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RESEARCH ARTICLE

Becoming-Mobile: the Philosophy of Technology of Deleuze and Guattari

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Abstract

Deleuze and Guattari's *Thousand Plateaus* includes some useful concepts to understand technologies and their relations to humans as individuals and as a society. This article provides an introduction to their notions of machine and becoming and places them in the context of technological use in general, with a special focus on the cellphone. The concept of machine exceeds the technological context, yet it can be still relevant to technologies, especially digital ones. The concept of becoming assists in better understanding co-shaping processes in which a technology and its users change in tandem. Becoming is analyzed as a set of five characteristics: [1] transduction, a change process in both the user and the technology; [2] rhizome, no starting or end point; [3] molecularity, small movement or change that can create a big difference; [4] partial simulation, creating a non-identical copy; and [5] anti-memory, forgetting the past. Based on this analysis, the concept of becoming-mobile is introduced as a new way of understanding the interrelations between humans and their cellphones. Becoming-mobile can be further developed either with Deleuze and Guattari's own concepts such as nomadicism or with "external" concepts such as postphenomenology's embodiment and new mobility studies' virtual mobility. Machine, becoming, and becoming-mobile address some basic questions in philosophy of technology, thereby enabling us to refer to Deleuze and Guattari as philosophers of technology.

Keyword Deleuze; Guattari; Machine; Becoming; Technology; Cellphone

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1 Deleuze and Guattari as Philosophers of Technology

As digital technologies become dominant in our lives, we re-read the works of some of the leading philosophers and extract from their writings the implicit references to technology, thereby positioning them as philosophers of technology. This is how Don Ihde reads Maurice Merleau-Ponty (Ihde, 1990), Stephen Dorrestijn reads Michel Foucault (Dorrestijn, 2011), Yoni Van Den Eede reads Marshall McLuhan (van den Eede, 2012), and Wessel Reijers, Alberto Romele, and Mark Coeckelbergh read Paul Riceour (Reijers & Coeckelbergh, 2016; Reijers et al., 2021). In this article, I re-read the philosophy of Gilles Deleuze and Felix Guattari as a philosophy of technology. This task is relatively easy as they already made some explicit references to technology, especially to machines, though their interpretation of the notion is much wider than the technological artifact.

David Savat (2009) notes that most of the reading of Deleuze's work in the context of new media and digital technologies focuses on his late-life text "Postscript on the Societies of Control" (1992). Likewise, in that context, references are made to Guattari's *Chaosmosis* (1995), especially to the second chapter where he discusses machines. In this article, however, I wish to root the discussion a decade earlier, in *A Thousand Plateaus* ([1980] 1987), and show how their joint work can serve as a basis for a philosophy of technology, thereby enriching this field with additional sources.

In reading *A Thousand Plateaus*, I focus on two of notions that I found mostly relevant to philosophy of technology — machine and becoming. The first can be straightforwardly related to technology, especially in light of their reference to the "technical machine," yet Deleuze and Guattari's rich analyses of this notion shed a new light on our understanding of technologies and charge the concept of the machine with new meanings. The second notion of becoming might seem as less applicable to technology, but a close reading of the relevant parts in *Thousand Plateaus* will show how it can serve to better understand complex technological processes in which the user and the technology transform and what philosophy of technology terms as co-shaping and co-constitution. It will provide an analytical framework to systematically analyze co-shaping processes.

This article consists of five main sections. In the first section, I discuss Deleuze and Guattari's notion of machine and contextualize it with digital technologies. The second section is devoted to becoming and how it is relevant to the analysis of technologies. The third section expands on the subset notion of "becoming-mobile" and attempts to show how the cellphone transforms the human user. I hope that the example of becoming-mobile will inspire additional analyses of the co-shaping processes between humans and other digital technologies. The fourth section examines how the analysis of becoming-mobile can be further developed either with other concepts of Deleuze and Guattari such as nomadicism, with philosophy of technology's concepts such as postphenomenology's embodiment, and with more general terms such as new mobility studies' virtual mobility. The last section returns to positioning Deleuze and Guattari as philosophers of technology and highlights the challenges of this task in light of the indeterminacy of the field.

2 Machine

It is interesting to note that the concept of machine does not appear in the *Deleuze Dictionary* (Parr, 2005) nor does technology appear there. This anecdote highlights the importance of re-reading Deleuze and Guattari as philosophers of technology. Such a reading can be found in recent years, for example, in collections like *Deleuze and New Technology* where Verena Andermatt Conley observes that "Deleuze and Guattari seem obsessed with machines and technologies" (Conley, 2009, p. 32).

Moreover, most of the analyses of Deleuze and Guattari's work discuss machines in the non-technical non-actual sense, as a concept representing the organization of various components and for describing how they are related to each other (Savat, 2009, pp. 2–3; Bogard, 2009). Indeed, the concept of machine in their work exceeds the technical artifact, yet there are some interesting references to machines in their technical–industrial sense. In this section, I follow Conley and review three interpretations of Deleuze and Guattari's concept of machine, especially with regard to technical artifacts or in today's common terminology — to technology.

2.1 Machine as Technology

The first interpretation simply refers to the machine as a synonym to technology. This is reflected in Deleuze and Guattari statement: "the book itself a little machine" (p. 25). If the book as a technology can be considered a machine, anything can be considered a machine.[1] Marco Altamirano (2014) explores this affinity and highlights the commonalities between Foucault's concept of technology and Deleuze and Guattari's concept of machine. In both cases, the concept of machine/technology is not limited to "nonhuman material architectures" (p. 14) and is not opposed to social sciences and humanities. Machine and technology are concepts that are much wider and enable us to understand also abstract things like desire and government, in addition to their material connotation.

To better grasp the notion of machine, Altamirano explores how it is related to the general notions of synthesis and flow. With regard to synthesis, what is important in a machine is not so much its individual components but rather the ensemble, i.e., how the parts relate to each other. It is through the synthetic composition that the relations are constituted. With regard to flow, once the machine operates, it "inhabits" a temporal flow, which can be a flow of information in the case of a computer, or of money in the case of an economic system. The flow is an internal property of the machine at the individual level, yet its consequences are visible to the outside world, especially when several machines operate together. Based on this "technical" understanding of the machine, Altamirano links machines to technologies and assign to both wider implications: "Just as technologies are unintelligible apart from the social orders that facilitate them, machines are indistinguishable from their connections with other machines and flows within an assemblage" (p. 33).

[1] For Deleuze and Guattari, the book as a machine has several modes of usage such as reading linearily or rhizomatically.

Both machine and technology thus function as part of a larger flow and are interconnected to each other.[2]

For Matteo Pasquinelli (2015), the notion of machine serves as a bridge between the machines of the industrial revolution as described by Karl Marx on one hand and contemporary computers conceived as digital machines on the other hand. Such a reading is based on the etymology of machine, rooted back to the Latin word machina and the Greek mechané. These ancient words imply meanings of "medium, tool, artefact, apparatus, structure" (Pasquinelli, 2015, p. 58), which are shared by industrial machines and digital technologies such as cellphones.

Pasquinelli further develops this link to be based on Deleuze and Guattari's subnotion of "abstract machine":

> Abstract machines consist of unformed matters and nonformal functions. Every abstract machine is a consolidated aggregate of matters-functions. … This is evident on a technological "plane": such a plane is not made up simply of formed substances (aluminum, plastic, electric wire, etc.) or organizing forms (program, prototypes, etc.), but of a composite of unformed matters exhibiting only degrees of intensity (resistance, conductivity, heating, stretching, speed or delay, induction, transduction . . .) and diagrammatic functions exhibiting only differential equations or, more generally, "tensors." … Abstract, singular, and creative, here and now, real yet nonconcrete, actual yet noneffectuated... (p. 511)

Pasquinelli hints on a surprising resemblance between the abstract machine as developed by Deleuze and Guattari and as developed in cybernetics. According to cybernetics, "an abstract machine is the project of an algorithm that subsequently can be implemented in a virtual machine, such as computer software, or in a material machine, that is, computer hardware or any mechanical apparatus" (2015, p. 57). He finds the cybernetics' interpretation to be inspiring for the contextualization of the machine in the digital era. Pasquinelli concludes that algorithms are abstract machines that obey the rules of industrial machines as formalized back by Marx, namely "as a machine for the control, accumulation and 'augmentation of surplus value'" (2015, p. 63). He claims to identify such meanings already in the old etymologies mentioned above (2015, p. 58).[3]

The readings of Altamirano and Pasquinelli practically refer to Deleuze and Guattari as philosophers that deal with technology, whose concepts are applicable and useful for understanding contemporary digital technologies. Yet, both also refer to machine in a non-technological social context. This kind of interpretation is classified here as "technology as machine" and is discussed in the next sub-section.

[2] Although similar, Altamirano attempts to eventually distinguish between machine and technology by pointing to the duo "operator and operated" (p. 31) which are not easily distinguished. He further attempts to differentiate between machines and technologies by claiming that technologies are conscious and machines are unconscious. It is a complicated classification and its consequences are not clear.

[3] Pasquinelli's reading is influenced by, inter alia, Deleuze's "Postscript on Societies of Control" (1992), discussing the shift from the Foucauldian disciplinary societies to what Deleuze identifies already at the beginning of the Internet as societies of control.

2.2 Technology as a (War) Machine

> But the principle behind all technology is to demonstrate that a technical element remains abstract, entirely undetermined, as long as one does not relate it to an assemblage it presupposes. It is the machine that is primary in relation to the technical element: not the technical machine, itself a collection of elements, but the social or collective machine, the machinic assemblage that determines what is a technical element at a given moment, what is its usage, extension, comprehension, etc. (Deleuze & Guattari, 1987, pp. 397-8)

In the Deleuze and Guattari secondary literature, the common interpretation of machine emphasizes the importance of the machine-as-a-social-assemblage over technology-as-a-machinic-assemblage, so that technology is a kind of machine. This angle places importance on the usage of the machine/technology and studies not only the technical aspects but also the social. Although Altamirano and Pasquinelli refer to machines as technologies (as discussed in the previous sub-section), they expand the machine towards social mechanisms — through the analysis of synthesis and flow by the former or abstract machines by the latter.

The interpretation of "technology as machine" can be based on *Thousand Plateaus*' chapter titled "Nomadology," in which Deleuze and Guattari characterize the war machine as more than a weapon. For them, this is a concept opposed to the "state apparatus" and the empire, albeit it may function with these entities on some occasions.

The war machine is characterized as innovative in its ways of operation as well as in its ways of development which are based on technological innovation (p. 360). It was invented by nomads who moved freely in the open spaces of the desert, and it somehow preserves their free spirit. Today's technological innovation discourse stresses this free spirit of the inventors, especially in the jargon used in silicon valley, silicon alley, silicon vadi, and other innovation centers around the world. Thus, the war machine inspires specific forms of developments which eventually yield specific forms of technology.

Another characteristic of the war machine that shapes contemporary technologies is its "numerical organization" (p. 388). This form of organization means more than digitality: the numbers are used not just for counting; they are means of moving things (p. 392). After the Cambridge Analytica affair, it becomes clearer what it means for numbers to ignite movement and how the digital makes people operate in the world and transform the political landscape (see Zuboff, 2019).

To clarify the notion of war machine, Deleuze and Guattari compare tools and weapons, work and war, and production and distraction. Against the common tendency to prefer tools over weapons,[4] Deleuze and Guattari incline towards the latter. They detail some of the weapon's characteristics in a positive way: first, the weapon is involved in throwing things such as arrows, stones, bullets, or rockets in a ballistic

[4] (see Caliskan et al. (2017) showing through a big data analysis that the word instrument is usually related to "pleasant" words, while the word weapon is related to "unpleasant" words).

sense, thereby establishing a projection that is practically future looking. Second, weapons have a deep relation to speed: "the weapon invents speed, or the discovery of speed invents the weapon" (p. 395). Third, weapons are linked to a "free action model" thanks to their origins in nomadic inventors, whereas the tool's work is limited by the resistance of materials, gravity forces, etc. These characteristics position the weapon as a productive machine, no less than the tool.

Nevertheless, the tool and the weapon share some basic similar logic because they are both "technologies," that is — assemblages of technical elements that are dependent on "variable assemblages of human, animal and thing" (p. 399). This dependency may appeal to a postphenomenologist reader who studies the interrelations between humans and their technologies. What Deleuze and Guattari would add is that the usages of both the tool and the weapon require passion, beyond mere rationality and efficiency, as implied by today's common jargon.

By positioning weapons as a technology like the tool, Deleuze and Guattari widen the scope of the notion of machine from its relatively limited tool-oriented industrial connotation. They also attempt to overcome the negative tone frequently associated with weapons. Such a philosophy of technology can frame the discussion that ties contemporary technologies — like Teflon pans — to military inventions such as missiles or those involved in space exploration. Regarding the war machine as a framework encapsulating the three features of future orientation, speed, and freedom, we can think of digital technologies such as computers and artificial intelligence (AI) as war machines. From this perspective, their military usages since the second half of the twentieth century seem to be an integral part of their "identity." Thus, no wonder that these characteristics, as well as the passionate use, operate in today's digital environment and may explain how it has been shaped. Cellphones are paradigmatic for these environments, although their origins are not uniquely military. They exemplify how a war machine operates in everyday life.

2.3 Machine as a Modern Technology

A third interpretation of the notion of machine is historical. Here, machine is understood as a particular type of technology dated to Early Modernity (e.g., Pasquinelli, 2015), so that some of the social structures of late Middle Ages and Early Modernity are still embedded in it until today. This interpretation is historical in the sense that it assumes that each age has its own machines. Deleuze and Guattari write: "These three 'ages,' the classical, romantic, and modern (for lack of a better term), should not be interpreted as an evolution, or as structures separated by signifying breaks. They are assemblages enveloping different Machines, or different relations to the Machine" (1987, p. 346). Therefore, every technology reflects the historical period in which it was developed.

While Altamirano and Pasquinelli attempt to position digital technologies as a kind of machines, my reading aims to differentiate between machines and digital technologies and between them and tools. All three — tools, modern machines, and digital technologies — fit within Deleuze and Guattari's category of "technical machines, which are definable extrinsically" (p. 457), yet the differences should be

sought in another plateau. A starting point can be Deleuze and Guattari's endeavor to "distinguish machinic enslavement and social subjection as two separate concepts" (p. 456). The difference between enslavement and subjection, according to Deleuze and Guattari, is that in enslavement, the human finds herself functioning internally as part of the (abstract) machine "under the control and direction of a higher unit" (p. 456), whereas in subjection, the human is constituted as an independent entity.[5] Therefore, modern machines produce a special effect on their users so that "One is not enslaved by the technical machine but rather subjected to it" (p. 457).

A major difference between today's users of digital technologies on one hand and the users of tools and industrial machines of Marx's time on the other is of a social regime. In this regime, both enslavement and subjection operate on the user. Deleuze and Guattari rightfully identified in the 1980s the uniqueness of the digital age, as an age in which we witness "The reinvention of a machine of which human beings are constituent parts, instead of subjected workers or users" (p. 458). They provide a short historical overview:

> If motorized machines constituted the second age of the technical machine, cybernetic and informational machines form a third age that reconstructs a generalized regime of subjection: recurrent and reversible 'humans-machines systems' replace the old nonrecurrent and nonreversible relations of subjection between the two elements; the relation between human and machine is based on internal, mutual communication, and no longer on usage or action. (p. 458)

Today, "Rather than stages, subjection and enslavement constitute two coexistent poles" (p. 459). They function "as two simultaneous parts that constantly reinforce and nourish each other" (p. 458). Thus, the digital age brings a mixture of medieval enslavement and modern subjection, according to Deleuze and Guattari. They exemplify this mixture by reference to the prominent technology of the time of writing *Thousand Plateaus* — the television":

> For example, one is subjected to TV insofar as one uses and consumes it, in the very particular situation of a subject of the statement that more or less mistakes itself for a subject of enunciation ('you, dear television viewers, who make TV what it is . . .'); the technical machine is the medium between two subjects. But one is enslaved by TV as a human machine insofar as the television viewers are no longer consumers or users, nor even subjects who supposedly 'make' it, but intrinsic component pieces, 'input' and 'output,' feedback or recurrences that are no longer connected to the machine in such a way as to produce or use it. In machinic enslavement, there is nothing but transformations and exchanges of information, some of which are mechanical, others human. (p. 458)

[5] "Becoming someone who stands on his or her own and speaks in his or her own name—subjectification—is subjection and subjugation" (Lingis 2007, p. 116). For the discussion on subjection and subjectification, see Lingis (2007).

The television epitomizes the combination of subjection and enslavement in the usage modes but also in its very positioning within the home, in contrast to machines and tools that were placed in the factory, the workshop, or the battlefield in the case of war machine. In a footnote, Deleuze and Guattari mention science fiction author Ray Bradbury for whom television functions "not as an instrument located at the center of the house, but as forming the walls of the house" (p. 570, fn. 57). Once it is located in the middle of the home, the television subjectifies the inhabitants of that home. At the same time, it functions as virtual walls (cf. Wellner, 2011) that encourage the users to stay at home, thereby turning the home into a prison-like or slavery-like from which it is difficult to escape.

Deleuze and Guattari's prime example is television, but their description perfectly fits cellphones and other contemporary digital technologies, especially when used for social networking: the feeling of being part of a large network (subjection) combined with a sense of difficulty to stop using it (enslavement). Thus, a cellphone can be described as a "technical machine" but also as an "abstract machine" that obeys different rules than that of the industrial machine or the pre-modern tool. The users are subjected and enslaved at the same time.

To sum, each of the three interpretations of the notion of machine can be found in the rich text of *A Thousand Plateaus*. These multiple perspectives, although pulling to different directions, complement each other and produce a sophisticated framework to analyze technologies and their relations to humans, whether users or not.

3 Becoming

Deleuze and Guattari employ the notion of becoming in order to denote that which keeps moving, that which is always unstable. This notion stresses transformation, changing, and flux. The state of change is the essence of becoming.[6] They demonstrate the tension between becoming and stability with an allegory-like comparison between the bull and the ancient fish. The strategy of bull in the arena represents stability as the bull attempts "to regain its associated milieu when danger appears" and to recapture "the turf it had chosen" (Deleuze & Guattari, 1987, p. 55). This is of no surprise to the spectators who expect and even anticipate these attempts. The bull sticks to the rules even at the price of its own life. Deleuze and Guattari contrast this strategy against that of the ancient fish that represents becoming:

> When the seas dried, the primitive Fish left its associated milieu to explore land, forced to 'stand on its own legs,' now carrying water only on the inside, in the amniotic membranes protecting the embryo. . . the animal is more a fleer than a fighter, but its flights are also conquests, creations. (p. 55)

[6] William E. Connolly rejects the view that "everything is always in flux," and suggests that there are "periods of relative arrest and... heightened imbalance and change, followed again by new stabilizations" (Connolly, 2011, p. 44). However, in reality, it is rare to have a period of stabilization in which nothing changes. Transformations are the rule rather than the exception, and they vary in their frequency and intensity.

In fact, the ancient fish has no clear strategy. It reacts to the gradual change of the slowly drying seas that renders its life impossible. In this situation, the bull would have fought to remain the same while keeping its position in the drying sea, but the fish develops a different reaction: it becomes and radically transforms by cultivating a new modus operandi.

Becoming is a process that is not necessarily linear or predictable. It unfolds as a response to a stimulus that appears in various forms and moves to different directions. It is a general phenomenon and a basic principle of life that we all go through. For instance, growing up is a becoming that each adult went through, accompanied by external visible changes in the body and less visible mentally. Even as adults we keep changing in a series of endless becomings. In the technological context, the metaphor of the ancient fish nicely describes how the cellphone became the carrier of our memories and future plans. Pictures and navigation maps that were once "outside" are now carried "inside" as the users explore the world. The ancient fish reminds us that it is important to maintain this mode of usage, as an opposition to the machinic enslavement and subjection described above.

This opposition is reflected in the ways in which Rosi Braidotti differentiates between two types of becoming: one that "operate[s] a much-needed dislodgement of dominant subject positions (masculinity, heterosexuality, whiteness, gerontocracy, Euro-centrism in the imperialist mode)," and another type in which a becoming "mark[s] instead the conditions for the affirmation of new subject positions and thus lay the foundations for possible futures" (Braidotti, 2003, 55). These two types of becoming can be found in *Thousand Plateaus* as two grammatical forms: becoming + object or becoming + adjective. The first is about becoming-minoritarian, the other is about becoming-molecular.

Deleuze and Guattari devote a significant amount of discussion to the first form of becoming that focuses on an object/entity as a container for a group of traits. In this category one may find the becoming-animal, becoming-woman, and the like. Deleuze and Guattari are mainly interested in the sub-group of becoming-minoritarian, defined against the majority of Western male adult, forming the epicenter of Braidotti's analysis. They write, "There is no becoming-majoritarian, majority is never becoming" (1987, p. 106). And add, "You don't deviate from the majority unless there is a little detail that starts to swell and carries you off" (p. 292). A becoming starts as one differentiates himself or herself from the majority. It is important to remember that majority and minority are not a simple reflection of quantities but frequently refer to a state of mind. "A minority can be small in number; but it can also be the largest in number, constitute an absolute, indefinite majority" (p. 469). For example, Occupy Wall Street has shown how the 99% became a minority in the capitalist Western societies. Likewise, Braidotti (2003) positions the becoming-woman as a strategic process that begins with adopting a minority perspective from which diverse options are made available. Such a becoming is not bound to the traditional dichotomies of man–woman, and it requires some effort and labor. Deleuze and Guattari note, "Even Jews must become-Jewish (it certainly takes more than a state)" (1987, p. 291). They stress that external visible signs or grandiose statements do not suffice. Becoming is a process that requires an investment of energy, physical, and mental. Although becoming is described by a single reference

type like animal, the process of becoming involves a set of traits associated with that reference and may result in multiple transformations in several characteristics.

The second form of becoming uses an adjective: becoming-molecular, becoming-intense, becoming-expressive, and becoming-cosmic, to name a few. Unlike the becoming-minoritarian, which refers to the target of the becoming (i.e., animal) as a group of traits, the becoming + adjective refers to the process of acquiring a specific trait. This second form gains less attention in the secondary literature, but it is of special importance to philosophy of technology and especially to the effort to understand how technologies transform their users.

Yet, both forms of becoming share some common elements. The following subsections detail five elements of becoming that are relevant to analyses of technology: transduction, rhizome, molecular process, partial simulation, and anti-memory.

3.1 Transduction

Etymologically, the word transduction originates from the Latin verb tranducere which means to change over or convert. Indeed, the word hints at a change and transformation, thereby stressing the importance of change in the concept of becoming. It is closely related to the concepts of co-shaping in philosophy of technology and recursion in computer programming. In philosophy of technology, the notion was introduced by Gilbert Simondon, who defines transduction as:

> A process—be it physical, biological, mental or social—in which an activity gradually sets itself in motion, propagating within a given area, through a structuration of the different zones of the area over which it operates. Each region of the structure that is constituted in this way then serves to constitute the next one to such an extent that at the very time this structuration is effected there is a progressive modification taking place in tandem with it. (Simondon, 1992, p. 313)

Simondon describes transduction as a special process that occurs in a system composed of (at least) two elements. He focuses on how these elements are interrelated. His well-known example for transduction is the chemical reaction that creates a crystal. Once the solution–liquid's balance changes, a grain of a crystal is formed, and this grain produces further imbalance in the liquid.[7] It is a recursive process running in an almost endless loop in which each "output" becomes the "input" for the next round.

For Adrian Mackenzie (2002), Simondon's notion of transduction denotes a process of individuation, that is — of becoming an individual (p. 18). Transduction is tightly linked to the notion of technicity, as both "account for how things become what they are rather than what they are" (p. 16). Yet the notion covers not only technology but rather a wider range of domains. Mackenzie further argues that it can

[7] In his late work, Deleuze develops the example of the crystal to better understand the cinema (Deleuze 1989). The crystal metaphor serves to denote development in time, a state of growth and expansion, developing layer after layer, producing a complex structure.

be (and should be) expanded from physical, biological, and technological processes also to thinking. He explains: "To think transductively is to mediate between different orders, to place heterogeneous realities in contact, and to become something different" (ibid).

An alternative interpretation to transduction is provided by Yuk Hui (2015) who refers to transduction as a logic operator, related to induction and deduction: if induction is the process of deriving general principles from particular facts thereby uniting them to some extent and if deduction goes in the opposite direction, that is, from the general rule to the particular facts, then transduction seems to aim at catching both ends of the general and the particular. Hui explains that transduction is needed as a third model that, "on the one hand, grasps the transcendental without losing the empirical; and, on the other, firmly grounds the psycho-social affects produced by media technologies in their technical reality" (p. 11). For Hui, transduction is not automatically relevant for each and every process or action, as "Transduction demands a system that is already energetic and ready to undergo a structural transformation" (p. 12). These qualities, he argues, makes it suitable to understand the complex operation of digital objects. Thus, he reads Simondon's explanations as "provid[ing] a type of thinking that doesn't move uni-directionally from inside to outside, outside to inside, individual to collective, collective to individuals, but rather presents itself as the empirical process of the transformation of forms and structures" (p. 12).

Whereas Mackenzie and Hui read Simondon as a philosopher of technology, I read the interpretations and implementations offered by Deleuze and Guattari in order to position them as philosophers of technology. Both types of explanations can be found in *Thousand Plateaus*. Whereas Simondon focuses on chemistry with the example of the crystal, Deleuze and Guattari extend transduction to biology with the examples of the symbiosis between red clover and the bee and the orchid and the wasp, as well as music and literature. In all these examples, although each part retains a separate identity, they influence each other in a gradual process.

Deleuze and Guattari highlight the dualistic nature of the change process: "The human musician is deterritorialized in the bird, but it is a bird that is itself deterritorialized, 'transfigured,' a celestial bird that has just as much of a becoming as that which becomes with it" (1987, p. 304). The transductive change goes in two directions and affects both the musician and the bird. Another example for the dual change comes from the literature: "Captain Ahab is engaged in an irresistible becoming-whale with Moby-Dick; but the animal, Moby-Dick, must simultaneously become an unbearable pure whiteness, a shimmering pure white wall..." (p. 304). Here again becoming influences both parties. Not only is the one who becomes being transformed, but also the target of the becoming is altered. And yet, these transformations are not necessarily reciprocal, simultaneous, or coherent. Positioning becoming as transduction emphasizes the inter-dependent changes in a dualistic ecosystem. Likewise, in philosophy of technology, this principle is expressed in the notion of co-shaping that implies the changes in humans as much as in their technologies. The prefix co of co-shaping (and co-constitution) indicates the interrelatedness of the change processes that these complex systems go through.

A transductive process cannot be well-planned in advance; it is exploratory and risky. Simondon clarifies that "transduction cannot be presented as a logical procedure terminating in a conclusive proof" (Simondon, 1992, p. 314). The results are likely to be surprising. Becoming, like co-shaping and co-constitution, goes beyond the intentions of engineers and designers. It reminds us again that the meeting point of technologies and humans yields surprising outcomes. This logic is depicted by Ihde's concept of "designer fallacy" (Ihde, 1999) and Stiegler's idea of the decentering of the inventor so that "the logic of invention is not that of the inventor. One must speak of a techno-logic, of a logic literally driving technics itself" (Stiegler, 1998, p. 36).

Deleuze and Guattari adopt Simondon's transduction as a process and as a logic operator. It leads them to reject the model and Darwinian evolution that is receptive to the outside world. Instead, they prefer the model of involution, which is based on a change that happens from within the system (cf., Barnet, 2004). Such a mode of change requires a nonhierarchical modeling of evolution, as offered by the concept of the rhizome.

3.2 Rhizome

The term rhizome comes from biology denoting a kind of a plant combined of several nodes, from each of which roots and shoots originate. Deleuze and Guattari utilize the term as a metaphor for a wild grid-like structure that resembles the street maps of London or Rome, rather than those of well-planned cities like New York. The same principle can be found ANT's notion of network (Latour, 1999) that has no center and no clear edges.[8]

The rhizome is a fundamental concept in *Thousand Plateaus*. It is implemented even before the book starts, when Deleuze and Guattari provide a short "authors' note" ahead of the first chapter, in which they recommend how to read their book. They write: "This book … is composed not of chapters but of 'plateaus.' … To a certain extent, these plateaus may be read independently of one another, except the conclusion, which should be read at the end" (Deleuze & Guattari, 1987, p. 0). It is an invitation to a different form of reading resembling machine reading that scans a text by keywords (cf. Hayles, 2010; Wellner, 2017, 2018). Reading a book by keywords is a new way of utilizing the book technology and may assist us to find new meanings in the text.

The rhizome is the underlying structure of becoming. It is an open-ended configuration that moves in all directions. We cannot detect its starting point, center, or end. Thus, the rhizome (and becoming) should not be conceived in terms of progression or regression.

Deleuze and Guattari position the rhizome as an alternative to the tree-like models. They explain that "becoming is a rhizome, not a classificatory or genealogical tree" (1987, p. 239). The rhizome reveals that becoming does not have a fixed

[8] We should be careful not assign the rhizomatic structures to every contemporary technology. Cf. Buchanan 2009 for an analysis explaining why the Internet cannot be regarded as a rhizome.

arrangement like in a hierarchical model (see Friedman, 2001). Moreover, becoming seeks to deconstruct hierarchies and evolutionary trees that aim to imply progress. When analyzing technological developments, it turns out that they cannot be effectively conceptualized by evolutionary trees developed in biology and human genealogy for describing genetic developments (Barnet, 2004). Therefore, the Darwinian evolutionary vocabulary we frequently use when discussing a technological change should be updated to reflect that "becoming is not an evolution" (1987, p. 238). The rhizome can be regarded as an effort to bypass tree-like hierarchical models, as well as an opportunity for a new understanding of evolution, especially the technological one.

The notion of the rhizome brings to our attention the common hierarchical way of thinking, which is arborescent or tree-like logic. Frequently, rhizome and panopticon are presented as two oppositions, especially in surveillance studies. For example, William Bogard (2006) points to the common way of analyzing surveillance as moving from the Foucauldian panopticon logic of a central point of surveillance towards a Deleuzian decentralized rhizomatic surveillance as implemented for example in social networks. This is usually presented as a shifting from the disciplinary society to what Deleuze termed as society of control (Deleuze, 1992). It is about the collection of data in order to predict and modify human behavior, aimed at not only producing revenue but also gaining market and political control (see Zuboff, 2019).

Today we see a third phase that is a combination of the first two (Galič et al., 2017). This combination yields new concepts like oligopticon, which is based on the panopticon's logic combined with several points of surveillance; dataveillance, coined to denote the central role of data in today's surveillance; and participatory surveillance or self-surveillance, indicating the reversal of the gaze from the guarding officer of the panopticon to the users who wish to be watched, so that the fear is no longer to be watched but rather to be unnoticed. The multiple surveillance models demonstrate how surveillance as a concept becomes rhizomatic and how the technologies that implement these models cannot be conceptualized in an arborescent structure.

3.3 Molecular Process

In Deleuze and Guattari's terminology, the molecular is a fraction, while the molar is a whole. Becoming is composed of small "molecular" movements that on the short-term produce no more than tiny effects. For example, becoming is the small yet transformative step done by the ancient fish to go out of the drying seas. The molecular is the scale at which becoming occurs. At first sight, it's hard to see how a small molecular move can make a significant difference, but Chaos theory has already demonstrated how a butterfly wing flap in the southern hemisphere can lead to a tornado in northern hemisphere.

The molecular is not necessarily physical, so that becoming does not automatically change the bodily organs. It is mostly a change in the body's movement and in the way one holds one's body. The example of becoming-animal may clarify this point: "Do not look for a resemblance or analogy to the animal, for this is

becoming-animal in action, the production of the molecular animal" (1987, p. 275). Thus, becoming-dog does not transform the human body to have four legs and a tail. It is about adopting certain traits through a subtle change that is not very visible at the beginning. Eventually, it affects the body and becomes noticeable: "becoming does not occur in the imagination, even when the imagination reaches the highest cosmic or dynamic level… Becomings-animal are neither dreams nor fantasies. They are perfectly real" (p. 238). In-between a physical change in the body and a virtual change in the imagination, becoming is a transformation in the mode-of-operation. In this process, the spirit of the animal "takes possession of the body's interior, enters its cavities, and fills its volumes instead of making a face for it" (p. 176). Becoming is typically performed on the interiority of the body and might change the exteriority as a side effect. The result is likely to resemble an external entity (e.g., an animal) that is the object of becoming + object. In the case of becoming + adjective, it is the single trait that "takes possession" and becomes visible at a certain point of the change process.

3.4 Partial Simulation

Deleuze and Guattari negatively characterize becoming as "not a correspondence between relations. But neither is it a resemblance, an imitation, or, at the limit, an identification" (1987, p. 237). Instead of conceiving becoming as a simulation that wishes to become similar, mimic, or produce an analogy, the simulative aspect of becoming is conceived more like infection and contagion (1987, pp. 241–242). In this spirit, Keith Ansell Pearson (1997) coins the neologism "viroid" to imply a relation of exchange of fractions of code, similarly to the process performed by viruses in which a virus leaves some genetic code with its host and adopts others' codes. Like the viral reproductions that do not necessarily create an identical "offspring," the result of becoming is not a duplicate of the original or the model but instead borrows some attributes from it. The goal is to partially simulate its mode-of-operation. For example, in becoming-animal, the transformation does not involve a creation of an exact copy of a specific animal. Rather, it is a process of shifting that simulates certain aspects of behavior, thinking, and desiring.

Correspondingly, Braidotti characterizes the concept of becoming as an "affinity and symbiosis between adjacent particles" (2003, p. 48). To start the process, the "becomer" needs to be attracted to or feel sympathy for the target of the becoming.

Deleuze and Guattari demonstrate how partial simulation works in technological processes: "When Hitchcock does birds, he does not reproduce bird calls, he produces an electronic sound like a field of intensities or a wave of vibrations, a continuous variation, like a terrible threat welling up inside us" (Deleuze & Guattari, 1987, p. 305). There is no intention to produce an exact replicate of the original voice, but rather to remind us of that original and shed a new light on it. Partial simulation can assist us to conceptualize many contemporary technologies: social networks as a partial simulation of networks of real-life acquaintances and friends, TikTok as a partial simulation of YouTube which is a partial simulation of television which is a partial simulation of cinema and so forth.

3.5 Anti-memory

Becoming is a future-oriented process that offers a shift from the past. To make this shift happen, one needs to overcome the memories of the past and hence "becoming is an antimemory" (Deleuze & Guattari, 1987, p. 294). Anti-memory characterizes not only the becoming but also the rhizome: "The rhizome is an antigenealogy. It is a short-term memory, or antimemory" (p. 21). Anti-memory is not necessarily in the brain. It can be in the body. One remembers how to bike more as a bodily memory and not so much as a brain memory. The bike as a technology reminds one how to drive it.

Anti-memory highlights a future-looking approach. From this perspective, becoming does not return to a certain period in history but instead orients towards an unknown future and a redefined past. On the practical level, to start a revolution, the revolutionist needs to break away from the past just as the ancient fish had to forget the sea. Thus, "history is made only by those who oppose history (not by those who insert themselves into it, or even reshape it)" (1987, p. 295). Technological revolutions are paradigmatic for such anti-memory becoming.

4 Becoming-Machine, Becoming-Mobile

In the previous section, I have shown how becoming is a transductive, rhizomatic, molecular, viral, and future-looking process. These concepts link becoming and machine so that "Becoming is like the machine: present in a different way in every assemblage, passing from one to the other, opening one onto the other, outside any fixed order or determined sequence" (1987, p. 369). In this section, I propose another link between becoming and machine in which the concept of becoming can function as a framework to understand how we interact with the technologies around us and how they transform us. Combining becoming and machine may result in becoming-machine, designating the process of transformation that occurs at both sides of the user and the technology. But becoming-machine — as a becoming-object — implies a set of traits. In this section, I focus on the mobility aspects in the form of becoming-mobile (Wellner, 2016). This becoming + adjective may explain how the users of cellphones are transformed in the co-shaping process with their devices, how they move differently in the world, and how they experience their environments in a new way. When integrating the cellphone into our everyday life, we are becoming-mobile, and this is accelerated and intensified with the introduction of smartphones and other mobile devices (e.g., smartwatch, VR/AR glasses).

Becoming-mobile belongs to the second form of becoming + adjective, because this form of becoming is about examining a single trait rather than a target ("becoming-cellphone"?) that infers a group of traits. Moreover, the lens of minority that is central to becoming + object loses its strength in the context of technologies that are being used by almost everyone. As a becoming + adjective, it does not require the position of a minority. Unlike becoming + object that serves as a mode of resisting for a minority against dominant authoritarian systems, becoming-mobile reflects the wish to take part in a social networking through technological means. However, in the hands of minorities, it can serve a subversive strategy — by school students to

send instant messages in the middle of a class, by citizens during the Arab Spring of 2011 to arrange demonstrations, by citizens who face police violence to document the illegal practices of police officers, etc.

Becoming + adjective allows us to isolate certain aspects of a phenomenon, instead of attempting to define what are the traits of a certain technology. Thus, becoming-mobile bypasses the difficulty to define the cellphone, in light of the diversity of this technology — from the early StarTec handsets to today's iPhone (Wellner, 2016). Therefore, when analyzing technologies such as cellphone, becoming-mobile is preferred over becoming-smartphone and the like.

Becoming-mobile as a form of becoming matches to the five characteristics that were detailed in the previous section:

1. Becoming-mobile is a transductive process in which humans and cellphone technologies not just transform individually but also co-shape each other. In this context, humans include various players such as users, cellular operators, technology developers, and app owners. Likewise, technologies cover hardware and software, including handsets, cellular antennas, GPS satellites, operating systems, social networking apps, and more. Becoming-mobile is a transductive process that occurs in a complex system beyond the simple two-player examples. It is the change that is internal to the relations resulting in surprising directions in which humans and technologies evolve. In this transductive process, the co-shaping is not necessarily reciprocal, simultaneous, or coherent. Think, for example, of the transductive changes between smartphone users, fashion, and social networking apps that encourage their users to upload pictures taken via the mobile phone's camera. In this process, users adopt a new fashion, new apps are introduced, and fashion moves to new directions — not necessarily in this order.
2. Becoming-mobile is rhizomatic as it has no starting point or a pre-determined destination. It is difficult to set a starting point: is it the invention of the landline telephone by Bell? Or the wireless communication by Marconi? No less difficult is the attempt to identify all the directions in which the cellphone develops: will it outlast as a telephone that enables voice conversations? Will it keep on as a platform for mobile apps? Will it continue along the lines of a small box or change into eyeglasses or another form altogether? The users also evolve rhizomatically into many directions of usages with no preferences to one kind of an app or another. This direction-less rhizomatic becoming may explain how the cellphone developed into a gaming console, a digital camera, a shopping mall, a personal music jukebox, a fitness trainer, a navigation guide etc. Furthermore, the becoming is performed on multiple levels which can be real, virtual, or augmented, or any combination thereof. Even the various surveillance modes develop rhizomatically so that sometimes a user is concerned of their privacy and sometimes the same user may choose to act openly under the "eyes" of the platforms. Hence, the rhizome and the various surveillance concepts may assist us in analyzing how users and cellphone technologies co-shape each other in unpredictable directions.
3. Becoming-mobile is molecular for both the technology and the user. For the technology, molecularity occurs when the user and the world are transcoded into bits and bytes, much like the production of the bird's voices in Hitchcock's *The*

Birds (which also exemplifies partial simulation). These are not sent as-is over the cellular network, but rather their electrical/digital representations are sent as series of bits — coded and decoded. While becoming-molecular takes place in the real world of atoms, transcoding into digital takes place in the world of bits. Becoming-mobile is therefore more about becoming-electronic or becoming-digital, terms which may emphasize the central role of the electronic representation of sound, image, and text.

From the user's side, the molecularity is experienced in the small clicks, swooshes, and sounds that the cellphone generates, which lead the user to "produce" actions, gestures, and operations. Together, they comprise the becoming-mobile of the user. At first sight, it's hard to see how a small molecular move can make a significant difference, but real-life examples can demonstrate that minor changes may have a molar impact: the sound of a ringtone can change the user's mood; the sound of an incoming call instantaneously transforms the public space into a private and intimate space of the user; or the video recording by the cellphone's camera of the last words of George Floyd "I can't breathe" uploaded it immediately to social networking apps led to large-scale manifestations and major updates to policing policies. Thus, a small-scale action such as answering a phone call or taking a short video can "undermine the great molar powers of family, career, and conjugality" (1987, p. 233).

Becoming-mobile is a molecular process which is hard to notice. The thumbs that type start aching, thereby notifying indirectly that they were excessively used. When considered in retrospect, becoming-mobile is likely to be conceived as a set of minor changes in the behavior of the user, but their accumulation can reveal a significant change — in the body, in the behavior, in the way of viewing the world, in establishing relations with others etc.

4. Becoming-mobile is a partial simulation in several dimensions. First is of course the partial movement in which the user's voice and data travel, while the body remains in its original physical location. Whereas this form is basically applicable to the telephone as such and is not unique to cellphones, becoming-mobile has wider implications beyond conducting phone calls. Thus, it should exceed explanations that focus on the reproduction of partial codes and also examine the partial simulation of memories, in which the cellphone partially simulates how the user remembers and transforms how the user memorizes. This simulation follows the co-shaping principles so that a change in the cellphone's data or apps triggers a certain change in an aspect of the user's behavior, which in turn changes the user's memories and even habits. It is a series of partial transformations in which the user and the cellphone acquire new behaviors and new memories.

   Second, becoming-mobile is a partial simulation on the side of the technology as in the example of Hitchcock's birds or when digitalizing voices, pictures, and videos. As mentioned for the molecularity of the process, digitalization is not necessarily one-on-one. There are attempts to improve the voice quality, degrade background noises, make a blurry picture clearer, add filters, and remove unwanted elements in a picture and so forth.

   Third, partial simulation can refer to past technologies and how they are partially reproduced in the smartphone technology — paper-based calendar, walk-

men, television, wallet, compass, and maps, to name a few. This partial simulation is relevant also to the usage modes. Although becoming-mobile describes the smartphone age, its roots can be identified back in the age of television when the viewers were sitting on their couches and traveling to distant places or in time (to history, to the future). Deleuze and Guattari characterize the viewers through the combination of subjection and enslavement, where the former denoting being part of a large social construct and latter representing a certain lack of freedom to act. The smartphone is frequently blamed as addictive, but this alone is not very convincing to majority of the users. The combination of subjection and enslavement may explain why focusing on one element does not suffice to understand the cellphone technology and the experiences it brings. As discussed above, the users are subjected and enslaved at the same time. This is a partial simulation of the addiction to the television.

Fourth, partial simulation also occurs in the (molecular) relations between the handset and the user. The cellphone as a technological device does not imitate our way of remembering, but we become accustomed to the way in which it produces memories and how they are stored, so that pictures are created and stored separated from contacts (obviously combining them invokes questions of privacy). Nonetheless, we maintain a symbiosis with the cellphone that holds our various memories. The cellphone becomes our "memory prosthesis" (Wellner, 2016) that partially simulates how we remember and at the same time transforms the very meaning of remembering.

5. Becoming-mobile is anti-memory as it pushes users and developers to neglect some prior behaviors, forget how things were done so far, and reshape some practices and habits. The users need to forget prior modes of behaviors in order to adopt new technological possibilities. For example, the introduction of short messaging service required users to "forget" that their cellphone is a kind of a telephone and reconstruct it as a device for writing texts. Another example concerns the handset's ability to store data such as phone numbers and pictures. Once stored, the user can forget their details. Now the border between the human and the technological is not a clear-cut line. Against the tradition that regards memories as something "in the head," anti-memory assists us to expand and to acknowledge other forms of remembering, so that memories can reside not only "in the head," but also in the handset or in the cloud. When stored "outside," the users can allow themselves not to remember, for example, phone numbers. This idea was later developed by the Extended Mind Theory (Clark & Chalmers, 1998).

   From the developers' perspective, anti-memory plays a major role in the transformation of the cellphone from a kind of wireless telephone that is able to transport voice across long distances towards a smartphone that opens up new ways of accessing information and functions as "an app machine."App developers needed to "forget" it is a phone and start referring to it as a new device that is not limited to speaking to other people.

Therefore, becoming-mobile not only adheres to the becoming's "rules of the game," but also serves as a useful tool to understand how mobile technologies like

cellphones and smartphones transform our experience of the world and of our sense of being: with the notion of transduction, it becomes clear that the user and the mobile technology co-shape each other, as many technologies do; The rhizome clarifies how surveillance can operate in multiple ways and shape our datafied mobile experiences; the element of molecularity brings to our attention the little details of a bodily movement that changes in the presence of mobile technologies; partial simulation may explain how certain modes of operation are "internalized" by cellphone users; and anti-memory conceptualizes the move forward that is not necessarily a progress. Whereas some of these elements of becoming can be found in previous technologies like television, their accumulation and specific implementations are unique to the age of the cellphone. Moreover, becoming-mobile provides a fresh alternative to the beaten path of hype and high-tech jargon that emphasizes ubiquity and speed on one hand and addiction on the other. Becoming-mobile shows how mobile technology cannot be simply classified as good or bad nor can it be regarded as neutral (Ihde & Malafouris, 2019).

5 Further Developments for Becoming-Mobile

Becoming-mobile can be enriched and further developed in several directions: some can be internal to Deleuze and Guattari's thought, such as the concept of nomadicism; and some can be external, inspired from certain branches of philosophy of technology, or even from other fields such as mobility studies. If becoming-mobile as a concept is rhizomatic, then such expansions are not only acceptable but even a necessary development.[9] In this section, a few of these directions will be explored.

5.1 Nomadicism

Deleuze and Guattari coin the term nomadicism to represent a "motionless voyage" (1987, p. 159) thereby as if predicting the telephonic experience of becoming-mobile. Moreover, they position the machine as an invention of nomads that preserves their free movement (p. 404).

Nomadicism is primarily employed to articulate the movements of people and nomad societies. Eugene Holland characterizes a nomad society as "placeless, itinerant tribes-people" (Holland, 2005, p. 183). The nomads, Holland suggests, operate like an improvisational jazz band, a manner which is substantially different from a strictly organized symphonic orchestra. This is the difference between the mobility envisioned by engineers that tends to follow the logic of a symphonic social order,

[9] In the terminology of Deleuze and Guattari, this type of analysis is likely to be termed as reterritorialization. It comes after an initial territorialization in which I mapped the concepts of machine and becoming, followed by deterritorialization consisting of loading the machine with technological context. Reterritorialization is the development of the notion of becoming-mobile and expanding it towards new "territories.".

and the various usage modes developed by users that resemble jazzy adjustments that make up a loose composition.

Nomadicism can be extended from people to the space they inhabit. Claire Colebrook (2005) refers to the nomadic space "not as a space with intrinsic properties that then determine relations (in the way chess pieces determine how movements might be enacted), but as a space with extrinsic properties; the space is produced from the movements that then give that space its peculiar quality (just as in the game of Go the pieces are not coded as kings or queens but enter into relations that produce a field of hierarchies)" (p. 182). Thus, a nomadic space is created by an unregulated movement in which any user can gain followers thanks to a post, contrasted against algorithmic practices that give priority to posts of celebrities regardless of their content, thereby treating them like chess-coded kings or queens.

While nomadicism is based on a nomad who has no geographical home base, the cellphone user has a dwelling from which he or she uses the cellphone in a nomadic fashion. What is nomad is the thinking, the orientation towards free jazzy spirit. Adding nomadicism to becoming-mobile accentuates the element of freedom. It may explain the sense of freedom children and young adults feel when they use the cellphone while obeying their parents who drive them to and from school, to and from friends etc. The becoming-mobile assists them to simulate a partial freedom.

5.2 Embodiment

Nomadicism centers on the movement of the nomad in the free space of the desert. It is nicely complemented by embodiment, which is one of the central notions of postphenomenology, denoting how users modify their body scheme to include technologies in use (Ihde, 1990). A classic example is the eyeglasses that sometimes sit on the tip of the nose unnoticed. More importantly, they alter how the body reacts to the world. Ihde expands: "a small indication of this occurs whenever anyone gets a new prescription for eyeglasses: one has to relearn, in however minuscule ways, the distancing between the ground and walking, and so on" (Ihde, 1999, p. 156). It is a molecular change that can hardly be noticed in real time. In the adjustment process, the user has to forget how to move with the previous glasses (anti-memory) and adapt to the new pair. Both embodiment and becoming assist in understanding the co-shaping between users and technologies.

The notion of embodiment can add an understanding of how the embodied technologies are accepted. Ihde highlights to the opposing desire of obtaining increased powers on one hand and fear from these powers on the other (e.g., Ihde, 2006) or the desire to augment the powers coupled with the wish to keep the technology in the background unnoticed (Ihde, 1990). Another development can be with regard to the various directions in which embodiment can be evidenced — extension of the limbs, of the perceptions, and of the cognition (de Preester, 2011).

5.3 Virtual Mobility

Becoming-mobile changes how we move in the world. It is a new kind of movement that has attracted the attention of new mobility studies and led them to develop the concept of "virtual mobility" (Mom, 2011). As its name implies, new mobility studies emerged from transport studies that explored railways, shipping, and bus transport modes. Realizing that "immobility does not exist anymore" (Mom, 2020, p. 3), a "mobility turn" emerged, leading to the formation of a new field engaged in the wider scope of "transport, traffic and mobility" (p. 5). This new field offers a "symbiosis between media studies and transport studies" (p. 8). New mobility studies not only examine the history of transportation and mobility technologies but also theorize movement from trans-disciplinary perspective (Mom, 2011).

Virtual mobility conceptualizes the mobilization of parts of the users, as in the case of telecommunications technologies that transport voice across distances. Thus, the cellphone is described as "an emblem of mobility and freedom" (Mom, 2011, p. 28; see also Weber 2011) for its ability to combine physical traveling with "virtual" communication. Today, the "virtual" consists of not only tele-communication but also GPS navigation, touristic information apps, camera etc.

From this perspective, the cellphone is regarded as a technology that enables a new mode of mobility as it disassociates the body movements on one hand and voice, text, and data flow on the other. This distinction can be paralleled with Nicolas Negroponte's distinction between moving atoms vs. moving bits to conceptualize how the Internet revolutionizes many aspects of our lives. The cellphone functions like a servant of two masters by involving the movements of atoms and bits in various combinations, for example, when the user is stationary and only bits representing voice are moving or when an augmented reality app is used in which the movement of bits and atoms is synchronized (Wellner, 2020). Consequently, dichotomies such as mobile-immobile, connected-separated, and active–passive are eroded.

Although the concept of virtual mobility does not take into consideration the becoming's elements of molecular process and partial simulation, it can assist in conceptualizing the relations between the various types of movement, physical and virtual, biological, and technological.

6 What It's Like to Be a Philosopher of Technology?

In the introduction, I argued that Deleuze and Guattari should be read as philosophers of technology. In this section, I reflect whether the applicability of their notions to contemporary technologies like the cellphone is sufficient for such a classification.

Maarten Franssen (2022) offers some insights that may assist in answering this question. He asks what is philosophy of technology? The first type of answers is self-classification, meaning that it is sufficient to be considered a philosopher of technology if a philosopher defines herself as such. In this context, he mentions the late nineteenth-century philosopher Ernst Kapp who published in 1877 a book whose title explicitly referred to philosophy of technology. A second type of answers

would require dealing with questions that are typical to the field, like what is technology? How to frame technology in terms of human values? What is the rationale for technological development? Interestingly, he does not include questions regarding the experience of using a certain technology and co-shaping processes discussed in this article. A third set of answers offered by Franssen can meet the missing questions of the previous set. Franssen refers to Ihde and Verbeek who do not invest in questions of definitions and instead ask what technologies do. This direction fits that of Deleuze and Guattari.

Franssen frames the challenge of defining philosophy of technology as follows: "one gets the impression that already, very soon after its birth, the field of philosophy of technology appeared to its practitioners as too extensive and too variegated to be fully graspable" (p. 57). To overcome this challenge, he suggests to "unite the troops" of philosophers of technology (p. 67) under a certain set of questions and definitions, such as what is a technical artifact; how the field is related to philosophy of engineering and more generally to the topic of making technology; and how using specific technologies affect society? Franssen admits that his approach is likely to make philosophers of technology from the analytic tradition "feel at home" (p. 69) in light of their quest after clear definitions. He regards the contribution of continental philosophers as mainly focused on the perspective of mediation theory (p. 69).

As Franssen belongs to the analytic tradition, one may wonder how the continental tradition might have approached the issue. Here, Deleuze and Guattari can provide us with some interesting and useful guidelines. First, and in contrast to Franssen's call for substantial unity of the field, Deleuze and Guattari would recommend a nomad strategy according to which the field may remain fragmented and isolated. Such an approach can promote unpredictable combinations and increase creativity that may encourage practitioners (i.e., the high-tech industry) to cooperate with philosophers of technology for the mutual benefit of both parties. Second, instead of starting with definitions and continue with attempts to make them "clear and precise," Deleuze and Guattari would ask how it works, with what (or whom) does it interact, and what are the consequences. They would not focus solely on the scientific and engineering aspects but would place no less attention on the usage modes of the everydayness as well. Third, they would advise to establish links not only to engineering but also to art and design, to medicine and biology, to physics and astronomy, to law and sociology, etc. Philosophy of technology is and should be multidisciplinary in a deep sense, a platform for cooperation across disciplines. Deleuze and Guattari in their work exemplify how this can be done. *Thousand Plateaus* is a magnificent illustration for multidisciplinary.

Lastly, a reference can be made to their last joint work, *What is Philosophy* (Deleuze and Guattari 1994), in which they suggest that the goal of philosophy is to provide concepts. Brian Massumi, the translator of *Thousand Plateaus*, explains: "The concept has no subject or object other than itself. … Rather than analyzing the world into discrete components, reducing their manyness to the One of identity, and ordering them by rank, it sums up a set of disparate circumstances in a shattering blow. It synthesizes a multiplicity of elements without effacing their heterogeneity or hindering their potential for future rearranging (to the contrary)" (p. xiii). In

this article, becoming-mobile is an example of concept in the making, an attempt to arrange multiple aspects while bypassing the analytic pursuit after clear definitions.

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