Sebeok (1920-2001) and Jesper Hoffmeyer (1942*). This new understanding of nature generally became more popular during the 1970s through the work of the Chilean biologists Humberto Maturana (1928*) and Francisco Varela (1946-2001) and, since then, through the works of Fritjof Capra (1939*) and Stuart Kauffman (1939*). The development of this new paradigm in biology is often compared to the shift in physics from Newtonian mechanics to quantum mechanics, Einstein's general theory of relativity and thermodynamics in which the subject and the object are no longer understood as independent entities (Weber 2014: 18; Capra/Mattei 2015: 42).

Following a similar line of thought, most of the authors just mentioned, and most prominently Maturana and Varela, argue that our understanding of life must also include an understanding of how human knowledge of life (cognition)arises biologically (Maturana/Varela 1980, 1987). Although not stated in these terms, Maturana and Varela initially take two simultaneous steps towards a resolution of this problem. One, which is aligned with Maurice Merleau-Ponty's phenomenology, consists in acknowledging that the mind is an embodied part of the natural, material world (Merleau-Ponty 2001); the other, which follows the semiotics of Charles Peirce and other linguists, consists in acknowledging that all forms of knowledge are elaborated and embodied in socially constructed signs that not only interpret but also constitute or shape reality (Hoffmeyer 2008: 32). Here, knowledge of the world is regarded neither as a form of representation or correspondence of signs and their objects (signifier and signified), nor as a subjective, biological idealism (Hampe 2007: 112) in which the subject merely projects their ideas and concepts onto reality or the 'thing-in-itself'. Instead, the process of knowing is best understood as, in the terms preferred by Charles Peirce, a relational and interwoven process of differentiation, interpretation and co-creation of the world through signs. This implies that a 'thing-in-itself' does not exist independently but is created through its symbolic and material relations with other entities (Hoffmeyer 2008: 33). For Peirce, this process of interpretation consists of a dynamic, triadic relationship between a sign, an object and an interpretant (Kilstrup 2015). This

semiotic understanding thus emphasizes the two-sided character of the same reality: the social constitution of the self and the material interconnectedness of the subjective with its objective surroundings. Or, more precisely, humans are understood as biological beings that socially conceive and construct themselves through their symbolic self-referential differentiation from and interpretation of their environment. Therefore, the dualism that is often assumed in Western thought does not exist 'in reality' but is created through a process of embodied cognition based on symbols that delineate the separation between mind and matter, individual and society and, finally, between culture and nature.

Peirce's semiotics, in its generality, lays the foundations we need to broaden the concept of embodied cognition to all living beings. Similarly to human beings, all organisms actively constitute themselves as a differentiated unity, interpret the information from their environment through chemical or, in Peirce's terms, indexical and iconic signs and act accordingly in order to survive. Many philosophers and biologists recognize this sensory cognition in all other forms of life (Bak 1997; Kelso 1995; Goodwin 2001; Narby 2006). This process of sensory cognition is understood as the self-organization or dynamic self-reproduction of organisms or, in the words of Maturana and Varela, as autopoiesis. Here, the process of self-organization must be understood as a material process of self-reproduction through internal signaling. Weber and Varela explain in a co-authored article *Life after Kant: Natural purposes and the autopoietic foundations of biological individuality* (2002) that autopoiesis is

> a circular process of self-production where the cellular metabolism and the surface membrane it produces are the key terms. Thus an autopoietic system – the minimal living organization – is one that continuously produces the components that specify it, while at the same time realizing it (the system) as a concrete unity in space and time, which makes the network of production of components possible. (Weber/Varela 2002: 115)

In general terms, autopoiesis or self-organization must therefore be understood as a departure from a linear and mechanic conceptualization of life in which natural laws and genes determine the actions of organisms. Instead, through signaling, internal feedback loops provide a "nonlinear interconnectedness of the system's components" (Capra 1996: 85) which can be understood as a network. As Fritjof Capra explains in his book *The Web of Life*:

> Since all components of an autopoietic network are produced by other components in the network, the entire system is organizationally closed, even though it is open with regard to the flow of energy and matter. This organizational closure implies that a living system is self-organizing in the sense that its order and behavior are not imposed by the environment but are established by the system

> itself. In other words, *living systems are autonomous*. This does not mean that they are isolated from their environment. On the contrary, they interact with the environment through a continual exchange of energy and matter. But this interaction does not determine their organization – they are *self*-organizing. (Capra 1996: 167-8; emphasis added)

Both their partial independence from the environment and their internal feedback loops enable organisms to create "new structures and new modes of behavior in the self-organizing process" (Capra 1996: 85).[9] In the jargon of biosemiotics, this interdependent autonomy is called semiotic freedom (Hoffmeyer 1993: 52-67) and, in the Darwinian theory of evolution, can more generally be understood as adaptation. Yet, while adaptation in non-human beings is normally understood as a random and intergenerational phenomenon, the tradition on which I am drawing argues that change can occur in a non-random manner within the lifetime of an organism (Strohman 1997: 195). Or, in simpler terms: "Creatures change their forms without changing their genes." (ibid.: 198)

In contrast to the widespread dichotomy in Western philosophy between material reality as the realm of unfreedom and the human mind or spirit as the realm of freedom, here, all living beings possess minimal intelligence, subjective agency and autonomy. The theory of this subjective agency is grounded on the assumption that all organisms strive to maintain themselves. The energy they direct towards self-preservation implies that not only do all organisms have interests and values (e.g. staying alive and reproducing the species) – they also have a minimal sense of self (e.g. the maintenance of one's *own* life) (Weber/Varela 2002: 116-119). This is not to say that organisms are self-conscious, but rather that they are sentient beings with a minimal, embodied sense of self. The foundation of an organism's autonomy therefore does not lie in self-reflexive thought, but in sentience, which enables

9 In more technical language, this can be understood as a shift in biology from genetic determinism to epigenetic open feedback networks. In the paradigm of genetic determinism, evolution occurs through random reconfiguration of genetic information. In contrast to this, Strohman argues in his 1997 article on the "coming Kuhnian revolution in biology" as follows: "Epigenetic networks have been described as cellular neural networks and, given their great complexity and *openness to environmental signals*, most probably use a (nonlinear) logic and set of rules quite different from the comparatively linear rules needed for completing the genetic sequence of events. This comparison also emphasizes feedback from epigenetic networks to the genome; feedback that includes changing the patterns of gene expression. This change in pattern of gene expression is accomplished by enzymatic changes in chromosome structure and by 'marking' sections of DNA chemically *without changing the genetic code in any way*. What is changed is the *accessibility of genes to expression pathways*. But the *decisions to mark or not to mark are in the epigenetic [open feedback networks] and not the genetic pathway*. The details of epigenetic biology […] are well known and thoroughly covered in the literature." (Strohman 1997: 197; emphasis added)

organisms to give meaning to the world through their embodied and intentional interpretations of it (Weber 2016a; Narby 2006; Hoffmeyer 1993; Kauffman 1993). For biosemioticist Jesper Hoffmeyer, this process of embodied cognition is inherently linked to the capability of living beings to anticipate the future. To explain this issue with some simple examples, I quote Hoffmeyer in full:

> Quite generally, living systems have evolved a capacity for making anticipations: they must decide when to grow and when to withhold growth, when to move, when to hide, when to sing, and so on, and this way of adjusting the behaviour depends on a capacity to predict the future at least to some limited extent. For instance: is it likely the sun will shine or not, is it likely that little flies will pass by if I make my web here, will the predator be fooled away from the nest if I pretend to have a broken wing etc. Of course, in most cases it will be the instinctual system of the animal rather than the [conscious] brain that makes this kind of prediction, but the logic is the same: the animal profits from its ability (whether acquired through phylogeny or through ontogeny) to identify trustworthy regularities in the surroundings. And most – if not all – trustworthy regularities are indeed relations. For instance, the relation between length of daylight and the approaching springtime that tells the beech when to burst into leafs; or the play of sun and shadows which tells the spider where to construct its web; or the relation between clumsy movements and an easy catch that tells the predator which individual prey animal to select, and thus tells the bird how to fool the predator away from its nest. (Hoffmeyer 2008: 34-5)

Considering these basic interpretative interactions of all living beings with their environment, organisms should then not be understood as "genetic machines" but as "materially embodied processes that bring themselves forth" (Weber 2013: 30). Or, to put it somewhat tautologically: self-organization implies that living organisms are alive.

The implications of this are twofold. Firstly, not all cognitive processes in living beings are self-conscious but are, rather, based on a type of sensory and sentient cognition. For humans, this is obvious when we consider that most of our actions are not performed entirely consciously but rather through a tacit embodied knowledge (e.g. habits). This was demonstrated most clearly by the famous Libet experiment in 1979 in which a hand movement was initiated through a reaction of the nervous system while the self-conscious decision to act in this manner followed shortly afterwards (Libet 1999). While this experiment has often been interpreted as proof for the non-existence of human free will – or the free will as a type of *ex post* veto possibility –, this new interpretation of self-organization through sensory cognition would, however, imply that autonomy does not merely lie in the self-conscious determination of the movements of the body, but more fundamentally in the body's own embodied, sentient cognition (Libet 1985). In other words, hu-

man beings' relationship with the world is, in its most fundamental form, not one based on knowledge and rationality, but is instead physical and emotional – or, in the words of the sociologist Hartmut Rosa, a relationship of resonance (Rosa 2019).

Secondly, this conception of nature provides a more general, non-dualistic understanding of reality. Here, the mind is not understood as a distinct thing in itself, but as a process that arises out of interdependent relationships. By conceiving cognition as sentient consciousness, 'mind' arises through a process of sensory interactions of the organism's components and in its interaction with the environment. The mind – and all other 'things', for that matter – are therefore constituted as separate and independent entities through their linguistic and symbolic categorization in the interactive process of communication and reflection. In this sense, it must also be noted that the environment or nature does not merely exist as a thing in itself, but as relationships between different organisms that give each other meaning and bring each other about. The pragmatist philosopher George Herbert Mead expresses this idea in his book *Mind, Self and Society from the Standpoint of a Social Behaviorist*:

> It is a difficult matter to state just what we mean by dividing up a certain situation between the organism and its environment. Certain objects come to exist for us because of the character of the organism. Take the case of food. If an animal that can digest grass, such as an ox, comes into the world, then grass becomes food. That object did not exist before, that is, grass as food. The advent of the ox brings in a new object. In that sense, organisms are responsible for the appearance of whole sets of objects that did not exist before. The distribution of meaning to the organism and the environment has its expression in the organism as well as in the thing, and that expression is not a matter of psychical or mental conditions. There is an expression of the reaction of the organized response of the organism to the environment, and that reaction is not simply a determination of the organism by the environment, since the organism determines the environment as fully as the environment determines the organs [i.e. the organism]. The organic reaction is responsible for the appearance of a whole set of objects which did not exist before. […] The organism, then, is in a sense responsible for its environment. And since organism and environment determine each other and are mutually dependent for their existence, it follows that the life-process, to be adequately understood, must be considered in terms of their interrelations. (Mead 1967: 129-30)[10]

10 It can be noted that while George Herbert Mead discusses the agency and meaning of animals, he nevertheless denies them a "self" which, however, is to be distinguished from our notion of (self-conscious) subjectivity based on sentient cognition. Mead explains that "we can distinguish very definitely between the self and the body. The body can be there and can operate in a very intelligent fashion without there being a self involved in the experience. The self has the characteristic that it is an object to itself, and that characteristic distinguishes it

Here, individual entities such as the ox and the blades of grass are neither fully independent nor completely dependent on each other, but rather exist in interdependent relationships in which they enable each other to be brought forth. This insight repeats the previously discussed notion that living creatures are not determined by laws of nature and their environment. Instead, living beings are integrated in a process of relational and interdependent co-creation of nature and meaning. This is a basic insight of a systemic understanding of nature that can then be applied to 'higher' or more complex forms of socio-ecological organization.

5.4 Ecosystems, abundance and natural commons

In order to apply the notions of autopoiesis and interdependent co-creation to humans, we need to scale up our understanding of these concepts from single organisms to populations, entire ecosystems and the 'web of life' in general. Although Maturana and Varela originally only developed the concept of autopoiesis as a function of cellular networks and other "minimal autopoietic systems"[11] (Capra/Luisi 2014: 306), there have been attempts to transfer this understanding of life to more complex organisms and living systems, including to the social domain. Here, it might be helpful to elaborate on two basic concepts: that of the organism and that of living systems. As Fritjof Capra and Pier Luigi Luisi explain in their book *The Systems View of Life*:

> All living systems are networks of smaller components, and the web of life as a whole is a multilayered structure of living systems nesting within other living systems – networks within networks. *Organisms* are aggregates of autonomous but closely coupled cells; *populations* are networks of autonomous organisms belonging to a single species; and *ecosystems* are webs of organisms, both single-celled and multicellular, belonging to many different species. (Capra/Luisi 2014: 306; emphasis added)

In other words, we can differentiate between three types of multicellular living systems: Individual organisms, populations and societies and ecosystems. Because all living systems are ultimately made up of cells, Capra and Luisi are right to say that "all living systems, ultimately, are autopoietic" (Capra/Luisi 2014: 306). The understanding of populations as self-organizing basically revolves around the idea that

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from other objects and from the body" (Mead 1967: 136). It is therefore self-reflexive consciousness that creates the self as an object.

11 According to Capra and Luisi, minimal autopoietic systems include "simple cells, computer simulations, and the autopoietic chemical structures, or 'minimal cells', created recently in the laboratory" (Capra/Luisi 2014: 306).

populations can reproduce themselves by continuously adjusting to and co-creating their eco-system. Here, individual organisms and specific populations are each embedded within broader ecological settings, all taking part in the reproduction of entire ecosystems. As we see, this systemic approach to understanding life provides us with a better understanding of interdependencies in nature and requires us to revise many basic concepts that we have adopted from biology and applied to economics and politics. More precisely, it becomes clear that this concept of ecosystems underlies Elinor and Vincent Ostrom's notion of commons as embedded in a multileveled and nested polycentric system of governance.

To better understand this change of conceptual frame, let us begin with one of the most fundamental assumptions in Malthusian and Neo-Darwinist interpretations of nature and economics: the competition of individuals over scarce resources necessary for their survival. This assumption can be understood as one of the core elements of "bioeconomic metaphysics" and lays the foundation for one of the core functions of markets: the efficient allocation of scarce resources through market competition (Robbins 1932). This basic concept of scarcity and the competition over these resources has been popularized by the idiom "there is no such thing as a free lunch", cited by Robert Heinlein (1966), Milton Friedman (1975) and many others.[12] As we have already seen in our discussion of the open and competitive free market, according to this logic, one's existence is secured through accumulation which, ironically, increases scarcity through the depletion of resources needed by both the one who accumulates and other beings. This antagonistic competition is not only conceived of as a struggle between individuals but also as a struggle between entire populations or nations – and against one's environment. Not only do people strive to accumulate more and more resources, populations also strive incessantly to increase their own size in order to preserve their gene pool. As we have already discussed, the underlying assumption here is that all living creatures are biological consumption machines determined by their egotistical genes. Here, the only strategy of survival is perpetual growth. It is interesting to note that not only is freedom undermined by the biologically determined egotistical drive to perpetually grow, but also by the decrease in people's chances of survival on account of the destruction of their ecosystem. If growth were the only genetic program of life, it can be assumed that living creatures would have wiped themselves out long ago simply by devouring each other and their environments.

12 In the Library of Economics and Liberty (econlib.org), economist David R. Henderson explains, for example, that he begins every class with the "Ten Pillars of Economic Wisdom", the first of which is "There ain't no such thing as a free lunch" (TANSTAAFL). He then supposedly tells students that "economic resources are scarce, and, therefore, if we get more of one, there has to be less of another. What are economic resources? It's a little circular: economic resources are defined as scarce resources. […] There are a few non-scarce goods, which economists call 'free goods'." (Henderson 2014)

However, while this notion might be biological, it is based on the logic of atomistic entities and therefore neglects the insights of an interrelated and systemic understanding of biology that we have just discussed. The notion disregards the interactive communication that occurs within an individual organism and the processes of interdependent co-creation between organisms and their ecosystems. In this sense, it neglects the capabilities of individuals and populations to adjust their patterns of action not only to secure their own existence, but also to maintain the metabolic reproduction of the entire ecosystem. This is not to say that individual organisms or populations must have knowledge of the entire ecosystem that they exist in, but it is to be assumed that they can adjust their long-term consumption and reproductive patterns in accordance with signals that they receive from the ecosystem in order to secure their long-term existence. Obviously, this can include destructive strategies of parasitic growth but theoretically it must also include strategies of symbiogenesis and mutual symbiosis which are based on the basic fact that the long-term existence of one being depends on the long-term existence of other beings. This is clearest considering the example of the bacteria in my bowels that I provide food for and that, in turn, enable me to digest my food (Gilbert et al. 2012; Morar/Bohannan 2019); or the trees that provide oxygen for animals to breathe; or the rabbits that provide food for foxes. This is what George Herbert Mead meant when he spoke of organisms' reciprocal responsibility for the conditions of each other's existence.

To develop a better understanding of these other strategies of interdependent survival in networked systems, we must integrate the other central premise of the Neo-Darwinist narrative: scarcity. While I would agree that resources on planet Earth are limited, this does not mean that resources must also be scarce. Limited resources can nevertheless be experienced as abundant (Bennett 2001: 165). The objective limit of resources is best understood with the law of conservation that basically states that the total quantity of energy (including mass) remains constant over time in a closed physical system. Energy can therefore not be created *ex nihilo* but can only change its form (Hosch 2017). In contrast to this objective limit, scarcity is a phenomenon based on social organization and perception. As Hardin himself acknowledged, scarcity only occurs when the demand for some good exceeds the rate of its reproduction. According to Hardin, scarcity therefore increases when populations grow and when it becomes possible to accumulate resources on an ever-expanding scale. Ironically, however, by *perceiving* existing resources to be scarce, individuals may pursue accumulation strategies by which they aim to secure their own existence, but that deplete the resource and thus ultimately increase scarcity for others – and, in the long term, also for themselves. Here, we can again observe the creation of reality from the categories through which we perceive and thus comprehend nature. We will discuss the creation of scarcity in more detail later, but as we can see, the central question that we must answer is one of how to

transform limited resources into relative abundance and freedom. As I will argue later, that implies the transformation of our social arrangements from ones based on negative rights, individual private property and open and competitive markets to interdependent rights and commons property arrangements. In order to do this, however, we must shift our understanding of planetary limits from one based on scarcity to one based on sufficiency and abundance.

In order to do this, it would seem helpful to return to the work of Andreas Weber who develops a notion of abundance in nature in relation to what he calls "natural commons" or, more specifically, the process of "natural commoning". In Weber's words:

> Nature, understood as a creative process of interacting, embodied subjects, can serve as a model for an economic concept of the commons. Basic structures and principles of 'natural commoning' – self-organizing, dynamic, creative – have been the basis of biospheric evolution. (Weber 2013: 37)

In contrast to the scarcity narrative, Andreas Weber argues that the concept of commons is based on the assumption of a general and relative abundance in nature. This is a central point that Weber emphasizes:

> Resources in nature are not [inherently] scarce. Where they become so, they do not lead to a creative diversification, but to an impoverishment of diversity and freedom. The basic energetic resource of nature, sunlight, exists in abundance. A second crucial resource – the number of ecological relationships and new niches – has no upper limit. A high number of species and a variety of relations among them do not lead to sharper competition and dominance of a 'fitter' species, but rather to richer permutations of relationships among species and thus to an increase in freedom, which is at the same time also an increase of mutual dependencies. […] In old ecosystems where solar energy is constant, as in tropical rainforests and high oceans, this brings forth more niches and thus a greater overall diversity. The result is an increase of symbioses and reduced competition. Scarcity of resources, experienced as the temporal lack of specific nutrients, leads to less diversity and the dominance of few species, as for example in temperate coastal mudflats. (Weber 2013: 27)

In contrast to the scarcity narrative, the source of all of life originates from an over-abundant resource that literally falls from heaven like manna: sunlight. As is well-known, sunlight is *the* key source of energy for life on earth that enables plants to synthesize carbon dioxide from the air and water and minerals from the soil. As Campbell and Reece state in their textbook *Biology*, this process of photosynthesis, in turn, "nourishes almost all of the living world directly or indirectly" (Campbell/Reece 2002: 176). In this sense, sunlight can be understood as a central source of energy that is provided to all living beings as an abundant gift.

Aside from sunlight, Weber also mentions another resource that exists in abundance in nature: "the openly available source code of genetic information" (Weber 2013: 39). Here, genetic code is not understood as an exclusive good that is protected and reproduced "privately" by competing individual species. Instead, it is a good that is open to all and shared by many. In this sense, genetic data is conceptualized as an open-source commons. Similar ideas have been developed in Stuart Kauffman's concept of a biological "order for free" (Kauffman 1995: 71-92), on the one hand, and Marcello Barbieri's notions of "code biology" (2015) and "evolution by genomic flux"[13] (Barbieri 2003: 58), on the other. In Weber's words:

> DNA has been able to branch into so many species only because all sorts of organisms could use its code, tinker with it and derive combinations that were meaningful and useful to them. This is also the way Homo sapiens came about […]. Some 20 percent of our genome alone consists of former viral genes that have been creatively recycled. (Weber 2013: 39)

According to Weber and other authors, it is therefore not the selfish gene that dominates in nature, but the existential desire to share, copy and diversify genetic information – within and beyond one's own species. In contrast to the dogma of the survival of the fittest, Maturana and Varela understand this notion of evolution in *The Tree of Life* as "structural drift", which merely appears *a posteriori* to the observer as being "selected" by the environment (Maturana/Varela 1987: 102-3).[14]

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13 Marcello Barbieri explains: "Other phenomena – such as *unequal crossing-over*, *DNA slippage* and *gene conversion* – proved that the genome is actually a turbulent superstructure in which genes are in a continuous state of flux. The Mendelian behaviour of genes is only a crude approximation of the truth, good enough for many practical purposes but not for a real-life understanding of the *fluid genome*. This brings us back to the possibility of a third exception to the Hardy–Weinberg theorem, i.e. to the possible existence of a third mechanism of evolution based on non-Mendelian heredity. And since the new mechanism would be a direct result of gene turbulence, a good name for it could be *evolution by genomic flux*." (Barbieri 2003: 58; original emphasis)

14 As Varela and Maturana write: "In fact, we have no unified picture of how the evolution of living beings occurs in all its aspects. There are many schools of thought that seriously question understanding evolution by natural selection; this view has prevailed in biology for more than sixty years. Whatever new ideas have been bruited about in terms of evolutive mechanisms, however, those ideas cannot discount the phenomenon of evolution. But these will free us form the popular view of evolution as a process in which there is an environmental world to which living beings adapt progressively, optimizing their use of it. What we propose here is that evolution occurs as a phenomenon of structural drift under ongoing phylogenic selection. In that phenomenon there is no progress or optimization of the use of the environment, but only conservation of adaptation and autopoiesis. It is a process in which organism and environment remain in a continuous structural coupling." (Maturana/Varela 1987: 115) Or, in more poetical and anthropomorphic terminology: "Evolution is somewhat like a sculptor with wanderlust: he goes through the world collecting a thread here, a hunk of tin there, a

Here, evolution should be understood not as a process of selection in which individual genetic codes optimize and assert themselves against others, but rather as a process of "free" exchange and recombination of genetic information. Survival is thus not secured through protection and domination, but rather through the (unconscious) collective participation in the adaptive diversity of life forms. In this sense, aside from sunlight and the genetic code, as Weber emphasizes, diversity itself must also be considered as another vital and abundant resource for life that provides ever more possibilities for other beings to secure their interdependent existence.

To understand this notion of diversity as a means for survival, we must turn to another basic concept in Weber's theory of biology and ecology: It is not competition, but rather 'gift-giving' and mutually interdependent 'networking' that underlies the life cycles of ecosystems. In this sense, Andreas Weber argues that nature's resources exist in relative abundance and that they are also provided to other living beings as gifts. The most obvious examples of resources being provided as gifts are those previously mentioned: sunlight, air, water, soil, genetic information and biological diversity. Here, it could be argued that the energy of these resources is given to plants 'for free' or as a gift whose energy they conserve and transform through photosynthesis and which can then be consumed by other beings in their turn. In the words of Andreas Weber,

> as there is no property in nature – there is no waste. All waste products literally are food for some other member of the ecological community. At death every individual offers itself as a gift to be feasted upon by others, in the same way it received the gift of sunlight to sustain its existence. There remains a largely unexplored connection between giving and taking in ecosystems in which 'loss' is the precondition for generativity. (Weber 2013: 39)

The fact that there is no property in nature is obvious because plants and animals do not exist in symbolic legal arrangements.[15] Nevertheless, this is not to say that there should not be any property arrangements in society. Instead, the point that Weber is making is that the transfer of energy from one organism to another depends

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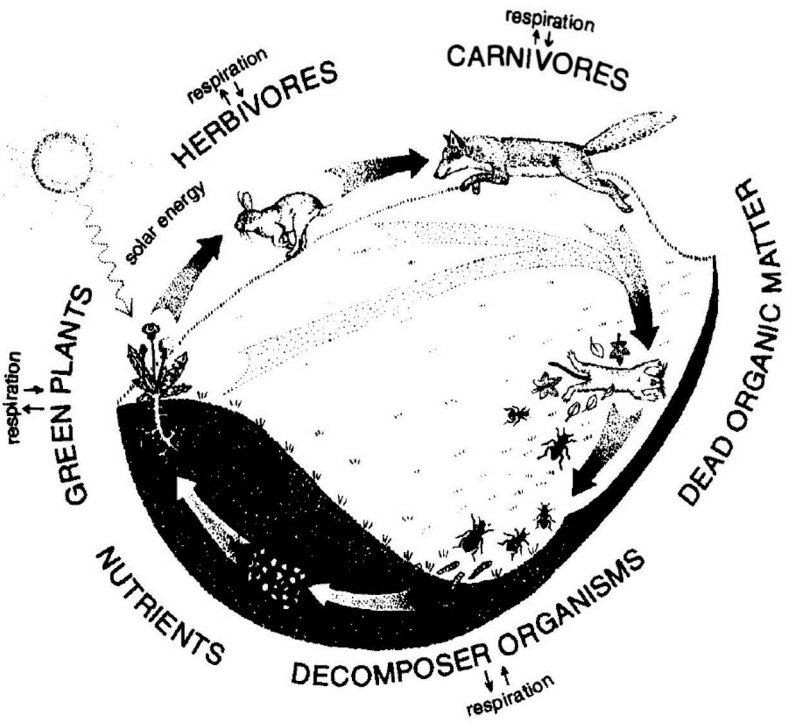
piece of wood here, and he combines them in a way that their structure and circumstances allow, with no reason other than that he is able to combine them. And so, as he wanders about, intricate forms are being produced; and they are composed of harmoniously interconnected parts that are a product not of design but of natural drift. Thus, too, with no law other than the conservation of an identity and the capacity to reproduce, we all have emerged. It is what interconnected us to all things in what is fundamental to us: to the five-petal rose, to the shrimp in the bay, or to the executive in New York city." (ibid.:117)

15 In this sense – and in relation to the abundance and accessibility of resources such as sunlight and genetic code – Weber writes, "nothing in nature can be exclusively owned or controlled; everything is open source" (Weber 2013: 39).

neither on trade nor on competition, but is simply passed on as a gift to other living beings. Put in a larger ecological context, the concept of gift-giving can thus be illustrated with the food cycle in which energy is passed on from one organism to another in a more or less reciprocal manner. Fritjof Capra, for example, portrays the food cycle in his book *The Web of Life* in such a manner.

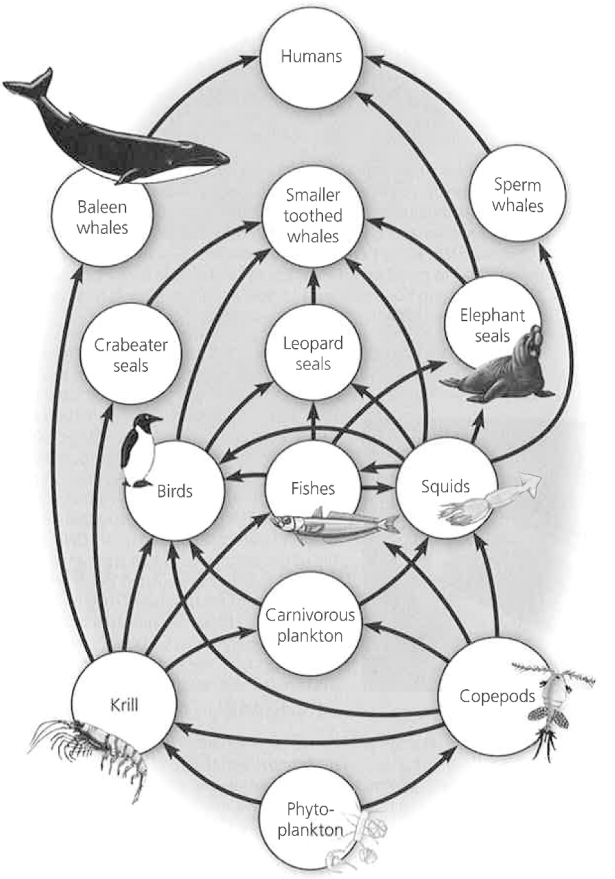
Figure 1: A cyclical portrayal of a food web (Capra 1996: 179)



This understanding should be contrasted with the linear and hierarchical understanding of food chains as it is often portrayed in schoolbooks such as, for example, in the classical textbook *Biology: A Global Approach* (2015) by Neil Campbell et al. As we see here, the food web is portrayed in a fairly hierarchical manner, in which humans see themselves at the top of the relationship. Here, it is interesting to note that Campbell et al. mention the decomposers that transform the energy of carnivores and omnivores into energy for plants in the caption, but do not include them in the figure. For this reason, the food chain with humans at the top of the hierarchy remains hierarchical and incomplete. Thus, it could be argued that these two depictions of how energy is distributed in the ecosystem tacitly convey

notions of how nature is structured: hierarchically and anthropocentrically versus reciprocally and eco-centrically.

Figure 2: Hierarchical portrayal of a food web (Campbell et al. 2015: 1290)



While it might appear that this interpretation of nature portrays the relationships between organisms as harmonious and benign, such an interpretation would obviously be too idealistic. Yet nevertheless, Darwin himself acknowledged later in life, in *The Descent of Man* from 1871, that most animals possess a "moral sense" and "social instincts", such as "mutual love" and an "instinctive sympathy" (Darwin 2004: 133, 119-151). And as the anarchist Pjotr Kropotkin also argued in 1902, biological and social survival is not merely based on competition and warfare but also on

reciprocity, cooperation and "mutual aid" (Kropotkin 1998). The main point of this 'other' interpretation of nature is that animals and populations are not conceived in isolation from other organisms and their environment, but rather in mutual interdependencies. This shifts our understanding of evolution from one focused on competition to one based on communication in web-like networks and associations. The existence of a specific population is thus not conceptualized in a dualistic logic of 'us versus them' but as a dynamic, if sometimes stressful relationship of interdependencies. It can therefore be argued that life only comes into being through the existence of the other – through its dependency on the ecosystem that it lives in. This implies a biological primacy of reciprocal "birth-giving", understood as a "natural gift economy" and a "natural commons" over the focus on struggle, competition and "nature, red in tooth and claw". According to Weber,

> From the standpoint of enlivenment nature is a commons economy consisting of subjects that are continuously mediating relationships among each other – relationships that have a material side, but also always embody meaning, a sense of living and the notion of belonging to a place. (Weber 2013: 36)

Here, the natural common of the gift is not a specific property arrangement, but should be understood as a mode of existence and, more importantly, as the precondition for one's existence – including one's ability to compete with other beings. In this sense, the existence of 'the other' is the precondition of an organism's own existence. As Weber explains:

> The biosphere consists of a material and meaningful *interrelation of selves*. Embodied selves come into being only through others: the biosphere critically depends on cooperation and 'interbeing' – the idea that a self is not possible in isolation and frenetic struggle of all against all, but is from the very beginning dependent on the 'other' – in the form of food, shelter, mates and parents, communication partners. *Self is only self-through-other*. In human development this is very clear, as the infant must be seen and positively valued by its caretakers to be able to grow a healthy self. (Weber 2013: 32; emphasis added)

Again, this interdependency of life does not imply that nature is one harmonious symphony but that the dynamic processes of mutual adaptation and evolution result from this interdependency. In this sense, Weber speaks of the biosphere being "paradoxically cooperative" in that symbiotic relationships emerge out of "antagonistic, incompatible processes: matter/form, genetic code/soma, individual ego/other" (Weber 2013: 32; emphasis omitted).[16] Weber emphasizes that this paradoxical unity forces entities to devise precarious and provisional responses to

16 The dynamic unity of these fundamental paradoxes of life can be compared to the wave-particle paradox in quantum physics.

challenges to their way of life. Here, existence comes into being through "transitory negotiations of several incompatible layers of life" (Weber 2013: 32).

This implies that nature does not exist in a stable equilibrium but rather in a dynamic process of balancing diverse desires and needs between different organisms within an ecosystem. It does not imply that all organisms exist in a struggle of 'all against all' in which one species or population will 'win'. Instead, the implication is that ecosystems have functional "dissipative structures" (Capra 1996: 168-9) or "balancing levels" according to which a change in one factor of the ecosystem will bring about other changes in the same system (Weber 2013: 38-9). Here, the dynamic balance that an ecosystem maintains can be interpreted as an inherent principle of networked or associative self-organization. Using the concepts of relative abundance and mutual interdependence in ecosystems, Weber then also reminds us that an ecosystem never grows in a material sense. Thus, he concludes that "nature is running a steady-state economy – that is, an economy where all relevant factors remain constant in relation with one another" (Weber 2013: 27). This notion of the metabolic reproduction of the ecosystem in a dynamic yet steady state economy will be relevant for our later discussion of a commons-based economy. For now, however, let us turn to the implications of these insights for human freedom and democracy based on the ecological and systemic understanding of reality I have been discussing.

5.5 Empathy, cooperation and a common(s) reality

In the context of a discussion of self-organizing organisms, populations and ecosystems, it is important to note that the degree of autonomy of organisms and networks varies greatly depending on the complexity of the specific multicellular living system. Here, the main difference between human and non-human living systems is that humans and their social systems possess the ability not merely of interpreting their environment through indexical and iconic signs, but also of interpreting through symbols.[17] This capability not only enables humans to give things "names", but also makes possible a form of self-reflection in which the "process of naming is itself nameable" (Bateson 1979: 185). In turn, these self-reflective capabilities allow human beings to exercise a greater degree of "semiotic freedom" (Hoffmeyer). George Herbert Mead discusses this increased freedom through self-reflection with reference to what is normally understood as one's mind:

17 Despite this very general and far-reaching statement, there are experiments that demonstrate that non-human animals also use basic abstract concepts. One such experiment shows how ducklings can differentiate between "same or different" (Martinho III/Kacelnik 2016).

> Mind arises in the social process only when that process as a whole enters into, or is present in, the experience of any one of the given individuals involved in that process. When this occurs the individual becomes self-conscious and has a mind; he becomes aware of his relations to that process as a whole, and to the other individuals participating in it with him. […] It is by means of reflexiveness – the turning-back of the experience of the individual upon himself – that the whole social process is thus brought into the experience of the individuals involved in it; it is by such means, which enable the individual to take the attitude of the other toward himself, that *the individual is able consciously to adjust himself to that process, and to modify the resultant of that process in any given social act in terms of his adjustment to it.* (Mead 1967: 134; emphasis added)

As Mead emphasizes, the ability to reflect on the process of thought and action is not something divine or transcendental, but emerges from the processes of the central nervous system. Importantly, this self-reflexive ability provides humans with a greater range of freedom than other living beings. For Mead, the seemingly simple ability to stop and reflect on one's cognitive processes (i.e. thinking) opens a space in one's mind for altering the interrelations between symbolic signs and intended action. Or, in Mead's own words, "when he stops, mind, we say, is freed" (ibid.: 122).

Nevertheless, Mead never tires of emphasizing that this process of reflection is not merely an individual activity, but also an inherently social one. In other words, language and, therefore, mind only occur through the interaction both with one's environment and with other human beings. Self-consciousness and the self are therefore not atomistic and independent, but created through the material and social world that it is embedded in. Mead explains,

> What goes to make up the organized self is the organization of the attitudes which are common to the group. A person is a personality because he belongs to a community, because he takes over the institutions of that community into his own conduct. He takes its language as a medium by which he gets his personality, and then through a process of taking the different roles that all the others furnish he comes to get the attitude of the members of the community. Such, in a certain sense, is the structure of a man's personality. […] The *structure, then, on which the self is built is this response which is common to all, for one has to be a member of a community to be a self.* (ibid.: 162; emphasis added)

Biologically, this primordial cooperative sociability is explained by the development of mirror neurons.[18] In a general sense, mirror neurons enable the mind to grasp

18 Mirror neurons were discovered in the early 1990s in Parma, Italy, by a team of scientists led by Giacomo Rizzalotti who were analyzing the brains of macaque monkeys and their cognitive abilities to plan movements. They discovered neurons in the F5 region of the frontal cortex that not only fired before the monkey had grabbed a peanut, but also when a researcher took

another mind "as if" the emotions, thoughts and behavior of the other were one's own (Damasio 2003: 115). According to Rizzalotti and Sinigaglia, however, this process should not be understood as reflexive but instead as immediate and empathetic:

> The instantaneous understanding of the emotions of others, rendered possible by the emotional mirror neuron system, is a necessary condition for the empathy which lies at the root of most of our more complex inter-individual relationships (Rizzolatti/Sinigaglia 2008: 190-1).

Mirroring the other in a direct, first person and pre-reflexive manner enables people to empathize with other humans – and other living, sentient beings. This basic insight that humans are not simply reflexive and rational but also inherently social and empathetic beings is reflected in much recent research in other scientific fields (Waal 1996, 2009; Fehr/Schmidt 2006; Kolm/Ythier 2006; Tomasello 2009; Rifkin 2009; Bowles/Gintis 2011; Baron-Cohen 2011; Batson 2011; Jensen et al. 2014; Bregman 2020).[19] The important point here, however, is that mirror neurons enable a pre-reflexive and primary sociality that promotes the development of self-reflexive individuality in and with others. In this sense, Rizzolatti and Sinigaglia write,

> The clarification of the nature and reach of the mirror neuron systems then provided us with a base from which to investigate the cerebral processes responsible for the vast range of behaviour that characterizes our daily existence, and *from which we weave the web of our social and interindividual relations.* (Rizzolatti/Sinigaglia 2008: 192-3; emphasis added)

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some peanuts. Soon afterwards, they studied human brains and found a similar reaction: neuronal activity was detected in an individual when they saw other humans act, even though they were not acting themselves (Rifkin 2009: 82). This discovery triggered a burst of research that would go on to support an embodied and social theory of mind in which not reason, but emotions – and, more specifically, empathy and cooperation – stand at the center of human existence.

19 Randall Collins, for example, confirms this insight in his book *Violence: A Micro-sociological Theory* (2008): "Humans have evolved to have particularly high sensitivities to the micro-interactional signals given off by other humans. Humans are hard-wired to get caught in a mutual focus of intersubjective attention, and to resonate emotions from one body to another in common rhythms. This is an evolved biological propensity; humans get situationally caught up in the momentary nuances of each other's nervous and endocrinological systems in a way that makes them prone to create interaction rituals and thus to keep up face-to-face solidarity. I am making more than the banal point that humans have evolved with large brains and a capacity for learning culture. We have evolved to be hyper-attuned to each other emotionally, and hence to be especially susceptible to the dynamics of interactional situations. The evolution of human egotism, then, is far from primary; it emerges only in special circumstances, for the most part rather late in human history." (Collins 2008: 26-7)

This understanding of mind emphasizes the ecological principle of interdependence and co-originality of the self and the other, which, in this case, must also be interpreted as the individual and society.

In a general sense, we could therefore say that mirror neurons bridge minds and weave them into a network of "common mind[s]" (Pettit 1993). In other words, mirror neurons provide humans with an elementary and underlying shared experience and a shared reality. Here, we are reminded of Elinor Ostrom's "interdependent situations" (E. Ostrom 1998: 1) that constitute most of people's existence and consciousness. As Rizzolatti and Sinigaglia explain:

> The mirror neuron system and the selectivity of the responses of the neurons that compose it, produce a *shared space of action*, within which each act and chain of acts, whether ours or 'theirs', are immediately registered and understood without the need of any explicit or deliberate 'cognitive operation.' (Rizzolatti/Sinigaglia 2008: 131; original emphasis)

Mirror neurons generally enable individuals to develop a shared language, shared thoughts and shared, collective actions through the imitation of the other. Michael Bratman echoes this insight in his notion of shared intentions, which "consists in a public, interlocking web of appropriate intentions of the individuals" (Bratman 1999: 9). Or, as Mead explains, "the beginnings of the process of communication [are found] in the co-operative process, whether of reproduction, caring for the young, or fighting" (Mead 1967: 234). It can thus be said that cooperation lies at the beginning of all individual development and is most clearly symbolized by parents caring for their children. Nevertheless, it must also be noted that this cooperation can be conflictual or competitive. Or, conversely, the basis of a competitive or conflictual relationship implies that two parties share a *common* reality – of which they are also a result. For if a reality was not primarily interdependent and shared, conflict would not even arise.

In another sense, we could possibly say that one's mind does not exist 'in one's head', but rather 'out there' in one's interactions with society and in the world. In the words of Mead, it is the "generalized other" that is incorporated and reproduced through mirror neurons and role-playing games (Mead 1967: 152-64). For this reason, we could not only argue that language, but also mind, thoughts and "reality" should be understood as an "irreducibly social good" (Taylor 1995) that people co-create and inherently share. However, this shared mind-language-reality is not merely limited to the social sphere but includes material reality as well. In this sense, Mead argues that "consciousness as stuff, as experience, from the standpoint of behavioristic or dynamic psychology, is simply *the environment* of the human individual or social group" (Mead 1967: 111; emphasis added). Subjective mind is therefore always objectified in its existing social and natural conditions.

What was previously understood as nature as a commons now flows over into a type of social commons that lays the foundation of both our social realities and our individualities. In his article *Reality as Commons*, Weber explains,

> The commons of reality is a matrix of relationships through which aliveness is unfolding in ecosystems and history. It conveys the aliveness of biological and human communities from a perspective of metabolic dependency, exchanges of gifts, and the entanglement of actors within their vectors of activity. Living participants bring each other into being by establishing relationships (metabolism, predator/prey relationships, social ties), thus producing not only their environments but their very identities. Thus, the commons describes an ontology of relations that is at the same time existential, economic and ecological. It emphasizes a process of transformation and identity formation that arises out of a mutuality that is not only material, but also experienced [and symbolic]. (Weber 2015)

From this perspective, all our interactions constitute our shared, common reality. The fabric of our very existence could thus be understood as a commons – all of reality as a commons. Or in the words of Jean-Luc Nancy, all beings exist in relationships of "being-in-common", which is not to be thought of as oneness or unity of a common substance, but is rather constituted by the singularities of diverse beings (Nancy 1993: 30, 69). This being-in-common or reality-as-a-commons would therefore obviously include acts of sharing, but also border walls, conflicts and war. Although these latter examples might be attempts to exclude, subdue or even eliminate the other, they nevertheless bring about the common reality that people inherently co-inhabit, co-create and, thus, share. In this sense, it could even be said that reality as a commons is the bedrock and horizon of the interdependent existence of humans and the non-human world.

While this concept of reality as a commons might appear to be overly abstract and vague, it is clear that we must not confuse it with Elinor Ostrom's notion of common pool resources or common property arrangements. Instead, this understanding of commons goes beyond them and should, rather, be understood as a "way of entering into relationships with the world, both materially and conceptually" (Weber 2015). Moreover, as I shall later argue in more detail, this understanding provides us with the adequate concepts to demand that people should have the right and the opportunity to codetermine their shared common reality.

5.6 Ecological freedom, democracy and care

As might be evident by now, this notion of a shared reality-as-commons based on interdependent self-organization in ecosystems requires us to reformulate the understanding of autonomy and democratic freedom I developed above with refer-

ence to David Held and others. Recall that Held's principle of autonomy was based on the individual's capability and right to change the conditions under which it lives. Although this represents an advance in relation other notions of freedom in that it conceptualizes democracy as a form of living, I would agree with James Tully that it nevertheless conceives of autonomy as "the supreme value and [in turn] derives universal environmental rights, duties and institutions from it" (Tully 2008a: 74). On the basis of our discussion of nature, however, we can now see that it is important to invert this relationship and embed the principle of autonomy in basic principles of ecology. Fritjof Capra, for example, has identified the principles of "interdependence, recycling, partnership, flexibility, diversity, and, as a consequence of all of those, sustainability" as characteristic of ecological reality (Capra 1996: 304). Thus, in its most simple sense, an ecological reinterpretation of Held's autonomy principle can ultimately provide us with a concept of democratic freedom based on the sustainable self-organization of diverse organisms within an ecological network of interdependencies. In this section, I would therefore like to flesh this idea of ecological freedom out. I argue that the principle of interdependence that lies at the heart of this concept brings us to an ethic of care that should ultimately guide and constitute human freedom.

Let me begin this discussion of ecological freedom by returning to Andreas Weber's essay *Enlivenment.* In this essay, Weber presents a notion of autonomy that is not only biologically embodied but also interrelational. He calls this "freedom-in-and-through-relation" (Weber 2013: 40) and explains this notion of freedom with reference to interdependent ecological networks or "natural commons":

> A multitude of different individuals and diverse species stand in various relationships to one another – competition and cooperation, partnership and predatory hostility, productivity and destruction. All those relations, however, follow one higher principle: only behaviour that allows for the productivity of the whole ecosystem over the long term and that does not interrupt its capacities of self-production, will survive and expand. (ibid.: 37)

If we follow Weber here, we can say that the relations of the individual in and with the entire ecosystem become central to our understanding of ecological freedom. For an organism can only flourish sustainably if its ecological conditions are intact over longer periods of time. The important point is therefore not simply the maximization of individuals' autonomy, but rather the reproduction and codetermination of the systemic socio-ecological conditions that enable individual freedom.

That being said, one might try to conceive of individual freedom – in accordance with a particular organic metaphor – as the subjugation of the individual to the whole. But this would be a mistake. There exists a familiar critique that says that holistic and organicist conceptions of life inherently lead to totalitarianism, as was the case with National Socialism (Harrington 1996). The understanding of

ecological relationships defended here, however, is fundamentally at odds with this totalitarian and hierarchical interpretation of society as an organism. Totalitarian metaphors of an organic society have often been based on notions of Social Darwinism which, in turn, is used to legitimate a hierarchical interpretation of nature and a society divided into charismatic leaders and sheep-like followers. Only by suppressing one's individuality can the existence of the whole be secured. Contrary to this interpretation, the notion of interdependent ecological systems I have been developing implies that self-organizing organisms and biological diversity are necessary for the functioning of the whole ecological network. Or, in Weber's words once more, "the individual can only exist if the whole exists and the whole can only exist if individuals are allowed to exist" (Weber 2013: 32). Although this definition goes in the right direction, I consider the notion of being "allowed to exist" to be somewhat problematic. Individual existence may be reduced to life in prison. The fundamental point in this ecological and systemic notion of freedom is, however, that the thriving of individuals depends on a 'healthy' society and the flourishing of society depends on a healthy individual. We cannot have one without the other: the whole and its parts are interdependent and co-create each other. In order for this to happen, it is necessary to see both "the forest and the trees" (Moran/Ostrom 2005) in their interwoven relationships with one another. For it is this interdependent and systemic understanding that must complement and transform Held's notion of individual autonomy and democracy in order to make it more ecologically sound and open to a more far-reaching notion of commons.

First and foremost, this implies that the networked structures of living systems are not hierarchical. In simple terms, all organisms – including all people – are assumed to possess the ability to self-organize and it is assumed that all parts contribute to the interdependent co-creation of the whole. The biological and physical realm of human reproduction and production is thus no longer conceptualized as the realm of necessity and unfreedom. Nevertheless, while human beings possess the capability to reflect, reason and self-organize, they are dependent on the self-organization and well-being of other organisms, populations and their ecosystem at large. They should therefore be understood as merely one component in a larger, complex ecosystem. According to Weber, this concept of ecological freedom is what underlies the commons:

> The basic idea of the commons is therefore grounded on an intricate understanding of freedom and its relationship to the whole: the individual enjoys many options of self-realisation but the only viable ones depend upon the flourishing of the life/social systems to which she belongs. To organize a community between humans and/or non-human agents according to the principles of the commons means to increase individual freedom by enlarging the community's freedom. Both expand together – and mutually through one another. (Weber 2013: 40)

Again, this is not to say that the relationship between the individual parts and the whole are always harmonious. That would be a naïve and all-too optimistic interpretation of mutual interdependence. Freedom should rather be thought of as a process of continual communication and negotiation both over the necessities of material existence and between the individual parts and the whole. Thus, we could conclude that individual freedom is not only an in-and-through-relation, but, more precisely, must be understood as a form of being with, through and against the other.

In order to understand what this means, let us go through each term: freedom with, through and against. 'Freedom with' signifies people's inherently common reality, which they share and therefore codetermine – irrespective of whether they have the political or legal right to codetermination. It emphasizes the co-origination of self and other and one's dependence on the other. Importantly, this dependence is positively connoted here because it is only with the other that one can realize common ends and satisfy common needs. Moreover, this relation highlights the intrinsic value of social interactions, collective action and convivial modes of being. In this sense, the principle underlying 'freedom with' can be understood as the Kantian categorical imperative that all (rational) beings must each be considered as an end in themselves (Kant 2002: 45; 4:429), whereby we would replace the term rational with the term sentient, extending its sphere of relevance to all living beings and thereby possibly also ecosystems in general. In contrast, 'freedom through' denotes the utilitarian and instrumental character of relationships, in which people can use one another and their environment. We use people and things to realize certain ends that are either held in common or not. Both freedom 'with' and 'through' resemble a collective notion of positive freedom, understood as the ability to act collectively, and social freedom, understood as the ability to codetermine one's conditions of existence. Finally, 'freedom against' emphasizes that people have conflicting values and ends and therefore need to negotiate how these differences can co-exist without negating one another. While 'freedom against' appears similar to negative freedom or 'freedom from', the latter is, in fact, a means of solving the conflicts that arise in relation to differences by excluding or negating the other. Instead, 'freedom against' implies that conflicting interests and ends must be dealt with not through exclusion but, rather, through negotiation. This is not to say that all conflicting ends have a right to be realized, but rather that it must be negotiated which means and ends more adequately fulfill the flourishing of its parts and the reproduction of the whole. In this sense, 'with, through and against the other' are the fundamental criteria of freedom based on ecological interdependence.

Lastly, it should be noted that the three aspects of ecological freedom must always be acknowledged simultaneously. While it is possible that one aspect will be emphasized in certain relationships, other aspects will be accentuated in other re-

lationships. None of these aspects can entirely be subtracted from the definition of ecological freedom. As we can see, the negation of 'with' would imply a purely instrumental and conflictual relationship with others. This comes close to the notion of negative freedom in which one's atomistic and supposedly independent subjective rationality is defined as the cornerstone of society. The denial of either 'through' or 'against' would, in turn, lead to the subjugation of one's individuality to the whole and thus negate one's individual freedom. As we see, this notion of freedom aims at maintaining a dynamic tension between the parts and the whole while not falling into the traps of focusing on merely one aspect of its tripartite definition. In this sense, I would say that ecological freedom emphasizes individuality without being either totalitarian or atomistic and solipsist.

As we see, ecological freedom thus emphasizes the importance of other living beings as a precondition for one's own material existence and actual freedom. Hence, ecological freedom is always both embedded and embodied freedom. As Weber elaborates,

> the enlivened idea of freedom does not do away with the classical-humanistic [and liberal-negative] account[s] of autonomy (as strictly biologistic accounts do), but rather it limits its absoluteness to an 'embodied relativity'. There is no such thing as individual freedom detached from the living world, and any attempt to claim it inevitably will violate the necessities of embodied life, of an organic being's living needs. So from an Enlivenment viewpoint freedom (as enframed in constraint) is a natural process. (Weber 2013: 40)

Here, freedom with, through and against is simply interpreted as a process of communication with one's ecosystem and not merely with one's fellow human beings. This generally implies that people recognize that other organisms have an intrinsic right to exist and are the basis for human existence and the reproduction of the entire ecosystems which they co-inhabit (the aspect of 'freedom with'). Importantly, this would imply that humans provide organisms, other animals and wider ecosystems with legal rights that recognize their rights to life and liberty. This notion of ecological freedom would, however, also imply that humans can use these organisms and ecosystems to satisfy our needs ('freedom through'), while not negating the needs of the other (again, 'freedom with'). Finally, this notion can suggest that humans must somehow negotiate over conflicting ends and see to what extent these conflicting ends support the reproduction of the whole and the flourishing of each individual part.

But how can this negotiation process between human and non-human organisms take place? On the one hand, the notion of ecological freedom should provide people with a point of normative orientation in their everyday interactions with the non-human world. On the other hand, it should also provide people with the ability to file a suit in the name of the non-human world when the rights of cer-

tain organisms or ecosystems are violated. While this idea might sound somewhat peculiar, the discussion on the rights of nature is not new (Stone 1972, 2010) and legal systems that take the rights of the non-human world into account already exist (La Follette/Maser 2017). If we take the rights of sentient non-human organisms seriously it would, however, ultimately demand that the non-human world would not only be increasingly integrated into the legal framework as an object, but also as participants in the democratic processes of law and policy making. Considering the increasing sphere of democratic integration from white male adults who own property, to white male workers, to people of color and to women, this would be a logical conclusion of this historical development (Hilpert 1999).

Although an in-depth analysis of this important topic cannot be adequately dealt with here, I nevertheless would like to briefly sketch how we might be able to integrate the non-human world into democratic processes. Let me begin my sketch with Bruno Latour, who argues for nothing less than a new constitution that would realize a "Parliament of Things" (Latour 2004). In order to understand this somewhat fantastical notion, we need to return to Latour's previously mentioned critique of the subject-object and human-nature dualisms that underlie our conceptions of reality and politics. Here, the nonhuman world is conceptualized as inanimate and mute (Latour 2004: 62), which denies its ability to voice its interests and opinions and, thus, inherently excludes it from the realm of politics (ibid.: 62). Yet Latour argues that "speech is no longer a specifically human property, or at least humans are no longer its sole masters" (ibid.: 65). The reason for this is that "facts" do not "speak for themselves" (ibid.: 67), but are always interpreted and voiced by scientists. As Latour explains in his book *We Have Never Been Modern*, "these facts indeed represent nature as it is. [But] [t]he facts are produced and represented in the laboratory, in scientific writings; they are recognized and vouched for by the nascent community of witnesses" (Latour 1993: 28). And as in the case of the "ecological crisis", he emphasizes in *Politics of Nature* that "far from suspending discussion over matters of fact, every piece of scientific news, on the contrary, throws oil on the fire of public passions" (Latour 2004: 65). Simply put, supposed empirical facts and their interpretation are highly contested and, therefore, highly political. For this reason, Latour argues that "each [scientific] discipline can define itself as a complex mechanism for giving *worlds the capacity to write or to speak*, as a general way of making mute entities literate" (ibid.: 66; original emphasis). Thus, Latour contends that parliaments need not include elephants, trees and stones in their rooms and debates, but rather scientists, who will then be the "spokespersons of the nonhumans" (ibid.: 64). Ultimately, these scientists shall complement the "subjective" opinions of politicians, intertwining the supposed subjective and objective perspectives of reality into a unified "association of humans and nonhumans" (ibid.: 70-77) and in a process of co-creation. While I would agree with the basic analysis and aim of Latour's argument, I find it problematic to assume that

only scientists in lab coats can interpret nature and provide nature with a voice. While Latour appears to defend a widening of democratic participation to include nonhuman beings, by simply opening parliament's doors to scientists, democratic rule can lopsidedly become a rule of experts. According to this interpretation of Latour's work, such a "Parliament of Things" would thus not only disempower the people who work in and with ecosystems on a daily basis (e.g. farmers, fishers, forest rangers etc.), but also factory workers and urban office workers, who support ecological issues and want to make their neighborhoods 'greener'.

For this reason, I would argue that nature is neither mute nor can its voice only be represented by scientists. Instead, because all humans are always in interaction in and with their ecosystems, 'nature' perpetually 'speaks' with us and is constantly being interpreted by humans. John Dryzek gives a rather simple example of this communication between humans and the non-human world, "If the topsoil on which my crops depend is shrinking, then clearly nature is 'telling' me something" (Dryzek 1987: 207). This example can be extended to the home-owner in a suburb, who interprets the shriveled leaves as a sign to water her tomato plants, or to the urban dweller, who wants to have more bike paths and parks in order to improve the air quality, climate and living conditions in the city. As Christopher Stone once put it in his influential paper "Should Trees Have Standing?" from 1972,

> I am sure I can judge with more certainty and meaningfulness whether and when my lawn wants (needs) water, than the Attorney General can judge whether and when the United States wants (needs) to take an appeal from an adverse judgment by a lower court. The lawn tells me that it wants water by a certain dryness of the blades and soil – immediately obvious to the touch – the appearance of bald spots, yellowing, and a lack of springiness after being walked on; [but] how does 'the United States' communicate to the Attorney General? (Stone 2010: 11)

In this sense, the communication between humans and 'nature' can possibly be more concrete and straightforward than the communication between social institutions such as 'the national government' and 'the law' or 'the market'. And in contrast to Bruno Latour's limitation to scientists as the sole spokespersons of a supposedly mute nature, we must therefore concede that all people equally and perpetually partake in conscious or unconscious communication processes with the ecosystems they inhabit.

Putting human-nature relations in this perspective, I find Robert E. Goodin's argument in his article "Enfranchising the Earth and its Alternatives" (1996) to be a rather convincing strategy to integrate nature into politics. Like Latour, Goodin argues that as it is impossible to integrate future generations (i.e. the as yet unborn) into politics, so it is also impossible to integrate "birds and bees and boulders" into democratic processes (Goodin 1996: 841). According to Goodin, this practical difficulty does not, however, negate the desirability and necessity of enfranchising

nature. Because of this apparent paradox, Goodin argues that we must not hold on to the "view of democracy as necessarily entailing 'one person, one vote', with each person representing his or her own interests" (ibid.: 844). Instead, he contends that

> it might be empirically more realistic, as well as being morally and politically preferable, to think instead of democracy as a process in which we all come to internalize the interests of each other and indeed of the larger world around us. […] The best we can hope for is that nature's interests will come to be internalized by a sufficient number of people with sufficient leverage in the political system for nature's interests to secure the protection that they deserve. (ibid.)

Thus, nature's interests should not simply be represented by scientists, but more widely by "people qua voters" (ibid.). Yet this only occurs if "people come to *take* interest in nature's interest" (ibid.; original emphasis). According to Goodin, this leads to a twofold goal in democratic theory: firstly, the interests of nature should be internalized by more and more people and, secondly, the political system must be "maximally responsive to those expressions of interest" (ibid.). Considering these two goals – and proceeding along a line of thought similar to the Ostrom's – Goodin defends a "direct, grass-roots, participatory democracy" (ibid.: 849), because it breaks down concentrations of power and opens up political discourse to a wider group of people. As Goodin explains:

> Participatory democracy makes the political system more responsive to green values because the more others [i.e. other people] there are who have to be given an explanation, the more likely it is that there will be someone among them who internalizes the interests of nature. The larger and more diverse the electorate, the more likely is there to be some nature-lover who is going to ask, 'What about the effects of all this on nature?' (ibid.: 845)

Yet in contrast to Elinor Ostrom, Goodin bases this argument not on "empirical sociology", but rather on the "analytics of participatory government and the law of large numbers", which assume that "every proposal has to be justified to everyone" and that "at least among very large electorates, virtually every point of view is likely to be represented" (ibid.). This leads to an important consequence on an individual level, which is that "having to defend our positions publicly makes us suppress narrowly self-interested reasons for action and highlight public-spirited reasons in their place" (ibid.: 846). Simply put, if more people participate in political negotiations and decision-making procedures, the more likely public interests and the interests of nature will be represented and considered. But as Goodin notes, even if a constituency might not include ecologically minded people, assuming that these concerns might be expressed in discursive arenas can also lead to the "anticipatory internalization" of the interests of the non-human world (ibid.: 846-7). In sum, although the non-human world does not speak for itself, wider participation

in democratic deliberation increases the likelihood that nature will be integrated into and represented in politics and the voices of the non-human world ultimately become internalized into one's own consciousness. The ecological other becomes an increasingly integral part of the self and of society's organization. Here, it must be emphasized that the notion of wider participation does not simply imply a broadening of the constituency on higher political levels, such as that of the nation-state, but rather also a 'deepening' of democracy, in which political participation is increased and intensified on all political levels and in various social realms.[20] As we see, this ecological and normatively instrumental justification of participatory democracy complements Elinor Ostrom's theory of democratic governance, which is largely based on empirical evidence, yet also advocates a decentralized and participatory democracy in a polycentric political system.

This shift in understanding from an individualistic and entirely anthropocentric understanding of freedom to a social and ecological notion forces us to rethink our basic ethical relation to other human beings and to the non-human world. In the most general terms, the relationship to other humans and the non-human world should be interpreted as a resonant relationship of communication and negotiation. Furthermore, by recognizing the inherent interdependence of living systems, ecological freedom is neither based on the negative notion of non-interference nor on a utilitarian ethic of the maximization of utility for the greatest number. I would also argue that ecological freedom goes beyond Honneth's previously discussed concept of social freedom based on (the struggle for) mutual recognition between humans. Instead, I would argue that ecological freedom is based on a care ethic – towards one's fellow human beings and the non-human world. In this sense, I would appeal to the definition of care by Joan Tronto and Berenice Fisher and explored in Tronto's 1993 book *Moral Boundaries: A Political Argument for an Ethic of Care*:

> On the most general level, we suggest that caring be viewed as a species [i.e. social] activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web. (Fisher/Tronto in Tronto 1993: 103; original emphasis)

Although care is often associated with the relationship between parents or, more specifically, mothers and their children, I would agree with Tronto that care is a more general concept that, firstly, refers to a processual activity, and, secondly, is able to describe an individual or collective relationship with social institutions, non-human beings or an inert object. Here, it is important to emphasize that the

20 See for example Deepening Democracy: Institutional Innovations in Empowered Participatory Governance (2003) edited by Archon Fung and Erik Olin Wright.

care ethic implied here is not hierarchical and paternalistic; instead it is based on the recognition of others' equal capabilities and rights to self-organize. Ecological freedom based on a care ethic thus emphasizes the equal rights of all living beings to individual and interdependent action and the responsibility to support the freedom and flourishing of all other living beings. In the words of Karen Barad,

> Intra-acting responsibly as part of the world means taking account of the entangled phenomena that are intrinsic to the world's vitality and being responsive to the possibilities that might help us and it flourish. Meeting each moment, being alive to the possibilities of becoming, is an ethical call, an invitation that is written into the very matter of all being and becoming. We need to meet the universe halfway, to take responsibility for the role that we play in the world's differential becoming. (Barad 2007: 396)

Interpreting this ethical call as a call to an ethics of care, we must, however, emphasize that caring does not imply an altruism that negates self-interest in the name of the other. Instead, it includes a fundamental notion of self-care that is balanced with the care for others and the interdependent processes of becoming (Tronto 2013: 32). In other words, self-interest need not be in conflict with the interests of others. Nevertheless, care does not realize a harmonic unity, whether through self-negation or the invisible hand of the market; rather, it is a form of "differential becoming". Conflict can arise precisely from diverging values of care. Hence, practices of care require the negotiation of diverging interests and values, accompanied by a basic recognition of and interest taken in the other. Grounding our notion of freedom on an ethic of care therefore implies that we break with the tacit 'ethic' of atomistic self-interest that the notion of negative freedom assumes. We would therefore shift our focus from the right of non-interference and the unlimited accumulation of wealth to the care for reproduction and flourishing of the constituent parts of the whole. By placing a care ethic at the foundation of our notion of freedom, I believe that we would ultimately be bringing life and freedom into alignment.

Here, someone might ask if we truly need a specific ethos for a specific legal framework. My short and simple answer to this is yes. The reason for this is that social institutions can only be maintained if they are also morally justified and upheld. A moral justification implies not only the approval of the existence of certain institutions, but also patterns of both individual and collective practices that uphold and reproduce these institutions (Jaeggi 2018a, 2018b). Following Hegel, I would argue that social institutions are not merely created through reason and contracts, but are brought about through unconscious, incorporated and habitual patterns of action which are, in turn, structured according to normative values of right and wrong. This is what Hegel generally refers to as "Sittlichkeit". We may found new institutions, but if we do not uphold them through ethical conviction

and repeated actions, they will most likely disappear again. In this sense, we could also say that (democratic) institutions of society are no better than the people (and their actions) in that specific society. From this perspective, it is our norms, our ethics and our corresponding actions that must bring about the social institutions we want.

By placing care at the center of our relationship to ourselves, other humans and the non-human world, we not only change our notion of freedom, but also transform our understanding of politics and the legal framework that structures society – and the distribution of care work. In general terms, this shifts our understanding of politics from a relationship that is primarily struggle and conflict to a one of mutual, reciprocal care. Furthermore, the emphasis on care complements a focus on individual rights with one's responsibilities towards others. While the right to self-organize is a necessary pre-requisite of the right to care and flourish, Tronto emphasizes the importance of responsibilities in what she calls a "caring democracy":

> Most importantly, rather than being a set of principles from which one deduces proper action, a feminist democratic ethic of care begins by envisioning a series of caring practices, nested within one another. The broadest of these nested practices are those that pertain to society as a whole […]. The goal of such practices is to ensure that all of the members of the society can live as well as possible by making the society as democratic as possible. This is the essence of 'caring with.' While living in a democratic manner is not the only goal of care, or of human life, in a democratic society it is the goal of democratic caring practices. Thus, *democratic politics should center upon assigning responsibilities for care, and for ensuring that democratic citizens are as capable as possible of participating in this assignment of responsibilities*. The task of a democratic politics is to affix responsibility, and as we come to recognize the centrality of care for living a decent human life, then the task of democratic politics needs to be much more fully focused upon care responsibilities: their nature, their allocation, and their fulfillment. (Tronto 2013: 30; original emphasis)

By interpreting freedom and democracy in this manner, we could say that democracies that clearly separate the private from the public and that are coupled with self-regulating markets limit the possibilities for individuals to care for the socio-ecological problems that determine their common reality. As we have already seen, the self-limitation of politics to the realm of the state has created a democratic deficit that can also be interpreted as a structural caring deficit in contemporary societies. These legal institutions stop people from taking responsibility and caring for social and ecological problems because the root of these problems is ultimately situated in the private realm which is largely shielded from democratic interference – be that by the state, civil society or communities.

Furthermore, the existing politics of care imply that the responsibilities of care are unequally distributed; while some people are overburdened with classical 'private' and often unpaid care work (e.g. childrearing, caring for the sick and elderly, housework), few people have the resources to care for common affairs (e.g. politicians, philanthropists, environmentalists) and others are largely freed from both these kinds of care work (e.g. people pursuing accumulative 'economic' activities). So while some people have a "free pass" to extract and accumulate wealth – in the name of caring for themselves and society –, the rest of society must do the care work that repairs the socio-ecological organism(s) and keeps it (or them) alive. Thus, legal arrangements define and distribute care work and the corresponding responsibilities within society (Tronto 2013: 32-3). In this sense, it is not simply of central importance to define and demand rights for humans and the non-human world (e.g. the right to clean water, to education etc.), but also to demand a fair distribution of caring possibilities and obligations that enables the maintenance and reproduction of these freedoms for all beings (Held 1995: 203).

That being said, I would like to further develop an understanding of democracy that is based on the notion of ecological freedom I have elaborated so far. In order to do this, I now turn to Fritjof and Capra's notion of eco-law, developing it with reference to James Tully's work on the "civic tradition" of democracy, which provides us with an important stepping-stone for an ecological democratic theory of the commons.

5.7 The civic tradition of ecological democracy and commoning

In his book *On Global Citizenship* (2014), James Tully distinguishes between civil and civic traditions of democracy. Similarly to Fritjof Capra and Ugo Mattei, he recognizes that the civil tradition is problematic because it limits people in their capabilities to change their legal frameworks to adequately deal with and care for social and ecological problems. To understand the civic tradition of democracy fully, it may, therefore, be helpful to briefly discuss what Tully understands by the civil tradition of democracy.

The civil tradition of democracy

According to James Tully, the civil tradition is based on a dualistic conception of society that differentiates between individuals and their representatives, on the one hand, and citizens (*demos*) and their legal framework – understood as the constitutional rule of law (*nomos*) – on the other (Tully 2014: 11). This conception is similar to the conceptions outlined above of both protective, legal (minimal) and formal, positive (medium-range) democracy. Here, the "constitutional rule of law

is the first condition of citizenship", which is "defined as a status (state or condition)" (ibid.). Rights and obligations are *granted* to the individual by the hierarchical authority of the state. Society is divided into the state-individual, state-market or state-civil society dichotomies that are found in the writings of Hobbes, Locke and Kant. Tully lists four tiers of citizenship rights and duties within this civil tradition: (1) civil liberties, understood as private autonomy or, with reference to Benjamin Constant, the liberty of the moderns; (2) representative government and the liberty of the ancients, understood as the opportunity to participate in public autonomy; (3) social and economic rights, understood as substantive yet rather weak rights to education, housing and health; and finally, (4) modern minority rights (ibid.: 12-17). As Tully emphasizes, the "modern liberty to participate in the private economic sphere and not to be interfered within it; the right to own property and enter into contracts" (ibid.: 13) lies at the center of the first tier civil liberties. In this sense, the state exists primarily to pacify our supposedly antagonistic and conflicting, egotistical interests. Again, we confront the state-individual dichotomy which must also be interpreted as a dichotomy of subjective, egotistical or, in Christian terminology, 'fallen' individuals and objective, robust and 'universal' laws. Or, in Kantian terms, it is a rational and universal legal order that can be realized even by a "nation of devils" (Kant 2006: 90).[21] As becomes clear, this concept of civil liberty turns the social and ecological ontology I develop in this chapter on its head by assuming independent and conflicting individuals as primary, the interference of others as

21 In the words of Immanuel Kant: "Establishing a state, as difficult as it may sound, is a problem that can be solved even for a nation of devils (if only they possess understanding). The problem is as follows: 'To form a group of rational beings, which, as a group, require universal laws for their preservation, of which each member is, however, secretly inclined to make an exception of himself, and to organize them and arrange a constitution for them in such a way that, although they strive against each other in their private intentions, the latter check each other in such a way that the result in their public conduct is just as if they had no such evil intentions.' It must be possible to solve such a problem. For it is not precisely how to attain the moral improvement of the human being that we must know, but rather only how to use the mechanism of nature on human beings in order to direct the conflict between their hostile intentions in a people in such a way that they compel each other to submit themselves to coercive laws and thereby bring about the condition of peace in which laws are in force. In the case of actually existing, however imperfectly organized states one can also observe this, in that in their external conduct they already closely approximate what the idea of right prescribes, although an inner morality is certainly not the cause of this conduct (and it should not be expected that a good state constitution would arise from an inner morality, but rather conversely that the good moral education of a people would follow the former). Hence reason can use the mechanism of nature, in the form of selfish inclinations, which by their nature oppose one another even externally, as a means to make room for reason's own end, legal regulation, and to thereby promote and secure, insofar as it is within the power of the state to do so, both internal and external peace.—This is the essence of the matter: Nature wills irresistibly that right ultimately attains supreme authority." (Kant 2006: 90-91)

cumbersome and participation in social activities and common affairs as optional Here, democracy and processes of democratization are "equated with tier-one civil liberties (neoliberal marketization) and a short list of democratic rights (primary elections)" (Tully 2014: 29). In this dualistic model, self-organization is not understood as an activity of self-governance but rather as a "spontaneous" function of the self-regulating market as described by Hayek. As we have previously discussed in reference to the self-regulation of the market, the primacy of individual negative freedom and market competition lays heavy constraints on democratic freedom. The problem is that the civil tradition does not recognize the ecological, democratic freedom that would enable all people to participate in this process of multilayered, institutional self-organization and adaptation. Tully discusses this problem:

> The civil tradition makes a fundamental distinction between the institutional rule of law and the citizen activities that take place within the boundaries of these institutional settings. The institutionalized rule of law exhibits a systemic or functional quality of formality and independence from the agents who are subject to it and act within its boundaries. This picture is encapsulated in the mantra, 'rule of law not of men'. The features of institutionalization and rationalization that establish the independence of the rule of law from the rule of men and women consist in the definite rules, procedures and training of the institutional offices, the hierarchical, command–obedience relationships among the members, the specialized division of labour, the separation of knowledge from use, reflexive monitoring and the systematic application of coercion to align behaviour with rules. That is, it is the non-democratic and procedural character of the relationships within an institution that give it its formality and independence from the informal rule of men. The language of governance is replaced by that of administration, management, control, discipline, procedure, direction and monitoring. […] *The roles of humans seem to disappear.* (Tully 2014: 55; emphasis added)

Here, we are reminded of Vincent Ostrom's critique of the monocentric order. Yet, in contrast to Ostrom, Tully sees similar problems in representative democracies based on the civil tradition that uphold an abstract, formal and independent rule of law. Aside from the hierarchical and technocratic character of these social arrangements, it is important to note Tully's conclusion that "humans seem to disappear" within such a framework. I find this point to be central because it is precisely in the name of individual negative freedom that the civil tradition is often so fiercely defended. Yet, from Tully's perspective, the universal and abstract rules of property that are supposed to defend individual freedom simultaneously suggest its disappearance. How can this be? Much as in Hayek's understanding of a dethroned democracy, political issues are delegated to experts who uphold the rule of law and implement adequate policies to maintain the functioning of the social body. As Capra and Mattei note, "since its foundation by Hugo Grotius, international law

has remained based on individualized Cartesian building blocks – legal persons in competition with each other within a mechanistic, depoliticized vision of law" (Capra/Mattei 2015: 117-118). As in Hermann Heller's notion of authoritarian liberalism, Capra and Mattei describe this institutional arrangement as a type of legal absolutism. The individual is subjugated to the forces of the self-regulating open and competitive market and is unable to participate in the democratic self-organization of its common, institutional political-economic reality. Active and conscious participation in and care for the self-organization of society is thus constrained. Due to this democratic deficit, we can interpret the civil tradition to be politically disempowering – and antihumanistic. Furthermore, the apathy that results from it can turn into both hatred of established elites and hope for strong (authoritarian) leaders who will 'set things straight'. The tragic irony, however, is that these new charismatic leaders are themselves subject to the structural constraints of the market and must often adhere to the 'objective' market forces under a new political banner.

The civic tradition of democracy

In contrast to this civil model of democracy, Tully develops an alternative understanding of citizenship that overcomes these dualistic problems and that can be interpreted as a democratic theory of our ecological concept of freedom. Tully calls this form of citizenship "civic", in which the liberty of the ancients is prioritized over the liberty of the moderns. According to Tully, a fundamental difference between these two traditions is that while civil citizenship defines "a status within an institutional framework backed up by world-historical processes and universal norms, the [civic] tradition looks on citizenship as *negotiated practices*, as praxis – as actors and activities in contexts" (Tully 2014: 35). As we see, the civic tradition of democracy is very similar to Axel Honneth's notion of social freedom and is based on the recognition that institutions must be upheld and reproduced by social practices. Similarly to our social and ecological interpretation of the individual, Tully also assumes an embodied subject that brings about institutions through its interactive relationships with others:

> The [civic] tradition reverses this modernist, institutional orientation and takes the orientation of citizens in civic activities in the habitats they are enacted and carried on. Institutionalization is seen and analyzed as coming into being in unpredictable and open-ended ways out of, and in interaction with, the praxis of citizens – sometimes furthering, strengthening and formalizing these activities while at other times dispossessing, channeling, dominating, cancelling, downsizing, constraining and limiting. (Tully 2014: 35-6)

Here, citizenship is not granted and guaranteed by states but, instead, brought about through collective action and social freedom. In contrast to first and second-tier freedoms in the civil tradition,

> the crucial kind of freedom is thus neither the freedom from relationships of interdependency (negative freedom) nor the freedom of acting in conformity with allegedly ideal and universal legal relationships that 'we' impose on ourselves (positive freedom). It is the proto-civic and civic freedom of negotiating and democratizing in/over the always less-than-ideal relationships in which we live and breathe and become who we are. The only guarantee of freedom and democracy is, not surprisingly, the daily cooperative practices of democratic freedom in webs of relationships and on the fields of possibilities they disclose. (Tully 2014: 52-3)

As we see, civic freedom is thus neither merely understood as negative or positive freedom but as action in, with and against others. Furthermore, political participation is not simply a right and possibility, but rather an act and a perpetual praxis of being free. As Tully explains:

> The civic citizen manifests the freedom of participation. The free citizen is free in engaging in civic activities and, *eo ipso*, making these activities free. Civic freedom is not an opportunity but a manifestation; neither freedom *from* nor freedom *to* (which are often absent or suppressed), but freedoms *of* and *in* participation, and *with* fellow citizens. The civic citizen is not the citizen of an institution (a nation state or international law) but the free citizen of the 'free city': that is, *any* kind of civic world or democratic 'sphere' that comes into being and is reciprocally held aloft by the civic freedom of its citizens, from the smallest *deme* or commune to glocal federations. (Tully 2014: 39; original emphasis)

Translated back into our terminology, civic activities are a manifestation of ecological freedom with, through and against the other. In this sense, Tully's civic theory of democracy must obviously be understood as inherently participatory. We must, however, be precise in defining participation. Firstly, participation is neither to be limited to the realm of the state nor to be understood as something extraordinary, as if political engagement occurs after work and in our free time. Instead, participation must be understood as basic and constitutive of our interactions with the other. All activities are manifestations of participation in life, and it thus depends on everyday patterns of action that bring about different relationships and institutions. Or in other words: we cannot *not* participate in life and politics; the apolitical citizen is also inherently political. Political participation in everyday life can thus be more or less free. And by consciously acting in a self-organized manner, we make ourselves *even freer*.

Second, and as previously mentioned, participation is not something granted, but rather something realized through (collective) action and thus literally 'en-

acted'. Participation is thus not to be limited to actions *within* existing institutions (e.g. voting). Here, Tully defines four general types of civic activities, depending on the precise field of action one finds oneself in: (1) the range of activities available in and recognized by an existing government; (2) a certain range or "Spielraum" of "playing the civic game differently"; (3) the negotiation of governance relationships themselves; and (4) confrontation with the unjustified structural limits of the specific field (Tully 2014: 48-9). In this sense, Tully understands the processes of civic action as the participation in and transformation of existing relationships and institutions. As Tully explains:

> The civic tradition simply does not have this disenfranchising disjuncture problem. By starting from the premise that any community subject to and affected by a relationship of governance that harms a public good is for that very reason a citizenry with the civic right to hold the responsible party accountable through civic negotiations, it links democratic organization, networkization and civicized institutionalization directly to the specific power relationship at issue and at the most effective sites. (Tully 2014: 82)

The right to participate in the democratic codetermination of one's common reality is therefore not something that is provided for by institutions, but instead something that is acted upon when people feel negatively affected by existing circumstances. Through this collective action, they – hopefully or ideally – alter and codetermine the social arrangements in which they live. In this sense, Tully concludes that "to *civicize* governance relationships is – eo ipso – to '*democratize*' them" (Tully 2014: 49; emphasis added).

With this differentiation of the fields of action, we can ask ourselves to what extent this civic tradition of democracy is to be equated with direct democracy. Firstly, it must be clarified that this model of democratic law-making is not to be confused with a Marxist model of direct democracy in which there is no separation of powers (Held 1987: 116). Although the separation of powers is rarely discussed in Tully's civic model of democracy, he does emphasize that the existence of institutionalized procedures is of fundamental importance for the existence, stability and reproduction of democracies. Tully clarifies,

> This is not to deny the importance of institutionalized procedures. It is rather to observe that the way a person 'grasps' a procedural rule is not itself a procedure but a negotiated practice. […] Both our understanding of the rule and the actual rule itself are immanent in […] negotiated practices that cannot be circumscribed. *The living rule of law is the pattern of interplay and interaction of the negotiated practices*. This is the immanent or manifestation thesis of the civic rule of law. The unfolding of the rule of law, no matter how institutionalized and rationalized, is

> internally related to the indeterminate negotiated practices of the law. In a word, civic citizens are 'constructivists'. (Tully 2014: 56-7; emphasis added)

The point Tully is making here is that the separation of powers and the enforcement of procedures is not something that societies can simply rely on, because they, too, are created through practice and subject to conflicting interpretations and negotiations.

According to this interpretation, I would argue that Tully's understanding of an institution is very similar to the one George Herbert Mead defines, in his social behaviorist terminology, as "developments within, or particular and formalized manifestations of, the social life-process at its human evolutionary level" (Mead 1967: 262). This interpretation of social arrangements supports the idea that the cultivation of a specific ethic manifests itself in specific social patterns of action (e.g. utility maximization or an ecological care ethic). In turn, the negotiated conflict over patterns of action and social arrangements can support or impede the realization of certain norms and values that are consolidated in existing institutions. As we can see, this notion clearly contradicts the aforementioned Kantian notion of legal institutions which should be constructed for a "nation of devils".

Let me illustrate this with a few examples. If, for example, a large majority of people believes slavery to be legitimate, it is difficult if not impossible to legally abolish slavery. If people desire to eat large amounts of cheap meat, it is probably very difficult to prohibit intensive factory farming. If a large percentage of a people demands unlimited freedom to accumulate wealth, then it will be impossible to limit accumulation. If a society believes that competition brings out the best in us, it is highly improbable that one will be able to create a legal structure that fosters cooperation. It is irrelevant here, however, whether the majority of society actually owns slaves or has the ability to accumulate large amounts of wealth. It might be the case that only a small minority actually participates in such practices. Yet if the belief that these practices are morally legitimate, ethically commendable and socially valuable, they will most likely be broadly accepted and difficult – if not impossible – to alter.

Conversely, however, this does not imply that an altruistic morality of all individuals is necessary to create just and democratic institutions. Rules are created precisely in order to place limits on those actions of individuals that limit the freedom of others, on the one hand, and on conflict with socially accepted values, on the other. If everyone acted altruistically, rules would not be necessary. At the same time, if no one abided to the law, specific laws could not be enforced and would most likely not exist in the first place. Civic activity thus creates institutions, which, in turn, determine the structure of social patterns of action and the possibilities for future civic activity. As we can see, this concept of civic action echoes the principles of co-creation previously discussed in our non-dualistic, ecological understanding

of the relationship between human beings and nature. Here, human beings are responsible for the co-creation of their material and social reality. Or, in the words of Harry Boyte, Elinor Ostrom et al.: "a citizen is the co-creator of the worlds to which she or he belongs" (Boyte et al. 2014: 207). This is what Tully means by the inherent constructivism of the civic rule of law (Tully 2014: 57).

Eco-law, commons and commoning

Interestingly, Tully's notion of the civic activity of law-making is very close to what Fritjof Capra and Ugo Mattei describe as an ecological paradigm of law that is manifested in the commons. For them, a shift to an ecological understanding of law can only be realized through a "culture and genuine civic engagement" that "overcome both hierarchy and competition as 'correct' narratives of the legal order" (Capra/Mattei 2015: 134). This implies, on the one hand, that we must critically reflect and alter the normative values and mental frameworks that guide our everyday practices and constitute our institutional arrangements. On the other hand, an ecological conception of law also has the task of overcoming the state-market or state-individual dualisms and basing itself on a different conception of nature: the networked system. Much as in Tully's conception of civic democratic rule as a "network of relationships of negotiated practices" (Tully 2014: 56), Capra and Mattei argue that an ecological understanding of law "seeks to capture the complex relationships among the parts and the whole – between individual entitlements, duties, rights, power, and the law – by using the metaphor of the network and of the open community sharing a purpose" (Capra/Mattei 2015: 134). All three authors argue that law is not to be understood as a neutral and objective science that is merely constructed and implemented by experts and specialists, but should, instead, be understood as a craft or practical art (Tully 2014: 56) amounting to a "*non-professional* exercise in the sharing of collective meaning" (Capra/Mattei 2015: 135; emphasis added). The interpretation of law as a nonprofessional practice implies that everyone has the opportunity and the capabilities to partake in the definition – and possibly implementation – of the law. Thus, the nonprofessional character of law-making makes it democratic. That being said, Capra and Mattei go so far as to argue that in an ecological order, "the community [or network], not the individual or the state, is sovereign" (ibid.: 140). According to them, however, this does not imply that the state should wither away, but, instead, that local and global communities and networks should have the power to perpetually change and adapt their legal structures according to changing circumstances and needs. In this sense, Capra and Mattei argue that

> the new ecolegal order must allow collective agency to emerge […], reclaiming the law as a collective tool of political transformation. Such participatory decision

> making, both political and economic, is a crucial aspect of the need to put the legal system at the center of, not the individual physical or legal person, but the 'whole' – communities, networks, qualitative dimensions of relationships, with direct access to and stewardship of knowledge, law, and resources. (ibid.: 164)

The state and its monopoly of power to enforce laws does not disappear, therefore, but is 'reclaimed' and democratized through civic activities.

While Capra and Mattei place the term "community" at the center of their theory, the concept is not to be read as referring only to local geographical units. Due to this misunderstanding, Elinor Ostrom's cases have often been criticized for requiring too much homogeneity and for therefore being very limited in scale. In contrast to a close-knit notion of community, the concept of community developed here should rather be understood as networks of people pursuing common (or conflicting) interests on local, regional or global levels. Nevertheless, it must be emphasized that all communities are situated in local contexts – and in natural ones (ibid.: 164). The concept of a networked community thus rejects the nature-culture divide and always understands itself as a form of collective action within specific socially co-constructed landscapes and environments. This contextualization, however, does not prevent people connecting with others on the other side of the world. The main point is the negotiation of needs and desires, the pursuit of similar yet conflicting goals and the exchange of information and resources, be that local farmers developing an international seed bank or the international effort to protect local water resources from privatization. For this reason, James Tully calls this local-global networking "'glocalization' and the networkers 'glocal citizens' because they are grounded in and hyperextend the civic features of local citizenship" (Tully 2014: 73). The "glocal" community is thus not simply to be understood as a 'higher' cosmopolitan order but as a network of people that are engaged in concrete practices and conflicts that take place on the ground of and within specific social systems – even if they are dispersed across geographical locations (Tully 2008b: 84). These networks would then be the arenas of negotiation and would provide the "foundations for an international legal order based on independent, legally organized commons" (Capra/Mattei 2015: 144).[22]

That being said, Capra and Mattei acknowledge that communities can either be "giving, hospitable, and open to guests" or can be "selfish, closed and bigoted" (ibid.: 164).[23] However, the recognition of the interdependence of living beings underlying

22 For a more detailed discussion of how such a legal framework for commons would look like, see Weston and Bollier's *Green Governance: Ecological Survival, Human Rights, and the Law of the Commons* (2013).

23 Jeremy Waldron, for example, argues similarly in his article "Community and Property – For Those Who Have Neither" (2009): "Although 'community' can sound like a warm, inclusive word, real-world communities (be they nations, municipalities, neighborhoods, or clusters

this ecological legal paradigm should – at least theoretically – provide a basis for a care ethic which cultivate inclusive values. For this reason, Capra and Mattei argue that such ecological communities are "never closed" (ibid.: 164). With reference to the self-organizing principles of organisms, they also state that communities "depend on energy and nutrients from their environment, and on occasional disturbances for their evolution" (ibid.: 164). The question whether such communities and commons are inherently open or closed is a complex and often ethically delicate issue. Immaterial goods such as genetic code and information can be open-access, whether in a regulated or unregulated manner. The community of farmers that share their seeds is not threatened if someone else participates in their exchange practices. On the contrary, the community can benefit from this external influence. Such a community might, however, regulate this open-access commons by excluding people and corporations who wish to privatize the genetic-code of seeds, which would diminish the quality of their seed commons. With reference to Elinor Ostrom I would also argue that complete openness is also problematic in the case of limited, material goods such as land, if people aim to effectively deal with free riding and the overuse of resources. Here, I would maintain that material, common goods should remain closed to people pursuing maximization strategies that lead to the depletion of these resources. This could, for example, place the rights of indigenous people to use resources over those of corporations (Weis 2015). Conversely and in line with Elinor Ostrom's third design principle,[24] I would, however, also argue that the inclusion of 'others' is based on the general right of affected people to access vital resources and to codetermine the institutions that govern those resources. In reference to access and participation rights, this should theoretically also include, for example, refugees, immigrants or homeless people who are in need of resources for their survival (Waldron 2009).[25]

While the principle of affectedness is one way to determine inclusion in a specific networked community, another – and possibly more straightforward – means

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of condominiums) characteristically define themselves by reference to an array of excluded 'others' and erect fences and patrol borders to keep these others out." (Waldron 2009: 189) Although I would agree with Waldron that real-world communities are often exclusionary, I would deny the claim that they always are or that the principle of exclusion is inherent in communities as such. The arrangement of a community depends on a shared ethic, whether inclusionary or exclusionary, and, in more formal cases, on a specific constitution that structures its openness and closedness.

24 Elinor Ostrom defines the third design principle in her book *Governing the Commons* in the following manner: "Most individuals affected by the operational rules can participate in modifying the operational rules." (Ostrom 2008a: 90)

25 This is, for example, in contrast to 'expats', who are not in such a destitute situation. Obviously, 'affectedness', 'vital resources' and thus 'inclusion' are highly contested concepts and can therefore not be determined in abstraction or in advance, but are defined in the practices of civic collective action and negotiation.

of community formation is the pursuit of common interests and realization of common goods. For Tully, this provides a people with both a common purpose for their civic activities and an ethos of caring. In his words:

> A civic activity also has another important aspect, the telos or good towards which the activity is oriented and which the activity upholds and manifests. It gives the activity its civic character or ethos. A civic telos is thus a 'civic good'. Modern citizenship is 'egocentric', oriented towards the protection of the liberty of individuals to be free from interference and to be free to exercise their autonomy in the private sphere (tier-one rights) or in the official public sphere (tier-two rights). In contrast, diverse citizenship in both citizen and governance/citizen relationships is ecocentric and human-centric (or relationship-centric in both cases). Civic activities are oriented towards *caring for* the public or 'civic goods' of the correlative 'city': namely, the community and its members bound together by citizen/governance and citizen relationships in interdependency relationships with nonhuman animals and the environment they bear as inhabitants of the natural habitat. (Tully 2014: 64; original emphasis)

While Tully speaks of civic common goods, Capra and Mattei explicitly speak of commons. Nevertheless, by placing common purposes and commons at the center of their theories of civic democracy and eco-law, the authors break with the tradition of "deontological liberalism" (Sandel 1986) as propagated by Immanuel Kant and John Rawls (1988). According to Michael Sandel, deontological liberalism assumes a plurality of conflicting individual conceptions of the good and therefore places the right (the law) over the good (a specific notion of the good life).[26] While Kant argues that the right should be attained through the use of one's transcendental reasoning and finally through contract, Rawls maintains that the right can be defined by means of a thought experiment envisaging a veil of ignorance and by means of an overlapping consensus. In the civic tradition and eco-legal paradigm, by contrast, the civic good is understood as an inherent part of all institutions, communities – and a constitutive part of the ontological fabric of a common reality. Norms and justice are brought about not merely through reason and contract, but, first and foremost, through pre-contractual social practices.

According to Tully, these common goods are "multiplex" and "subject to ongoing democratic negotiation" (Tully 2014: 64). For him, they include diverse democratic

26 As Sandel explains, "society, being composed of a plurality of persons, each with his own aims, interests, and conceptions of the good, is best arranged when it is governed by principles that do not themselves presuppose any particular conception of the good; what justifies these regulative principles above all is not that they maximize the social welfare or otherwise promote the good, but rather that they conform to the concept of right, a moral category given prior to the good and independent of it" (Sandel 1986: 1).

goods such as "civicizing" relationships, character development and conviviality and more substantive goods such as "caring for the environment, economic self-reliance, mutual aid, fair trade, equality among citizens and so on" (ibid.). While Tully's list of these goods remains somewhat general and vague, Capra and Mattei step back and claim that law itself must be understood as a commons that results from collective action or "commoning" (Capra/Mattei 2015: 14, 160). They explain that "law is always a process of '*commoning*,' a long-term collective action in which communities, sharing a common purpose and culture, institutionalize their collective will to maintain order and stability in the pursuit of social reproduction" (ibid.: 14; original emphasis). Here, the civizicing activities that Tully describes can be equated with what Capra and Mattei refer to as commoning. According to Capra and Mattei, the "fundamental organizational principle of commoning everywhere is that of caring, duty, reciprocity, and participation" (ibid.: 156). Commoning thus implies the process of collectively using and bringing about common goods in a manner that ensures the future reproduction of the good. This is ensured when people who are affected by the resource are included in both the definition and adaptation of its institutional framework and the fair use and enjoyment of its benefits.

So, what precisely *are* commons, if we base our thinking on the notion of civic collective action? It should be clear that this dynamic and process-oriented interpretation of commons goes beyond the definition presented by the Ostroms and other political economists. Recall that according the classical, politico-economic definition commons are limited to common-pool resources, meaning goods that are rival and where the exclusion of others is difficult (i.e. costly). As we have already argued, these resources could, however, be organized as national, private or common property – each with their corresponding institutional arrangements. An important insight we derived from that discussion was that whether something should be held in common cannot be derived from the objective descriptive characteristics of that something. The question whether something should be held in common or not is not merely a question of an entity's phenomenological characteristics but largely depends on whether people want to hold a specific good in common – and the relevant social institutions that realize this. Whether something is considered to be a commons, thus, depends on the desires, values and norms of a community. In this sense, commons can be understood as a triadic relationship between resources, communities and norms/rules (Helfrich et al. 2010: 10). Nevertheless, this shift from the objective description of a good to social relationships and institutions remains somewhat dualistic and neglects the dynamic process of co-creation of reality through commoning. The existence of a common is thus not merely a descriptive or normative *question*, but, more importantly, a question of social *practice*. Capra and Mattei therefore emphasize that common resources and goods can therefore not be separated from the activity of *making* them common

(Capra/Mattei 2015: 153). Or, as historian Peter Linebaugh explains in this often-quoted passage:

> To speak of the commons as if it were a [pre-existing] natural resource is misleading at best and dangerous at worst – the commons is an activity and, if anything, it expresses relationships in society that are inseparable from relations to nature. It might be better to keep the word as a verb, an activity, rather than as a noun, a substantive. (Linebaugh 2008: 255)

We must thus conclude that our previous question is somewhat misleading. We cannot simply say what commons *are*. That would assume that commons are objective things that exist independently from people. Such an understanding of commons would substantivize the concept and neglect both the normative and performative characters of commoning as a "vital determinant" of commons (Euler 2018). In this sense, commons scholar and activist Silke Helfrich states that "common goods don't simply exist – they are created" (Helfrich 2012a). Hence, commons cannot be limited to what is traditionally known as common pool resources, but must be understood as a civic activity of self-organizing or 'commoning' that both brings common goods about and democratizes their institutional frameworks. Giving attention to practices of commoning enables us to recognize our shared reality as a commons. It also enables people to care for their own well-being and the well-being of others according to the ecological principles of freedom.