



## When Machines Talk: A Brief Analysis of Some Relations between Technology and Language

Mark Coeckelbergh (✉) 

University of Vienna, Universitätsring 1, 1010 Vienna, Austria

[mark.coeckelbergh@univie.ac.at](mailto:mark.coeckelbergh@univie.ac.at)

### Abstract

This essay for the inaugural issue of *Technology and Language* builds on sustained discussions of the relation of the (philosophy of) technology and the (philosophy of) language, for example in the suggestion that there are „technology games“ in analogy to „language games“ as forms of life. In light of recent technological developments, this essay takes another step by way of distinguishing three types of interaction between language and technology as one considers technology as a language author, language user, and shaper of a form of life. This reflects back on what technology itself is and does. Technology is deeply integrated in, and interwoven with, our human world and our human thinking, which is always also a world permeated with, and enabled by, language.

**Keywords:** Technological authorship; Artificial intelligence; Wittgenstein; Language games and technology games

### Аннотация

Данное эссе для первого выпуска журнала „Технологии в инфосфере“ (*Technology and Language*) построено на обсуждении взаимосвязи (философии) технологии и (философии) языка. Например, автор высказывает предположение, что в мире существуют „технологические игры“ по аналогии с „языковыми играми“. В свете последних технологических достижений данное эссе делает еще один шаг к различению трех типов взаимодействия языка и технологии: технология как автор языка, как пользователь языка и как творец мира. Это возвращает нас к вопросу, что такое технология и что она делает. Технологии глубоко интегрированы и переплетены с нашим миром и нашим мышлением, которые в свою очередь также имеют тесную взаимосвязь, основанную на языке.



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### INTRODUCTION

Much can be said about technology and language, which is a fascinating field on its own that has received far too little attention in contemporary philosophy of technology. Some of the landscape I have mapped in previous work (Coeckelbergh, 2017a, 2017c). In this brief contribution, I will distinguish between three ways in which language and technology relate. These relations also reflect back on what technology itself is and does. Moreover, in the light of recent developments in digital technology, in particular artificial intelligence, robotics, and natural language processing, I will highlight the ways in which such technologies take a more active linguistic and semantic role and “talk” in various ways.

### LANGUAGE IN TECHNOLOGY: WHEN TECHNOLOGY STARTS “AUTHORING”

There is language “in” technology in the sense that technologies, and especially digital technologies, are not only material artefacts – the focus of the so-called ‘empirical turn’ in philosophy of technology (Achterhuis, 2001) – but also are made of language in various ways. Consider the many programming languages used to create software or text (and hence natural languages) on the internet. Without these artificial and natural languages, there would be no digital technologies and no digital social media.

Moreover, whereas previously digital technologies merely stored and represented linguistic *corpora* created by humans, today, due to developments in artificial intelligence (especially natural language processing through deep learning) they take a more active role and become “author” themselves. Perhaps the best example of technology becoming an “author” is the recently developed language generator GPT-3: a language model that uses deep learning, a form of machine learning, to create human-like text (see for example Gary & Ernest, 2020). While some (including its creator R&D company OpenAI) see this as a step towards general, human-like artificial intelligence, the system does not understand the world and does not know what it is doing. Only humans can make sense of the world. Since the work of Dreyfus (1972), there is a tradition of philosophers showing the limitations of artificial intelligence. It may also be still relatively easy for humans to detect that the text is coming from a machine. Nevertheless, technologies such as this show that digital technology is gaining more agency and autonomy when it comes to authoring text, and we have still to see the resulting applications and evaluate their ethical and societal implications.



## LANGUAGE USED IN TECHNOLOGICAL PRACTICES: WHEN TECHNOLOGY STARTS TALKING

But technology is not only about things or systems; it is also about practices done by humans. Here language also plays a role: humans talk about technology as they use it. To take an example from a philosophy text, Wittgenstein's *Philosophical Investigations*: when builders use slabs, they may ask each other to pass one, saying "Slab!". This use of language relates both to humans and to things. As Austin (1962) put it later, words are not only used to describe things but also to do things and to get others to do things. Words and things are thus both part of a practice, or what Wittgenstein called a 'game.' To use a contemporary example involving digital technology: when people interact with a robot, they may talk about the robot in order to describe it or to get someone else to do something (e.g. shouting "Robot!", meaning "Go out of the way, the robot is there!"). They may also use language to give it a particular status, for example to say that it is a "thing", a "machine", or that it is a "person" – all of which have normative meanings and consequences. As Searle (1995) would say, we use language here in the form of a 'declaration', which gives a particular (social) status to things. But this has social and ethical implications. In a sense, we "construct" what the robot is through language (Coeckelbergh, 2011). For example, it matters for its status and how we treat it whether we give the robot a personal name or say that it is a "machine". What the robot "is," depends not only on its material, physical appearance, but also on how we talk about it and to it.

Yet the latter example also points to a different relation between language and technology: the robot may come to be seen as more than a machine, as an artificial other. And this is especially likely to happen when robots are not only the object of human talk, but start talking themselves. If developments in AI, especially natural language processing and synthetic speech, continue, a different human-technology relation takes shape. In this relation both humans and non-humans become natural language users, this time not only by means of text but also by means of speech. Again one may point to limitations. For example, one may claim that machines do not have a "voice" like humans, who unlike robots have a voice in a biological and social-political sense. But phenomenologically there is a clear difference: the machine is not only talked about but also talks. This is already the case to some extent for instance with digital home assistants such as Alexa. In the future we may see more devices, including robots, that are linked to artificial intelligence, enabling them to participate in conversations with humans. Again we do not yet know all the applications and implications, but one implication is that such devices and machines now are also able to do things with words and make others (humans, other machines) do things. This includes them in the socio-material practices and games described by Wittgenstein and others.

While postphenomenology (Ihde, 1990) already claimed that things mediate between us and the world, when these things become language users they have further unintended consequences, which are far from clear yet. In previous work (Coeckelbergh, 2017c) I have proposed some ways to map relations between technology, language, and world, in terms of mediation but also in other ways. This includes conceptualizing that and how technology "talks" – in a metaphorical sense of gaining more agency and having unintended consequences, and sometimes in the literal sense of speaking. Moreover, the Wittgensteinian framework enables us to reveal the social and political dimension of what



technologies and language do. Whereas postphenomenology tends to focus on individual users and their relation to the world, here technology is embedded in wider contexts or what I have called ‘con-technologies’ (Coeckelbergh, 2018). This brings us to the third way we can conceive of the relation between technology and language.

### **LANGUAGE IS LIKE TECHNOLOGY, AND TECHNOLOGY IS LIKE LANGUAGE: WHEN NEW TECHNOLOGY SHAPES A NEW FORM OF LIFE**

In order to show that the meaning of language is about use, Wittgenstein (1953/2009) relies in the *Philosophical Investigations* on technological metaphors: he compares words to tools. Language then functions as a kind of ‘toolbox’. It is an instrument – indeed, it is itself a technology. But as I have argued (Coeckelbergh, 2018), we can turn the metaphor around and say that technology is like language. This enable us to import Wittgensteinian thinking about language use into philosophy of technology, in particular thinking about technology use. The result is a more holistic way of thinking about technology that links technology with the activities and practices it is part of and – using Wittgenstein’s terminology – with what I have called ‘technology games’ (Coeckelbergh, 2018) and forms of life, putting it firmly in a social and cultural environment, which regulates it but also is shaped by it. The point is not only that technology has structure and a kind of ‘grammar’ (Nordmann, 2002) in the way it is composed materially, but that it this material composition is in turn part of a social and cultural “grammar.” In use and as used, technology is part of a larger whole of the way we do things, of a form of life.

Today’s digital technologies, then, are not only passively shaped and regulated by the culture in which they flourish – this is certainly also the case, consider for example the salient influence of Californian culture on technology development *and* use – but also, more “actively”, define and shape that culture, influencing our creation and communication of meaning. For example, as I have shown romantic thinking and culture, which emerged in the 19<sup>th</sup> century, still influences our use of, and thinking about, technology (Coeckelbergh, 2017b), but at the same time the new technologies also influence our entire way of thinking. Exactly how is a matter of discussion. For example, one might argue that today’s modern technologies like power plants created a culture of treating things and the whole natural world as ‘standing reserve’ for human purposes (compare Heidegger, 1977). Fitting into this culture, artificial intelligence and data science may lead to datafication or informatization of the world in the sense that we conceive of the world (and in the end ourselves) as a collection of data or information. Some do not think this is necessarily problematic, or believe that it has always been like that in the first place. According to Floridi (2011), the ‘infosphere’ is the totality of being and we are informational entities. In any case, this example clearly shows how engagement with a technology (here: the internet of the 1990s and its further development during the previous decade) led a philosopher to think differently about the world. Another proposal for how technology shapes our thinking and culture: one could argue that technologies such as artificial intelligence get interwoven with religious meanings.



We expect a lot from technology, especially artificial intelligence. We expect that it solves all our problems (technological solutionism). Is it becoming an oracle or a god? What are the new practices, games, and rituals that will emerge?<sup>1</sup>

Technology shapes our thinking and culture, and not only because we humans create technology but also because, as a game changer and shaper of our form of life, technology is deeply integrated in, and interwoven with, our human world and our human thinking, which is always also a world permeated with, and enabled by, language. The story of humanity is also the story of technology, and both are entangled with the story of language. Thinking about technology and language is therefore crucial: our future depends, quite literally and materially, on the words and things we use. And increasingly also: on the words and things *machines* use.

*Mark Coeckelbergh*

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<sup>1</sup> Consider for instance the art work "Appropriate Response" (2020) by Mario Klingemann, which creates a ritual-like experience in which a person who kneels looks up to a split flap display that shows a short phrase written by a neural network (GPT-2, the forerunner of GPT-3 mentioned elsewhere in this article), which seems to be meant as a kind of inspiration or guidance : <https://onkaos.com/mario-klingemann/> The installation raises questions about authorship (doubt whether this is written by humans or by a machine), but also about between technology and religion.



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