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Understanding Digital Events
Bergson, Whitehead, and the
Experience of the Digital

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How digital technologies write, direct, and organize the narrative and temporal structures of our social existence

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Introduction

Today's existence is not imaginable without digital technologies, which are involved in all aspects of our daily lives. Since personal computers and the Internet were widely used, and especially since the smartphone which enables (and arguably encourages) use of digital technologies always and everywhere, many things we do at home, at work, and on the street are mediated by digital information and communication technologies (ICT): writing a text, talking, organizing, doing research, but also finding the way, listening to music, learning a skill, dating, cooking, pet care, and so on. Even birth and death are not taking place outside the digital. The digital pervades our lives and existence. Lagerkvist (2018) speaks of our "digital existence". How can we understand and evaluate those technologies and that digital existence?

During the past decades, philosophers of technology have offered theoretical tools that enable us to conceptualize a significant part of the phenomenology of these digital-technological experiences and practices. For example, so-called postphenomenology has shown how technologies mediate our relation (perception and action) to the world in various ways (Ihde 1990; Verbeek 2005). In critical theory Feenberg (2010) has argued that use of technologies is not just a matter of technological rationality and what designers do and intend, but also depends on users and their experience and ways of adapting the technology. And science and technology studies have viewed technologies as part of the social life: as part of networks of humans and non-humans (Latour 1993).

These perspectives offer a fruitful way of looking at what digital technologies do to our lives. For example, they enable us to describe how digital technologies such as smartphones become increasingly extensions of ourselves, not literally, but hermeneutically and existentially: as they become more embodied and take up a hermeneutic role, they have become part of our way of looking at the world and indeed part of our world. We also become very dependent upon them. Like other technologies, they shape our existential vulnerability (Coeckelbergh 2013). Furthermore, current digital technologies can also give a potentially large role to users. The technologies also have many consequences that are unintended by their developers or users; they are not neutral instruments. For example, some authors

argue that our personal and social relationships have changed due to the smart-phone and computing technology (e.g. Turkle 2011, 2015). And smart digital phone and computing technology (consider digital assistants) increasingly participate in what seems a world where not only humans but also things speak, this time literally.

What is often missing from such analyses of our digital existence, however, is the social and especially the temporal dimension of our lives and existence with technology. Our experience and use takes place in time, and connects to the temporal and narrative dimension of human (social) existence. In existentialist philosophy, this dimension has been analyzed by philosophers such as Heidegger (1927) and Ricœur (1983), and in metaphysics the temporal dimension has been highlighted by process philosophers such as Whitehead, Bergson, Peirce, and James (and in ancient times Heraclitus). But in contemporary philosophy of tech-nology, not much has been done with these insights.

This chapter reflects on how to take into account that temporal and narrative dimension by using and discussing two metaphors to better understand our exis-tence with technology: literature and theatre. Moving beyond Ricœur, who used the text metaphor to speak about narrativity, this chapter argues for a more *perfor-mative* approach to digital existence and, more generally, a performative approach to understanding and evaluating technologies. I further develop previous work in this area (Coeckelbergh 2017; Coeckelbergh & Reijers 2016) in order to support the thesis that *technology writes, directs, and organizes the social-narrative and (more generally) the temporal-performative structure of our lives.*

The structure of this chapter is as follows. First, I use the metaphor of literature, which includes a response to Ricœur and Ihde. Then I use the metaphor of theatre, responding to Goffman, Latour, and Verbeek. I continue with cases to show what using these metaphorical conceptual tools implies for understanding digital tech-nologies and the experiences, practices, and lives they shape: smartphones, social robots, and social media. I end with a call for a better material hermeneutics, bet-ter in the sense of: one that sufficiently takes into account the social, narrative, temporal, and performative dimension(s) of digital existence.

First metaphor: narrative structures and processes

The first metaphor is literature, in particular literature in the form of text and understood as narrative. We can distinguish between at least two different ele-ments that belong to the metaphor. The first is text. Influenced by Ricœur's nar-rative theory (and through Ricœur by Aristotle's *Poetics*) we can see the text as narrative: there is a narrative-temporal structure, in particular there are charac-ters and events that are put together in a plot. According to Ricœur (1983), this emplotment is a way of organizing a meaningful whole. The story has to make sense. But Ricœur already uses this as a metaphor for our existence and for how we relate to our lives. We make sense by means of the narrative. Ricœur thus takes seriously the temporal and more in particular the narrative dimension of our existence. The second element of the metaphor is the author of the text, the creator of the narrative, the agent of the emplotment. Again, this raises questions

about how we relate to our own lives. For example, are we the (most-important) co-author of our lives?

Let us apply these two elements of the metaphor to technology. First, technol-ogy can be a character in our stories. We can talk *about* technology. Technology can also be part of the events in our lives. It can be part of our story, part of the story we *live*. But there is more. Ricœur already argued that text can be seen as a model for action. Influenced by Heidegger, he was interested in the tem-porality of human experience and existence. We understand what we do in our lives as a narrative. In this way we make time human (Ricœur 1983, p. 52) Now Reijers and I have argued that we can also apply this thought to our lives with technology. Technology, like a text and a narrative, configures our lived time. It organizes characters and events. We have called this "narrative technologies" (Coeckelbergh & Reijers 2016). For example, if one wants to drive a car, there is a temporal structure, a sequence of events: getting in the car, starting the engine, shifting gears, etc. Another example: a bridge may not only play a role in the story of a war, as a character as it were; it can also organize the humans and the events. The technology configures the story. One could say that in this sense technology co-writes the narrative. Technology configures the temporal structure of our lives. Thus, technology can be a character in our story, but it can also be a co-author.

For understanding and making sense of digital technology, this means that of course we can make stories about digital technologies. For example, stories about robots. The robot can play a part in our life. It can be a character. But there is also a sense in which a digital technology becomes an agent that participates in creating the narrative, including in doing the emplotment. Digital technology configures our time by organizing characters and events into a meaningful whole. It thus becomes a kind of author of narrative. For example, a particular app I use on my mobile phone co-writes the narrative of my day, in which I do things with the app and with other people at specific times. For example, at a given time I go running or at specific times I check my social media (and the social media app tempts me into checking all the time). The technology organizes my time; it configures a temporal structure. It is not a neutral tool. It mediates my perception and my action, as postphenomenology has it. But it is important to acknowledge and theorize that this mediation always has a temporal-existential aspect. Digital technology shapes my time and my narrative. Sometimes this is clear and literal, as when we play computer games: the digital technology co-creates the narrative. But it also has this role in so-called "real life". Technology is not just an object that appears in a story as one of its elements or even characters (e.g. artificial intelligence that becomes the character of a story about the future of humanity or a social robot that has a name and is included in personal narratives); technology also co-writes the story, our societal-cultural and personal stories. This is impor-tant for thinking about our existence and the role of digital technology: digital technology shapes the temporality of our existence and experience. I will give further examples below.

What we get in this way is a material hermeneutics, like in Ihde and Verbeek, but unlike in Ihde and Verbeek we are able to theorize the temporal and narrative

dimension of "what technology does": technologies mediate in a way that configures human time; it organizes our narratives. Digital technologies also have this narrative function. Moreover, while Ihde talks about embodiment, he largely misses the performative dimension of technology use. Ihde and Verbeek also offer a postphenomenology that does not really conceptualize how technology mediates the social life. In order to develop these points, however, we need to move away from literature and text to another metaphor: theatre.

Second metaphor: theatre roles and performances

Ricœur's narrative theory was based on Aristotle's *Poetics*; in other words, the initial metaphor was not text but theatre. Ricœur used Aristotle's concept of mimesis to work out his narrative theory. But we can also use the metaphor of theatre more directly.

In the social sciences, theatre has been used as a metaphor by Goffman in the 1950s. In *The Presentation of Self in Everyday Life* (1956) he compared the social life to theatre. We perform before others. We have all kinds of roles. For example, in professional life one can have the role of physician, whereas in private life one may have the roles of wife and mother. Moreover, when we perform these roles we are "on stage", but at some times we are "backstage", for example when we are alone in the bathroom or alone in the office (in the 1950s without Internet).

But the metaphor can be expanded. There are more elements: not only social actors; there is also a script and those who write the script. As sociologists know (but also for instance Wittgenstein), the social life is also guided by rules and norms. They can be regarded as constitutive of "scripts" that tell us what to do and how to do it in specific social situations. For example, going to the physician requires that I play the role of the patient and that I do particular things such as waiting in the waiting room. There is already a script for how to behave in such a waiting room. The social life is not entirely fixed and inflexible, but neither is it totally up to the individual. There is (peer) pressure to behave in certain ways, for example to respect the order of the queue. Sometimes there is a director, who directs the behavior of the actors, for example when a schoolteacher directs (or tries to direct) the behavior of the pupils, who are educated into playing the role of pupil (in specific ways), disciplined to behave in specific ways, etc.

For understanding technology, using the theatre metaphor means that the use of technology is seen within the context of the social life, and that technology is used as object and tool to assist playing these roles, writing the script, and directing. For example, a professor uses a laptop, PowerPoint, but also the chairs and tables of the classroom as instruments for playing her role and for organizing and directing the behavior of the students. However, usually neither the professor nor the students think about this role of furniture-technologies and the technological setup. Here the role metaphor already shifts to non-humans: apparently things can also have a role. There is a sense in which the chairs and their configuration "acts". For example, it matters to how students behave if one puts the chairs in a round shape or if one puts them in a linear way directed towards the front where

the professor's desk is. It changes and (re-)organizes the social interaction. One could say that the technology thus "acts" and even "scripts" the social institution of teaching.

In thinking about technology, this is how Latour (and later, following Latour, Verbeek) have used the metaphor. In his work with Akrich (1992) and in *We Have Never Been Modern* (1993), Latour, influenced by a direction in semiotics that used the theatre and narrative metaphors (Greimas 1987), has argued that things (non-humans) also script and act; they are "*actants*": non-human actors. This makes for an interesting way of expressing how technological artifacts are more than mere instruments for human purposes. They also shape these purposes. For example, the chairs and desks (and their spatial configuration and arrangement) are not just tools but shape what kind of teaching happens.

However, Latour and others in philosophy of technology and science and technology studies (STS) have not always used the metaphor in a very reflective and upfront way, nor have they used and developed all the possibilities of the metaphor. For example, the script is a narrative. What is the structure of this narrative? As we have seen, emplotment organizes characters and events. What if technology, as I suggested earlier, writes our *narratives*? Another example: they have not talked about the role of the *director*. Who directs the social life of humans and non-humans? And could it be that technology is also a kind of director of our lives, and directs the actors of the social life? For example, could social media be seen as a stage on which technology not only co-writes but also co-directs our lived narratives and the way we perform our roles? Such questions can only be asked if we unpack the metaphor. Finally, what is missing in Latour is the embodied-performative dimension of technology use. Things do not only "act", they act together with embodied humans who perform. Perhaps they co-perform. But in any case, they are a hermeneutically active part of a performative setting in which humans perform as *embodied* social beings. For example, when I use my smartphone, I am using a "digital" technology, which perhaps "acts" but that "digital" technology is used by me as an acting and *performing embodied* and social being. This questions the ontological symmetry between humans and non-humans that Latour's actor-networks and non-modern collectives seem to imply. And taking seriously this "performative" aspect also means: the technologies play a role within a temporal whole. Human lives and existence have a temporal character, and so do lives and existence with technology.

Influenced by Latour, Pickering (2010, 2013) has gestured towards a performative approach, but has not used the metaphor of theatre but of dance (the dance of agency); however, he has not further developed the (application of this) metaphor and (like Latour and Verbeek) has focused so much on bringing things to the stage that *human embodied performances* have receded to the background. Furthermore, whereas authors in postphenomenology such as Verbeek have helpfully conceptualized the mediations of technologies in terms of their "acting", they have never taken seriously the *social* connotations of this metaphor. They thus missed an interesting opportunity to develop a more *social* phenomenology of technology use, technology experience, and existence with technology.

To explore what the metaphors can do for understanding our use, experience, and existence with digital technologies, let us briefly develop three cases, examples, or rather *stories*: smartphones, social robots, and social media.

Cases/examples/mini stories for understanding digital technologies by using narrative and theatre metaphors

A first case/example is *smartphones*. They are supposed to be phenomenologically and hermeneutically passive instruments that help us humans to achieve our goals. For example, they are meant to merely assist us in talking to friends, searching the way, sending emails for work, and so on, without influencing what and how we say things, without influencing how we understand a city, and without shaping what we do in our work. But what they do, next to their intended function, is precisely that: they also write our stories, stage our world, and influence how we play our social-professional roles. When I write with a friend using a smartphone, I do not write in the same way as if I would write an e-mail, let alone a letter. The phone co-directs my writing and co-writes the narrative I develop with that friend. The phone organizes me and my friend and related events in a plot, a narrative and temporal structure and process which is played out and recorded within the app I use. When I search the way using my phone and the Google search algorithm, I do not walk through a city in the same way as if I was using an offline map or no map at all. The phone scripts my journey through the city (which is a journey *in* time that at the same time shapes *my* time), stages the city in a particular way, and puts me in the role of passenger in my own moving body. When I use the phone for writing a work e-mail to discuss an organizational issue with a colleague, I do not play my role of professor in the same way as if I were to talk with the same person on the phone or in person. The phone co-scripts my role, that is, it pre-scribes how I play the role of professor and colleague when and by using that technology. Phones thus play a hermeneutically active role in our lives. They are script writers and directors. This raises issues concerning power: who has the power to write my script? Designers of technologies and their companies, for example, seem to have that power. What power and agency do I still have as co-writer of my own stories? And if I have too little power, how can I get it back? Are there other models of directing and theatre, in which I as an actor have a larger say?

Of course, digital technologies also are co-actors, also in an existential sense: if someone loses her phone for example, it becomes clear how important that phone was in her existence and how much the phone had become a fellow social actor. However, this seems more suited to describe specific cases when the phone assumes that role. By contrast, the metaphor of script writer and director seem to be better suited to describe how generally the phone organizes our experience and practices. To say that things "act" seems right in some cases, for example when they (dis)appear as a quasi-social fellow entity. But to express the hermeneutic role of digital technologies in our experience and existence the script metaphor (already used by Latour) and the theatre and performance metaphor, but also the narrative metaphor, are very helpful, since they express the organizing, directing

(theatre metaphor again), and temporal-structural role of digital technologies. That role is not so much about things that (co-)act, but mainly about things that tell our stories and direct our performances. Furthermore, it also becomes clear from the wayfinding example that those performances are always embodied – by humans. The phone does not mediate and shape some abstract human agent (which in Latour becomes a kind of "*actant*" itself) but contributes to the narrative of my life and directs a moving body and an embodied human – my body and my concrete being-human as a human-in-performance. When the actor in my story loses her phone, that is an existential event that impacts her performative and embodied being-human, indeed her existential vulnerability (Coeckelbergh 2013), which must be understood in an embodied and performative way.

Social robots are another example. Social robots are robots that are designed to interact with humans in a natural, that is, social way: similar to how humans interact with one another in social contexts. At first sight, it seems that the robot is a mere tool and that the so-called "social" capacities of the robots are like a kind of oil that smoothens and smears the interaction with the humans. An instrument, a tool. The goals are set by the humans. For example, the goal is to get some food from the fridge, to provide some companionship, or to monitor an ill elderly person. The fact that the robot interacts in a social way does not seem to have much hermeneutic or existential implications. It seems not more than an interface. However, at closer view, the experiences, practices, and lives of these imagined people change. The butler robot is treated as a butler or a slave, and the user finds himself in the social role of master. After using the companion robot for months, the lonely person using the robot comes to think that talking to the robot is what companionship is. And the care providers think after a while that they don't need to send humans in, since the system works well. Maybe the elderly person misses human contact. Or she can no longer live without the presence of the robot, out of fear that when the robot is not there she might die. Whatever the scenario, the point is that the social script changes once the robot is introduced. There is a different narrative. Moreover, there is not only the fact that the robot becomes a co-actor; the robot also co-directs how the users live their lives and how they are existentially vulnerable. Social relationships and feelings are shaped by technology understood as co-director, which direct embodied-performative humans and shape their vulnerable lives and existence.

But there is more: next to acknowledging the roles of technology, one should not forget to ask about the (other) humans, about the social and cultural environment. Again, this can be conceptualized by using the theatre metaphor: who writes the script? Maybe the script is written by stories about butlers and slaves. Real stories and imagined stories. Maybe the companionship script is written by a specific company (which tries to make profit using that script), which is situated in a particular culture (e.g. a Californian culture as opposed to a more European culture). And the script of how the health care robot is used is also written by humans. It is not just about material artifacts doing things; it is also about how these artifacts and their use-scripts come into being. This question, which in itself STS is sensitive to, can now be formulated as a social-performative problem:

one of direction. Furthermore, this is not only about social processes and social groups. At the level of interaction, in spite of that interaction being designed in a "natural" way (which wrongly supposes that there is a pure natural script as a "natural" way (which wrongly supposes that there is a pure natural script as opposed to a social one), the behavior of the human (how the human has to behave opposed to a social one), the behavior of the human (how the human does things like getting a beer, etc.) is directed towards the robot, how the human does things like getting a beer, etc.) is directed by the robot and indirectly by those who designed, sold, and provided the robot. Like in the case of the smartphone, this raises again questions regarding power and politics. It may be that the robot becomes a co-actor, an *actant* in our homes. It even co-writes and directs our stories. But who writes the stories that shape how the robot does these things? Who directs how and what the robot directs?

Moreover, if we look at the level of human-robot interaction, the existential impact of the robot is not only a matter of doing things or getting things done in an abstract way; the robot very concretely writes and directs the embodied perfor- mance of our human actors. The social life is also about bodily movements. For example, interacting with the companion robot, our human actor will be nudged into making specific gestures and face expressions. This is so because there is already a social script for talking with others, because that script has been used and adapted by the designers of the robot, which co-write and direct the story of the user, and because *all these social scripts always have an embodied-performative aspect*. These aspects seem to be missing in the rather abstract stories of Latour, Verbeek, and Pickering – abstract not with regard to the materiality of things and what they do, but too abstract when it comes to taking seriously the embodied- performative dimension of what humans do.

The case of social robots also helps to illuminate the temporal aspect: when the butler robot or companion robot enters the home life, it re-organizes humans and non-humans as characters and events in a story. Suddenly the narrative is no longer "Mr. X is getting a beer from the fridge" but "Mr. X orders a beer from his butler robot". This leads to a different sequences of events, a different plot and different characters (master and butler), and ultimately like in the tragedies that Aristotle and (indirectly) Ricœur studied, to a different overall meaningful whole at the end of the story. There are different social meanings. Moreover, the elderly lady in our story who is afraid to be left unmonitored by the robot (rather than left unvisited by her relative – again the meaning changed), experiences her *time* in a different way. It is no longer the time waiting until her daughter visits her. It is the time waiting until the monitoring stops, which means that then her time has come. A rather grim example and thought experiment perhaps, but one that shows that digital technologies have an existential impact. They are never mere tools. They change our being-in-time and in this example our being-to-death, to say it in a more or less Heideggerian way. Digital technologies re-organize human existence in its narrativity and its temporality.

A final case I will analyze and interpret here is *social media*. I already referred to social media earlier in this chapter. It is a good example of a rather pervasive technology, which is also linked to the smartphone and its effects (and sometimes to robots, e.g. when they act as digital assistants for social media communication). But it deserves its own analysis.

When I use social media, it initially seems like I'm using (yet) another tool for communicating with other people. For example, I use social media to stay in contact with friends and colleagues that live far away in other countries or to post about my work activities. Social media like Facebook or Twitter, then, appear to be neutral tools that themselves do not intervene in my stories, in how I give meaning to my life, in the way social norms shape what I do, and so on. My social existence seems something that is shaped by humans: by me and by others, who co-direct my life and co-write my stories. But again, this impression is misleading and illusory. It is true that humans do all this. But non-humans also play their part. Which part? Which *role*? They can be co-actors, as when a Twitter account turns out to be managed by a bot that creates the tweets. But more often and usually even if humans are writing the tweets, the very medium of Twitter has a different role: it is rather a script writer and director of my social life. Social media can be called script writers and directors since they organize our narratives and our concrete embodied performances, creating new temporal structures and social- performative processes, and in the end new meanings. For example, it creates a specific sequence of events and a plot, involving humans and non-humans: I get up, check my Twitter account (on my phone), then go to the bathroom, etc. Get- ting up and "getting ready" now includes checking my phone, whereas before it did not. The meaning and the story have changed. The meaning of "getting up" has changed. Furthermore, this is not just a different narrative as in "a different text"; it is a very concrete different narrative and plot, one that involves me and my body. Not only my social role as a professional but also my concrete move- ments are co-written and co-directed by the technology.

Thus, here technology is not just a co-actor or a material artifact which then is given a hermeneutic role, as in Latour or Verbeek. Rather, it is playwright and director, and has this role not so much as artifact but as technological structure and process. The material artifact gets a role in a larger temporal and structural whole; it is only one (non-human) element in that whole, one role. It is part of my story, and part of the technology that writes and directs my story. To describe these roles in terms of a material artifact that acts does not clarify this but rather confuses. The material artifact is only part of a larger technological-performative process in which humans perform as embodied and social beings and in which the precise use and unintended effects of concrete artifacts is itself directed and written by "technology" understood not only as artifact but also in a wider, more ontological, but then process-oriented sense. We no longer have an ontology of humans and things. There is no network. The point is not so much what "is". The point is what happens, how it continues, and where it is going. The point is the narrative and the play. And how digital technologies write these narratives and direct these plays.

For ethics and politics of technology, the further issue is then: who and what writes that narrative, and who and what directs that play? And which concrete embodied-performing humans are being directed? Which humans and non- humans are re-organized in a new plot? Who and what has the power to shape how we play out and perform out the social life? Who and what writes these stories of humans and things? How is our social-temporal existence structured

and re-structured? What are the new meanings that are created in these social-performative processes? What is the impact on our social-performative existence?

In the case of digital technologies such as social media, these questions need to be asked urgently, as they shape how we act and how we make sense of events, indeed also what we actually do and "what happens": what happens in "the world" but also also what happens in *my* life. These media re-configure *my* time and *our* time: not only what happens in *my* life. These media re-configure *my* time and *our* time: not only or not so much how I organize time (as in "objective" time) but also and especially and ultimately how I *experience* time and how social public time is shaped. For example, I may experience time (and hence: life) and the social life as a sequence of posts/happenings and responses to these posts. The technology does not just record; it also actively plots my life and structures my time and our time. Public life becomes a network of timelines. Furthermore, the technology does not just enable me to represent my life by adding "content" that is already there outside the medium into the medium. Instead, that "content" is already shaped before I post. It is shaped by the medium since I already live "in" the medium and "towards" the posting and the checking, the liking, etc. My time and my life has become a Facebook life, a Twitter life, etc. I do not only perform "in" social media when I'm using a particular app. I perform all the time *as* actor in narratives and plays that are co-written by the technology and indeed by the humans "behind" the technology, who in this way exercise power over me, my time, and my life. When I use Facebook, I create, experience, and live my narrative through the technology, taking into account its script and directions in my social roles and embodied performances. When I go offline I'm not backstage. I'm right in the front, and I'm acting in a play that is not only written by me but also by others and by the technologies and media I use.

This is illustrative once more of the existential effect of digital technologies, especially when they are as interactive as smartphones, social robots, and social media. They are not neutral instruments, but shape what we do (as social actors), how we do it (as embodied-performative beings), *when* we do it (in what time and in what order), and how we give meaning to all this. These humans and non-humans are the writers and directors of our lives as social, temporal, performative, and sense-making beings.

Does this imply that these digital technologies are bad? To conclude this goes at least one bridge too far. Let me articulate and clarify what I think can be concluded from this analysis and, more generally, from this proposal for a more performance-oriented approach to thinking about technology, in particular digital technologies – an approach that is now more explicitly and more fully powered by narrative and theatre metaphors.

Conclusion: towards a more narrative and performance-oriented approach

In the twentieth century, hermeneutics focused a lot on one medium or technology (text) and on language. Consider Ricœur again and postmodern approaches. In response to this, empirically oriented philosophy of technology such as post-phenomenology (Ihde, Verbeek) and Latour's theory turned away from text and

language to material artifacts, to things. But on the way something was lost: artifacts became isolated from the temporal structure and narratives of our lives in what turned out to be non-temporal kinds of phenomenological and hermeneutic analysis of technological practices and existence. Moreover, like earlier phenomenology, postphenomenology à la Ihde and Verbeek failed to sufficiently conceptualize the social dimension of technology use.

This chapter has learned from these approaches, but has argued that more attention is needed for the temporal, narrative, social, embodied, and performative dimension of living and existing with and through (digital) technology. For this purpose, I have been trying to carve out and develop the narrative, theatre, and performance metaphors more fully. I have used the metaphors of narrative and theatre to bring out this more social-temporal and social-performative dimension, thus offering a way of filling in the lacunas identified. This has resulted in a view of technology according to which technology is not just something we use *in* our performances and talk about *in* our narratives, and not even just a potential co-actor (*actant*), but also an author and director *of* these performances and narratives. As such it actively shapes and configures the social-temporal structure and processes of our lives and existence. It organizes how we act and interact. It organizes my time, your time, and our time.

Using examples and mini narratives, I have shown that this narrative and performative approach helps us to make sense of technological practices and existence with digital technologies, in particular it helps us to make sense of their temporal and narrative dimension. Using narrative and theatre metaphors, in particular writing and directing, has helped to articulate and reveal some of digital technologies' phenomenological and hermeneutic influences that cannot easily be conceptualized in the language of agency and not even in the language of (co-)actors and *actants*.

More generally, for understanding technology this approach invites us to move towards a better, more comprehensive material hermeneutics and postphenomenology, which conceptualizes the hermeneutically active role of technology, but does so in a way that a) gives more attention to the impact on social temporality and b) acknowledges human beings as embodied performers in temporal processes, as narrative sense-makers and narrative actors, and as beings that (perhaps unavoidably?) always also co-organize, co-direct, and co-write the stories and plays of others.

Moreover, both the general argument and the analysis of digital technologies have also helped to conceptualize some of the normative issues related to living with digital technologies. With its focus on the social and by asking the question not only *what* writes and directs our narrative time but also *who* configures and who *should* configure that narrative time, this approach opens up a way to talk about the normative consequences of technologies, including digital technologies, for humans and for their societies. In this way, it also contributes to ethics and politics of technology.

For digital technologies, this means that we now have more and sometimes better conceptual tools (metaphors) for not only understanding but also *evaluating*

digital technologies and digital existence. The results of such evaluations cannot be defined a priori or in general. The point is not that digital technologies are bad; the point is that with these tools (metaphors) we can more precisely evaluate what the humans and non-humans involved in these technologies are doing and imagine what they should be doing. We can try to make sure that better narratives are written and that humans and non-humans are directed in better ways.

For the design and development of new technologies, including digital technologies, this conclusion implies that these activities are not just technical but assume narrative-existential and social-performative significance. They are also performances that have normative consequences. If this approach makes sense, then designing and developing a (digital) technology is also writing the script of people's lives and directing people's narratives. Designers can be seen as co-playwrights/co-script writers and as co-director of our lives. Designers also contribute to giving meaning to our lives via the technologies, since the technologies they design shape the temporal-narrative dimension of our lives and existence. In these roles, they also exercise power over us.

If it is true that technology development is thus ethically and politically loaded and is even of existential importance, then we have to reflect on how we should (re-)organize design and development of new (digital) technologies. For example, it could be argued that *since technologies have these hermeneutic and existential roles*, we cannot leave them in the hands of a few designers, companies, etc. and that more democratic participation is needed when it comes to decisions about new technologies. This argument would be in line with, and in the spirit of, calls for more responsible innovation. Note also that in practice design often *already* involves several stakeholders, for example clients of a design company. The challenge is then to ask and see if there might be stakeholders that are not involved but should be, and to potentially re-organize the design and development process differently.

Of course, this approach is far from fully developed. This was a first attempt and more work needs to be done. For example, one could explore how to use (other and more) process philosophy in order to further develop the aspect of temporality in relation to technologies. One could also say more about power, for example by integrating Foucault's insights on power. And collaborations with people from the (performing) arts could help to better understand and extend the metaphors, to sharpen the tools. One could also add more tools to the conceptual toolbox of philosophy of technology, including more metaphors from the performing arts. For example, in subsequent writings I intend to develop the embodied-performative aspect by using the metaphor of dance: not Pickering's abstract dance of agency, but the dance and movements of humans as they move with and through technology.

Finally, the proposed approach urges philosophers of technology and media to become more aware that *their* writings and talks are also performances with digital technologies, performances which have narrative-temporal structures and which are always social and embodied performances. If what has been said in this chapter makes sense, then the digital technologies used by philosophers may "write" and "direct" their thinking more than they think.

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