Using Philosophy of Language in Philosophy of Technology

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Abstract and Keywords

Many philosophers of technology focus on technological artifacts, especially after the empirical turn; this has led to a neglect of the roles language plays with regard to technology. But it could be helpful for further theory development to reflect more on relations between language and technology and to learn from philosophy of language. This chapter contributes to filling this gap and explores how philosophy of language can be used in philosophy of technology. It distinguishes between a number of ways in which language and technology are connected and makes some fruitful links between philosophy of language and philosophy of technology via Searle's social ontology, Wittgenstein's view of language, and Ricoeur's theory of narrativity.

Keywords: philosophy of technology, philosophy of language, empirical turn, Searle, Wittgenstein, Ricoeur

1. Introduction: Thinking about Language and Technology as a Response to the Empirical Turn

After the empirical turn in philosophy of technology (Achterhuis 2001), which tried to get away from twentieth century abstract metaphysical philosophies of technology by focusing on our embodied and material engagements with technology, authors such as Don Ihde and Andrew Feenberg have focused on understanding and evaluating technological artifacts. This is and has been a very fruitful route of inquiry, but the focus on material artifacts has been at the expense of neglecting the roles language plays with regard to technology (Coeckelbergh 2017a, 2017b). One reason why empirical philosophers of technology such as Ihde and people such as Bruno Latour turned away from thinking about language is that some twentieth century philosophies of language were too concerned with the abstract symbolical, for example in postmodernism. The rejection of postmodernism's obsession with signs is understandable. But the neglect of theory about language and in

effect neglect of insights from an entire subfield of philosophy—philosophy of language—is problematic if philosophy of technology is to do justice to the linguistic dimension of technology and technology use, while also developing into a mature discipline that interacts with other subfields in philosophy.

This chapter aims to contribute to further articulating and filling this gap by showing *some* ways in which language and technology are connected, and by making some links between philosophy of language and philosophy of technology. This chapter is not intended to offer a comprehensive integration of these subfields but to explore some potential bridges; in particular, bridges to Wittgenstein, Ricoeur, and Searle. In order to clarify my arguments and interpretations, I will use examples from robotics and other information and communication technologies throughout the chapter.

The chapter consists of three sections. The first section shows (a) how language is often literally (note the text-based metaphor) connected to technology, for example in contemporary information and communication technologies such as software and assistive devices; to adequately describe their ontology and agency, referring to language seems essential. Talking about material artifacts will not suffice for philosophers of technology; the linguistic dimension needs to be taken into account. Moreover, (b) the use of words and the use of things often go hand in hand. For example, if I use applications such as Skype or Whatsapp to talk with someone via my phone, I am using words and a technological artifact (the phone) in one and the same act. Technology and language also align in the use of intelligent assistive devices such as Alexa, a voice interface embedded in an artifact. In such examples, however, language and technology are understood as mere instruments.

The second section outlines some ways in which language plays a role that is not merely instrumental. It argues that (a) the discourse about technologies influences the development and use of technologies and that (b) language plays a mediating role in technological practices and concrete human-technology relations and interactions. The latter claim is a response to postphenomenology's insistence that material artifacts are mediators, which usually does not consider *other* mediators, and a response to Searle's social ontology. A suggestion is made for how to integrate the mediating role of language into Ihde's postphenomenology of human-technology relations.

The third section argues that language and theory about language can also be used as a model and metaphor for understanding technology. It gives three examples of how one could use notions from philosophy of language (broadly conceived) in philosophy of technology: language games and form of life (Witttenstein) and narrative (Ricoeur). Here the point is not to say something about language, but rather to use similar theoretical notions to understand and evaluate technologies. These concepts borrowed from philosophy of language offer insights into the holistic and temporal-narrative dimensions of technology use.

The result is a palette of options for the further study of the relation between language and technology, and indeed for the further use of philosophy of language in philosophy of technology. Of course this overview is not meant to be exhaustive; there may be many

more ways in which language and technology are connected, and there are of course many more theories and approaches in philosophy of language that could be used. This is just a selection to show how it could work. Moreover, by making connections between the material and the linguistic dimension in technologies, the chapter also constitutes a critical response to the empirical turn in philosophy of technology, in particular to postphenomenology: this chapter is to be read as an attempt to redress the latter's over-emphasis on the material aspect of technology to the neglect of understanding language as a mediator.

2. Language, Literally: How Language Is (very often) Ontologically and Pragmatically Entangled with Technology

Language is often literally connected to technology, or is even part of what the technology is. Consider some of the technologies most of us use daily, such as computers and mobile phones (or less common technologies such as robots). These are material artifacts, to be sure, but they run on software, which is based on a software language, on code. Both the material aspects and the linguistic aspects constitute the technology. For the technology to work, it is crucial that they are connected. Code by itself cannot do anything in the world; the hardware (and other software) is needed. Vice versa, the hardware needs the language of software to do things. When it comes to contemporary information and communication technologies (ICTs), it is clear that language and materiality are entangled. The agency and ontology of such technologies cannot be adequately described without taking language into account. Even at the so-called technical level, these technological artifacts already have a hybrid nature: they are material and linguistic at the same time.

Moreover, when we consider *use* and interaction with ICTs, in many cases language is crucial since it is a key part of the interface between the human user and the technology. This was already true for personal computers and the Internet, which use text-based interfaces, and it is even more true for so-called social media and for new social devices such as home assistants and social robots, which increasingly use voice-based interfaces. Both text and voice communication rely on language. There are material devices such as a computer with keyboard or a robot, but the actual use of, and interaction with, the use of device is mediated by language. Moreover, language also mediates interaction with others, through the technology. Phenomenologically speaking, the user is not interacting with the material device. The user is either communicating and interacting with other users or with the "personality" of the device (e.g., an assistive device or robot), and both language and material technology mediate and make possible this communication and interaction.

Thus, language is part of technology (e.g., a computer always includes code to function) or simply *is* a technology; for example, an interface technology, a communication technology, an information technology. It is an instrument to interface between human and mate-

rial hardware, it is an instrument to talk with people, it is an instrument to share information, and so on. This is also true for older ICTs. Think about a book, for example: ontologically, it is both matter and language; there is a material dimension and a sign dimension. There is no such thing as a text without a book or another material carrier (e.g., the screen of your mobile phone), and a book without text is not a book (it might be a work of art, for example, which draws attention to the materiality of the medium). Furthermore, the book is a means of communication, for example, communicating information about a subject or communicating a narrative. It is also an interface between author and reader and between readers. It is a technology, and it has both material and linguistic dimensions.

Now one may object that all this is true for ICTs but not for tools such as a hammer. A hammer seems not ontologically connected to language (language or text is not part of what the hammer is) and its use does not depend on language; I do not have to use words to use the hammer. This is true, and one could already conclude that attention to language can enable us to distinguish between different kinds of technologies: some are more language-based and language-dependent than others. Note also that this is one way of showing that attention to language does not mean that one loses focus on the concreteness of technologies, as philosophers of the empirical turn may fear. Instead, attention to language invites us to describe more precisely the particular concrete ways in which technologies and language are entangled.

But this is not the end of the story: it must be acknowledged that (a) we often *do* use words when we use things such as hammers, since often use of technology is collaborative and requires communication. When we think about what we do we also often use language (perhaps always—but this is controversial among philosophers). And, related to the latter point, (b) the meaning of "hammer" for us, humans, is always a meaning that is linguistically (and socially) mediated. The thing has a name, and when we use a hammer, we also use a word (at the same time). Name and thing are connected in use. We cannot normally even *think* of a hammer without using the word hammer, or an equivalent linguistic sign for one. As a child, we learn what a hammer is, and this means that we make the connection between name and thing (and between thing and use), a connection which afterwards remains tight. It also means that both word and thing are part of a social-linguistic community in which this word and this technology make sense (i.e., are used in this way). One could object that the word "hammer" is a mere representation of the actual material hammer. But this supposes that we can conceive of the material hammer without using the word or *a* word. As skilled language users, however, we normally can no longer see or use the hammer without seeing or using the word. We can use a different word, perhaps (e.g., from a different language or we can make up a word and share that meaning with others), but there will be always a *word* connected to a thing.[1]

Another way of saying this is that words do not just represent material things, they are not mere tools for classifying physical objects. They are perhaps not necessarily connected to particular things (that is, in theory there is no necessary relation), but as Heidegger and Wittgenstein already suggested, *in practice* we already find ourselves in a world full

of word-things, and indeed a world full of meaning. One could say: words and things are connected in use, not in theory (I will say more about Wittgenstein later in this chapter). But if words are not (mere) representations or tools, then this raises the question of whether language can be more than just an instrument (e.g., for communication or for representation), more than a neutral mediator, and more than something that is external to technology. Let me try to conceptualize this in the next section.

3. Language as More than an Instrument: How Words Shape What Technology Is

Words matter. Names matter. They are not neutral but shape what the thing is. We do not merely ascribe words to things. Searle argued in his social ontology (1995; 2006) that what renders things social is that we use words that perform a declaration and in this way give meaning to things. For example, paper money is only money because we declare (and agree) that it is money. Searle thus made a sharp distinction between, on the one hand, the material artifact, and on the other hand, the linguistic act (speech act). Against Searle, one could argue that the thing is already meaningful at the moment we use it and what the thing is cannot be disconnected from language and its use within a particular social-linguistic community. In contrast to Searle, one could argue that the social meaning is not ascribed to the meaningless thing, but rather that the thing is already socially meaningful through language (and the language community).

Another way of saying this is to claim that artifacts are linguistically constructed. As I have argued in an article about language and robots (Coeckelbergh 2011), how we linguistically address robots matters for what they "are," that is, for how they appear to us humans. Again words matter: if we call the robot "she," "he," or even "you" (versus addressing the robot with "it"), this shapes what the artifact is, which is always what the artifact is for us humans. If I say "it" to the robot, then I consider it to be a mere machine. But if I use "she," "he," or "you," I set up a quasi-personal relation. Words matter with regard to what we think the robot "is." There is no such thing as a robot-in-itself. Our relation to the robot is always mediated, and part of that mediation is accomplished by language. One could object that the robot is just a machine, but to call it a "machine" is already a specific linguistic construction, which in turn also shapes our relation to the robot. It might be that we use a different word in a specific interaction, for example when someone says "my friend" to the robot, or that we use different words for some robots in the future, which may suggest that they belong to a different ontological category. Vice versa, the materiality of the robot will also shape our language use. Subject and object, language and materiality, can be distinguished analytically, but in the phenomenology of human-technology interaction and the use of technology, they mix.

But language is not only about words as such, and not even about sentences. We also create larger wholes such as discourses and narratives. This is also true for technology: we talk about technology, and particular technologies such as robots or computers are linked to a discourse *about* them. As individuals and as societies, we respond to technologies (or

ideas of technologies) and we give meaning to technologies. This shapes what the technology "is." And discourse can also include fiction. For example, in the discourse about robots the story of *Frankenstein* and the film *Terminator* play a role: there are all kinds of fears of robotics and artificial intelligence, and they shape the use and development of the technology. Engineers and computer scientists know this: if there is too much fear in the general public, based on, for example, the Terminator discourse, then their technology may not be accepted. In response, they try to re-shape the discourse in a direction they think is better. For example, they might stress that robots are just tools or just machines. As twentieth century theorists such as Foucault have stressed, discourse is always connected with interests, knowledge, and power. There are different parties involved, with different backgrounds and positions. Each of them tries to shape the discourse (science and technology studies, for example, reveal this so-called "social construction"). By doing this, they implicitly acknowledge that the discourse itself is not "mere" language, "mere" text, and so on. Language, like technology, shapes how we see the world and what we do. Paradoxically and perhaps ironically, interventions from scientists and technology developers that ask to redirect our attention to the facts and the material reality of the technology (e.g., the claim that the robot is a machine, not a human being, etc.) rely on the assumption that words and discourse really matter, too. If they intervene to tell the general public *how to use words*, then they take language very seriously.

A related way in which discourse and narrative shapes our relation to technology is that modern discourse typically makes sharp distinctions between humans and nonhumans, culture and science, values and technology, and so on. Moreover, in the nineteenth century Romanticism further stressed these oppositions, by turning away from technology towards authenticity—thus again opposing science, technology, and rationality to a human sphere that was assumed to have nothing to do with science and technology. There was also a romantic narrative (which has deeper roots in Western culture and religion) about a paradise, a Garden of Eden, which is then lost in a Fall. In this narrative there is hope and longing for a Restoration of the Garden.[2] The way we speak about technology today is still influenced by this modern dualist thinking and by this romantic reaction and Garden narrative (some philosophers of technology are aware of this; Don Ihde (1990), for example, has criticized this Garden narrative).

Many people who critically reflect on technology today do so by contrasting technology to human values, human principles, human lifeworlds, and so on. Technology is often still seen as belonging to a separate, non-human sphere that is different from, or even hostile to, the human sphere. For example, with regard to artificial intelligence it is said that we need to make sure that human values are respected (as if AI is something entirely disconnected from human values in the first place). And in these criticisms there is often the assumption that while contemporary technology is bad, there was once a Garden, before technology, a state that was still good and harmonious—until the Fall brought about by technology. For example, it is said that the Internet and mobile devices are bad compared to television, which still gathered the family, whereas now everyone has their own screen. The point here is not to argue that these criticisms are *entirely* misguided (there may well be some truth in them) but rather to expose the discursive and narrative patterns that

shape our current thinking about technology. Language, in the form of discourse and narrative that is culturally-historically developed and rooted, shapes how we think about technology and hence shapes what we think technology is and should be.

These discourses and narratives are larger cultural patterns, but they also shape specific human-technology relations. Let us now return to that concrete interaction with technology and how it can be conceptualized in a way that takes language into account.

Language Mediates Human-Technology Relations

One way to conceptualize some ways in which language influences technology is to say that language *mediates* human-technology relations. Language is a medium, but not a neutral medium. It also shapes the technology, our world, and our relation to the technology. This is true at the level of culture and society generally (think about *Frankenstein* again), but also at the level of concrete human-technology relations.

In philosophy of technology, postphenomenology is famous for its conceptualizations of how technology mediates human-technology and human-world relations. Don Ihde (1990) and later Peter-Paul Verbeek (2005) distinguished various ways in which we experience technology. Let me limit my summary to the following three human-technology relations. First, technology can be *embodied*: we use it, but we don't perceive the technology itself. Think about wearing glasses or driving a car: in use, the artifact itself disappears from view. Earlier Heidegger (2010) already drew attention to this, when he distinguished between *ready to hand* and *present at hand*: whereas sometimes technology appears to us as an object (as "present at hand," for example when it breaks down,) usually we are not explicitly aware of the technology as we *use* it (when it is "ready to hand.") But even if the artifact disappears from view, the technology still shapes my perception. For example, I see a city differently when driving a car than when I am walking around. In a sense, I am in a "car world" or the "car" version of the city. But usually I do not think about this mediation. Second, we can have a *hermeneutic* relation to technology: the technology is perceived as being part of the world. For example, the thermometer measures temperature, but generally we no longer distinguish that from our feeling how warm it is: how warm it is, is now a matter of temperature. I live in a world that *has* temperature. The technology shapes how we view the world. Third, we can have an *alterity* relation to technology: here the technology appears as an other, or a quasi-other. For example, a robot may appear as a social companion. I no longer think about the machine but interact with the robot as if it were another human being. These three relations can be summarized and represented as follows (summary based on Ihde 1990, Verbeek 2005):

- Embodiment relations: (I–technology) → world
- Hermeneutic relations: I → (technology–world)
- Alterity relations: I → technology (world)

Now this scheme of human-technology relations is and has been a very helpful way of thinking about the (post)phenomenology and (post)hermeneutics of technology use. It enables us to analyze how technology is not a mere instrument but also shapes our experience and (according to Verbeek) our actions. However, what is left out in this scheme and analysis is the way *language* also functions as a mediator between us and the world and between us and technology. As I have argued in *Using Words and Things* (Coeckelbergh 2017a), if we want to take a postphenomenological approach at all, we had better adapt the schemes to include the mediating roles of language. Let me start with an example: when I use the Internet to search for information, not only is the *technology* between me and the world; I also relate to the world and to the technology via *language*. For example, I use the keyboard of my computer or the screen of my mobile phone to type in search terms, and when I find information I read text. When I am working with the Internet I do not think about the technology, but language also remains invisible. Thus, there is the following relation:

(I – technology + language) → world

This is an embodiment relation. But the reading of text on the screen can also be seen as a hermeneutic relation, to the extent that we no longer distinguish between the linguistic, textual information on the screen and the world. The world has become mediated and shaped by both the material technology (Internet, computer, mobile phone, screen, etc.) and language. We see the world through both language and technology. For example, when we access the Internet, we can experience it as a tool through which we access the world, in which case it is embodied, but it can also appear as a feature of the world, in which case there is a hermeneutic relation. That world may then appear as consisting of online words and things. More generally, mediated by language, in the hermeneutic relation we see things and words at the same time. This is how we can represent the hermeneutic relation:

I → (technology + language – world)

Phenomenologically speaking, the text and the screen here are not mere representations or instruments, but are part of the world, of my world. Both language and technology mediate hermeneutically.

Finally, if I relate to a robot as a quasi-other, this is not only a relation to an object. When the robot appears as a quasi-other, the robot typically is given a name. Again, it matters what name is given (e.g., “you” versus “it”), which are all different ways of encountering and constituting what the robot “is” and which shape how we deal with it and use it (as I will remind philosophers of technology in the next paragraph, language also *does* things.) By means of the use of language, the robot can be constituted as a thing *or* as an other. Language thus mediates my relation to the robot and to the world (via the robot). I relate to the robot as other and, as when we relate to other human beings, that robot as other can then no longer be separated from the name. I relate to the name-robot:

I → technology + language – (world)

These are some examples of how both technology and language mediate our relation to the world and how language mediates our relation to technology. While Ihde and Verbeek have rightly pointed to the role of material technologies as mediators, they have neglected the mediating role of language and its varied and sometimes complex relations to technology. Not only technology "does things," to borrow a phrase from Verbeek: *language* also "does things." It also shapes our experience and our actions.

A more radical way to conceptualize the mediating role of language is to argue that—as I suggested before—language simply *is* a technology. And since technology mediates, language then also gets imbued with all the mediating roles postphenomenology has given to technology. This solution is perhaps more elegant, but it requires a radical revision of the claims of postphenomenology and the empirical turn because, on this view, technology is not limited to *material* artifacts, but rather has the hybrid nature of material and linguistic dimensions. The challenge then is to further theorize how both are connected and how both work together to play the mediating roles postphenomenology distinguished. The schemes of Ihde and Verbeek can be seen as too limited; elsewhere I have made proposals for a revision (Coeckelbergh 2017a).

Another way to conceptualize the more-than-instrumental meaning of language *and* to use philosophy of language is to employ Wittgenstein. This leads us to the first part of the next section. Here the claim is not that language is technology, but rather that technology is *like* language, that language is a metaphor to better understand technology.

4. Language as Metaphor: Using Thinking about Language for Thinking about Technology

The previous sections made direct claims about the role(s) of *language* in relation to technology. To further develop these points, more engagement with philosophy of language is needed. But this section takes a very different route to connect language and technology: it does not directly respond to philosophy of language or philosophy of technology, but borrows *approaches* from theories about language to say something about *technology*: what if (use of) language is a metaphor for (use of) technology? Drawing on previous work, I focus on two thinkers in philosophy of language: Wittgenstein and Ricoeur.

From Wittgenstein's Language Games to Technology Games

The later Wittgenstein is known for his use-oriented view of language and meaning as articulated in the *Philosophical Investigations* (Wittgenstein 1953/2009). According to Wittgenstein, meaning is not fixed to an object or sign but depends on use. He compares language to an instrument (§569, 159e). The metaphor he uses is technology, in particular tools in a toolbox:

> Think of the tools in a toolbox: there is a hammer, pliers, a saw, a screwdriver, a rule, a glue-pot, glue, nails and screws. — The functions of words are as diverse as

> the functions of these objects. (And in both cases there are similarities.) (Wittgenstein 1953/2009, §11, 9e)

Words can be used in various ways, depending on what we do. He argues that language is interwoven with activities; he calls this a "language game" (Wittgenstein 2009, §7, 9e) Thus, for Wittgenstein language is not a separate realm, as it is for postmoderns later in the twentieth century, but is part of what we do, and this is in turn part of how we live (together). Wittgenstein uses the term "form of life" (§19, 11e). Thus, Wittgenstein gives us a use-oriented and holistic understanding of language: language is not just about words or text (understood as signs); what gives language meaning and lets it give meaning is that it is always connected to our activities and to the way we live.

This understanding of language can be used for understanding technology (Coeckelbergh 2017c). We can turn the metaphor around: not only is language like technology, technology is also like language—with language understood in a Wittgensteinian way. We can develop a use-oriented view of technology (see also Franssen and Koller 2016) and we can borrow Wittgenstein's more holistic approach to say more about technology (Coeckelbergh 2017a, 2017c, 2017d). We could say that the meaning of technology also depends on its use and the context of its use, and that technologies are always embedded in larger social and cultural games and, ultimately, a form of life. Taking inspiration from Winner (1986), one could say that technologies are always woven into everyday practices and existence, into a form of life that is there before the particular use of the technology. For example, when we "meet" a robot, this "meeting" is part of what I have called a "technology game" (Coeckelbergh 2017c): before the so-called "meeting," there are already social patterns and meanings connected to meetings between human beings, there is already a game and a form of life within which such a meeting makes sense. These older patterns, rules, and experiential knowledge shape the meaning, activity, and experience of the meeting with the robot. What the robot "is" and what the meeting "is," then, cannot be captured by only talking about the robot in terms of a material "artifact" (keeping in mind Wittgenstein's point about use, we could compare this with a *dead sign*, which is unrelated to its use); the use and interaction with the robot, as embedded in games and in a form of life, give the signs "robot" and "meeting" specific meanings. What matters is the activity and the game, the technology game.

Thus, and against postphenomenology's focus on technology as material artifact, one could say that what matters for its meaning is the *use*. This use is part of postphenomenological theory, but is currently de-emphasized as compared to the material artifact. If use were taken seriously, then one would have to conclude that this use is not only about relating to a thing (and about what this thing does), but also about relating to meanings and rules that shape how we relate to the technology. We can use the metaphor of "grammar" to express this. Just as language is not only about dead signs, technology is not only about dead objects. Postphenomenology is right that the object is *not* dead, but does not sufficiently clarify why: what gives the object its life (compare: what gives the sign its life) is use, *and* this use cannot be disconnected from the wider activities and social context.

Over-emphasizing materiality and embodiment within individual human-technology relations, that use and especially those social aspects have been far too much neglected.

Moreover, against Searle, one could say that the meaning of the artifact, for example, a robot, is not so much given to it by means of declaration, but rather emerges from the activity and interaction with the robot and is—to a large extent—already pre-given in a game and form of life. The rules of that game are not necessarily explicit, and are not necessarily a matter of agreement—tacit or not. Rather, the meanings connected to the robot emerge from its use in specific contexts, and that use is guided by patterns that are not completely within intentional (individual or collective) control. Both the use of language and the use of the technology are embedded within larger social-cultural wholes and patterns or "grammars," which shape the meanings-in-use. One may try to change the game, but this is not so easy and takes a long time. For example, in our societies we already have some ways of dealing with pets. There are already "pet games," ways of doing things with and to pets. These social-cultural patterns are already in place when we interact with robots that look like pets, and shape our interaction with these robots—even if we are not aware of it and even if we would probably never agree that these robots *are* pets or that these games apply to these robots. The meanings of the pet games leak into our "technology games" (Coeckelbergh 2017c). In other words, one does not need to assume a declaration of meaning (actual or hypothetical); the technological artifact is *already* meaningful through its current use in a particular context and as embedded in larger wholes. The specific design features of the artifact, for example the features that make the robot look like a pet, immediately tap into meanings and patterns that are already there. In contrast to Searle, one could conceive of a social ontology according to which the social is already connected with the material, through knowledge that emerged from language games and technology games *in use*, before any act of declaration.

To conclude, Wittgenstein's use-centered and holistic approach to language is not only useful to philosophers of language; it also provides a helpful approach to thinking about technology. In response to the empirical turn and specifically in response to postphenomenology, the approach helps us to put more emphasis on meanings and effects of technologies that are not only related to the materiality of the artifact and our embodied experience, but also to the activities and patterns in the practical and social context in which the technology is used. For example, my relation to a particular robot is not only a fleshy, embodied affair and is not only shaped by its material aspects as artifact; it is always also shaped by the activities, games, and form of life that give meaning to, make possible, and constrain that relation.

Postphenomenology might not object to that claim, but the instrument they provide—a set of specific human-technology mediations—does not reveal the wider social-cultural background in which these mediations take place and which configures these mediations. An alterity relation with a robot, for instance, is only possible because there are already human-human relations. My particular alterity relation to, and experience of, the robot will be shaped by patterns in human-human relations that are already there, by games such as meeting someone and by a form of life in which some ways of doing things are accept-

ed and recommended (i.e., are “normal”). Similarly, there are already human-animal relations, which include specific activities and games. A meaningful relation to technology cannot be generated by embodied perception and material artifacts alone; what happens (what is experienced, what is done) and how it happens depends on the activities and games that are played, and the meanings, rules, and knowledge that come with these games as connected to a particular form of life.

If we interpret the term “form of life” in this way, then this approach also helps to further develop interpretations of Ihde that stress the cultural variation of (the meaning of) technology (e.g., Tripathi 2017). This variation, as Ihde would endorse, all depends on use. But this use is always embedded in a wider social and cultural *way of doing things*. Phenomenological and hermeneutic analysis should not be content with only analyzing what happens between, for example, a human and a bow (e.g., Ihde 2009). It should also connect that use and that relation to wider patterns, e.g., hunter-gatherer ways of doing things in a particular context. Perhaps that context is omitted because it is assumed as given, but it should be revealed and discussed as part of a (pragmatic) postphenomenology of technology. Using Wittgenstein’s view of language for understanding technology can thus contribute to a more holistic approach, which revises postphenomenology by further developing its point about the importance of use in a way that relates to more social and cultural dimensions.

From Ricoeur’s Theory of Narrativity to Narrative Technologies

Another source of inspiration when it comes to using approaches in philosophy of language for understanding technology is Paul Ricoeur’s work on narrativity. Like many other twentieth century philosophers of language, Ricoeur argued that language mediates our experience, but he stresses narrativity and temporality. According to him, humans interpret their everyday actions as configured by narrative, especially narrative in the form of text. Moreover, narrativity is related to temporality (Ricoeur 1980), since human experience is characterized by temporality. It is also social: our time is a shared, public time. Taken together, his claim is that we live and experience narrative time, which is always a time of “being-with-others” (1980, 188). What does this mean? In *Time and Narrative* Ricoeur writes that time becomes human when we articulate it through a narrative mode (Ricoeur 1984, 52). Narrative is thus a way to render time meaningful. But how does this narrating work? Humans engage in what Ricoeur, inspired by Aristotle’s *Poetics* (in particular his theory of *mimesis*), calls “emplotment”: characters and events are organized in a plot. One could also say that the plot configures characters and events into a meaningful whole. Aristotle wrote about tragedy. But Ricoeur thinks we also do that in our lives. A sequence is made but also a narrative whole. We understand what happened; the story makes sense—afterwards.

Ricoeur did not connect technology and narrativity. For him, technology belonged to a world of science and rationality that was different from the human lifeworld; like many other twentieth century philosophers, he saw technology as a means of domination and dehumanization. But we can go beyond this opposition of technology and humanity and

ask: what does his *narrative* theory mean for understanding technology? First, as David Kaplan has argued, humans can construct plots to understand technology (Kaplan 2002). We can tell (hi)stories about technology, or more precisely: about us and technology. We can make *sense* of technology (and of us!). Second, however, we can conceive of technology not only as the *object* of hermeneutics but also as a more "active" hermeneutic agent that mediates human experience and action (as for instance postphenomenology has argued). Can we use Ricoeur's theory of narrativity to conceptualize this, and what do we gain by this?

Again, we can use language, and in particular narrative, as a metaphor for technology. More precisely: we can use Ricoeur's understanding of narrative, that is, narration (verb) understood as emplotment, to help to conceptualize how technology mediates. In our work on "narrative technologies" (Coeckelbergh and Reijers 2016), Wessel Reijers and I have argued that just as text shapes the narrative and time of people, and just as narrative shapes time and experience, (other) technologies (also) shape human time and experience. In particular, like text narratives, technologies also achieve emplotment: they configure characters and events in plots, and hence configure human time and contribute to meaning. Of course humans, through narration, also create meaning and structure time. But technologies co-configure these.

What does this mean? Consider (modern) clocks: they are not hermeneutically passive artifacts but have actively configured the time and experience of people. For example, work in factories and offices and related "leisure time" is shaped by clocks (and calendars) that organize the narrative of people's working day, which gets a particular plot. Even before we start working, there is a work and leisure narrative that is laid out for us, and clocks play a key role in this. They enable time keeping and, ultimately, structure what we do *in time* doing the day. Clocks have also shaped the way we think time and live time, and indeed the way we make sense of our lives. We tend to think of time in a linear way, for example. Another example is a historical bridge: considered as a historical artifact or architecture which we view from a distance (e.g., as an image or as a tourist), it appears hermeneutically passive: it is the object of our story, for example, a story about war. But at the time of the war, in lived time, it was hermeneutically active as it—together with humans—helped to organize the time, experience, and lives of people. For example, there may be a narrative in which the bridge connects two countries and then gets blown up, an event which then shapes the lives of (other) people by making it impossible, for instance, to go to the other side. That is a story about people but it is also story of a particular technological artifact, which plays a key role in what happens in the war.

A more recent example could be social media or assistive devices in the home. When we use a social media platform like Facebook, that software does not only enable us to make stories about ourselves and others and to make sense of events; the technology is more hermeneutically "active" than we may assume. We might live our lives differently in the light of what we might post or like on Facebook. We might tell different stories, influenced by the medium. Insofar as it has its own ways to create plots (literally) and influences the way we create our plots, technology thus co-organizes characters and events

online and in real life, and therefore can be called a “narrative technology” in a strong sense. Technologies or media like Facebook can also literally change the plot of events, for example political events (consider the Cambridge Analytica case). But it also shapes the stories we tell about ourselves. It is more than just a *tool* that helps us to create narratives and make sense: it is a co-narrator and a fellow sense-maker. It can also influence what we do and how we do it. For example, we may go to a meeting and think about the meeting as a Facebook event, even before it is posted. Or consider an assistive device or robot in the home that communicates with members of a family: is it merely a tool or does it co-organize the people and events in the home? Does it merely register meaning-making and narration, or is it “co-author” of the stories of the family? It seems likely that what people do and how they do it will change. Compare with introducing a dog in a family: it is not a neutral “add on,” but makes for a different family narrative. It re-configures the life and social life of people. Technology can take on a similar role and effect.

To conclude, these concepts of narrativity and emplotment provide metaphors to talk about the mediating role of technology (to use postphenomenological language) and about the meaning of technology (to connect to the discussion based on Wittgenstein). In contrast to postphenomenology and in addition to the Wittgensteinian approach, this approach reveals the narrative and temporal aspects of the phenomenology and hermeneutics of technology use. It does not contradict the claims that human experience with technology and human use of technology are a matter of mediation or a matter of use, but it further develops these insights in a way that takes seriously the temporal aspect of human existence and human beings as sense-making and social beings whose lived time is shaped by narratives, including the narrating function of technologies. Material artifacts mediate, but in order to adequately describe the way they do that, we should not only consider perception and interpretation at a given moment but also sense-making by means of narrative and experience of narrative time, which happens in a social context and constitutes that social, shared reality. The meaning of technologies must be placed in the context of activities and games, but these activities and games are temporally and narratively structured and hence that meaning is connected to narrative time. Moreover, technologies play an active role in shaping these narratives. There are social-cultural patterns, and some of these have a narrative structure. But there are not only stories *about* technology: there are also stories that are co-created by technology. And that includes the stories we *live*.

5. Conclusion

This chapter has outlined some ways in which language and technology are connected, and on the way it has drawn insights from several important ideas from the philosophy of language and philosophy of technology (postphenomenology). The journey has opened up some interesting ways to conceptualize technology and its use and meaning. First, it has been argued that language and technologically are often, if not always, ontologically and pragmatically entangled; this is especially the case for ICTs. Second, going beyond technical and instrumental conceptions of language, it has also been claimed that language is

more than an instrument, that language "matters": in line with general insights from twentieth century philosophy of language (and in response to one particular view, Searle's social ontology), it has been argued that words and discourse are not neutral or passive but mediate our relation to the world and indeed to technology. This asks for at least a revision, if not a going beyond, of postphenenomenology and posthermeneutics that both disregard the mediating role of language. I have suggested how to integrate the mediating role of language into the postphenomenological framework. I have also explored the idea of conceiving of language as technology. Third, I have shown that beyond doing something with specific ideas about language, philosophers of technology can also be inspired more generally by the approaches in philosophies of language. Drawing on my recent work and responding to postphenomenology and Searle, I have articulated approaches to technology that take inspiration from Wittgenstein and Ricoeur. This has led to conceptualizations of what technology does in ways that place the embodied humans and material artifacts (and their relations) of Ihde's postphenomenology within a broader context. Individual subjects' relations to technology are always structured by larger wholes and also co-constitute these larger wholes: these technologies and these relations are shaped by games (and by a form of life) and by narrative time, and in turn the technologies help to create these games and narratives. Using these concepts from philosophy of language thus offers a way to articulate a more holistic, temporally and narratively-sensitive, and arguably more social phenomenology and hermeneutics of technology.

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Notes:

(1.) Of course this does not mean that all humans are always and actually capable of attaching a word to a thing: children who are still learning a language, people who learn a foreign language, or aphasia patients may not be able to do so.

(2.) The relation between Romanticism and technology is more complex (see Coeckelbergh 2017e), but this is not our concern here.

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