

Introduction

Take a minute to think about *technology*. There's a good chance you will be conjuring up almost instinctively before your mind's eye images of fiberglass cables, computers, switchboards, pipelines, factories, big and small machines. Nowadays you may also throw in touchscreens, colorful app interfaces, and more abstract notions such as algorithms. You might even contemplate visions of cyborgs, by now a well-worn staple of science-fiction movies.

Nothing could be more natural. We spontaneously imagine a range of devices—things—when prodded to give a definition of technology, be they material or immaterial, hardware or software. Ingrained in our worldview lies a well-established assumption of what technology is: something we can look at, point at. Something we at least can *name*. “We” are standing on this side, “technology” is over on the other. This common-sense definition seems harmless enough. However, technological developments are completely outmoding it.

Technology is oozing into everything. Think of—and this can only be a minimal sample of all possible examples—neural implants that control moods, 3D-printing of living tissue and organs, contact lenses recording video or enabling night vision, augmented reality apps of all sorts, Google DeepMind algorithms beating the champion of the game of Go, genome editing, and more. Every week brings new technological, scientific, and medical breakthroughs. More and more domains previously untouched by technology become “technologically mediated.”

We may look back on the recent past and wonder about how much more is *possible* nowadays. Diseases that wrecked whole populations not so long ago—polio, tuberculosis—have been all but eradicated or can be treated. The reader born before 1990 remembers the effort it took to

communicate with people far away. Now you drop a simple e-mail and in a split second, the person in the other corner of the globe can read what you've written. I keep finding it endlessly intriguing how we have gone in just a good twenty years from a world in which information was hard to come by—requiring a visit to the library, for example—to our current world in which knowledge is at the tip of our fingers, just a few mouse clicks away. We have means to extract energy from sunlight, from wind. There are robot vacuum cleaners sniffing out our houses. We generally—that is, in the West—live long, comfortable, and relatively painless lives.

Now try to look forward into the future. Extrapolating from current developments, how many more possibilities can we imagine? Who knows: in 2050, maybe we will be able to cure cancer, or it will not even exist at all anymore. People will have neural implants that enable direct access to the Internet.¹ Forget the mouse clicks. Something in your brain will tell you it's going to rain exactly at the time you're planning a run, so let's postpone it for an hour (assuming people still need physical exercise in this form). As is already a reality today, networks of algorithms will steer the global market economy in ways that far surpass individual understanding.² As today, we won't notice much of it. These processes go on in the background of our perceptual awareness; they almost never come to the fore. Who knows to what extent our everyday lives will be affected and steered by these hidden infrastructures? The stocks of a certain automobile company have decreased and suddenly you find yourself with the urge to buy a new car. Some levels in your blood have gone awry, but before your body can develop any symptoms of disease, the nanobots in your bloodstream have already solved the issue. A network of sensors, distributed throughout the city, detects the gang of thugs (assuming crime is still a profitable business) waiting around the corner so it directs you unnoticed into another street. Your brain implant does that, remember. But you feel just a vague inclination. You cannot be sure if it's your decision at all—but whose else would it be? The technology's? *Where is technology?*

Technology is making itself invisible. It is evolving itself out of existence, that is, from a human-perceptual point of view—or what we still identify as one. Technology as we define it now, as we picture it, is developing in such a way that at some point in time, it will stop being what we still picture it to be; if it hasn't already. We will experience technology rather as *ourselves*, as *us*.

So here is a problem. We figure technology is *something*, something we can point to. But let's "intrapolate"—as the reverse of extrapolate—from

these projected future developments: if technology tends to become something that we do not recognize anymore *as* technology, then shouldn't we start finding a new definition for it, now?

Philosophy of . . . What?

Of course, saying the word "technology" *is* already pointing at something, to be designated as technology. This may seem overly tautological. Nevertheless, it attests to an inherent problem in the scholarly domain known as the philosophy of technology. In fact, if anywhere people have tried to define technology in ways that surpass simple common-sense interpretations, it is in this field.

Basically, philosophy of technology in its contemporary guise attempts to find a middle road between the two "classic" views on technology: instrumentalism and determinism. The former sees technology as merely a means to an end: an instrument with which we aim to accomplish certain goals. And the goal-setting is up to us, humans. In itself, according to instrumentalism, technology is goal-neutral. This is illustrated in the famous motto of the National Rifle Association: "Guns don't kill people, people kill people."³ Guns in themselves are value-free. Humans decide what they do with them, for better or worse. Not so for determinism: here, technology takes on an all-encompassing character, becomes something that pierces through to every realm of life and society—a force, power, or principle with its own agenda, that mostly does not augur well for humanity or for human qualities. For a determinist, guns harbor an intrinsic orientation toward violence, all good intentions notwithstanding. Phrased otherwise: a world *with* guns differs completely from one *without* them.

Contemporary philosophers of technologies find flaws in both arguments. Technologies are not goal-neutral: they push us toward specific uses, they "incline."⁴ But they cannot be identified with plain, linear causes of societal effects either, like determinism suggests. Technology counts for one factor among many, and above all it can be modified, protested, controlled. It is "malleable."⁵ In sum: technologies "do" things,⁶ but their effects are not completely beyond our power. Interestingly, this makes both instrumentalism and determinism true up to a point. Determinism is right because technologies *have* effects. Instrumentalism is correct because human actors retain at least *some* control over what technology does. Extending the gun example: we may argue that since weapons are at least inclined toward

violent practices, a society in which guns are not easily available will be a more peaceful one, but for some purposes (e.g., recreational activities, police work) the use of firearms may be warranted.

Historically, instrumentalism and determinism are deeply rooted in our cultural consciousness. Instrumentalism can be regarded as the oldest view, stretching back at least to nineteenth-century positivism. With the Industrial Revolution in full swing, and its side effects—socioeconomic misery, pollution, resource depletion—still dwindled by magnificent achievement and promise, the more optimistically minded could identify technology quite effortlessly as uncompromising boon. But then the twentieth century kicked in, with its horrendous world wars, the Holocaust, and nuclear bombs, and this substantially changed the atmosphere for thinking about technology. Thus, determinism came into its own by the middle of the twentieth century, with authors such as Martin Heidegger, Jacques Ellul, Karl Jaspers, and Ernst Jünger delivering scathing critiques of technology “as such.” Technology became a threat, a force that escapes human mastery: something bigger than us.⁷

These classic viewpoints are still with us today. Vestiges of them can be found in our habits, practices, discourses, and cultural images. We often go about using technology as if it were merely a neutral means to an end. This way of looking aligns for a good part with that common view of technology as a “something,” with which we set out to do “something.” The newest digital gadget comes out and we rush off to the stores, expecting the device will help us to live more efficiently, comfortably, pleasurably—without a care for potential harmful consequences. Will it distort my social life? Make me sick with its radiation? Does its production involve miserable socioeconomic conditions for people in Asia? When I discard the device, what will happen to the waste? And so on; none of these questions usually pops into our head when we are standing at the checkout register. At the same time, visions of an all-conquering technological complex abound in our cultural imagination, most noticeably in cinema. Just watch movies of the dystopic genre, such as *Children of Men*, *The Road*, or *I Am Legend*; see how technology plays a kind of shadow protagonist there. Technology (or, more generally, technological-scientific progress) is often staged as main trigger for the installment of a gloomy post-apocalyptic era, that throws the characters back into a purportedly technology-less state. Once there, they are forced to fall back upon their supposedly natural wits, so as to overcome danger and build the human world anew. Here is visualized quite lucidly the determinist motive: technology is overwhelming “us,” and we need to reclaim our pure

humanity. What a difference with our behavior in the media store (or any other store for that matter), where we eagerly enough embrace our latest digital prosthesis: tablet, smartphone, smart TV, and so on.

This is such a schizophrenic situation. On one hand, we take technology for granted as a simple tool. On the other hand, we seem to want to process and parse its hidden conflictual potential—as in dreams—by telling and watching stories of technological calamity. Beneath the surface of our common-sense instrumentalist understanding an *itch* remains, unconsciously signaling to us the “rest value” of technology. But since we cannot digest this in our consciousness, as it doesn’t tally with our assumptions, we need to revert to other, cultural means.

As said, contemporary philosophers of technology take the middle road. They attempt to draw a less diffuse picture of technology. It is the case that in everyday use, technologies often *appear* as just efficient means. This is how they, phenomenologically speaking, are disclosed to us in the first place. But that is not the end of it. We may peek beyond the mere appearance of efficiency, toward the wider effects and impacts that technology has. Quite a few representatives of contemporary philosophy of technology have in one way or another outlined such a dynamic: a dichotomy between a “narrow” view—technology is about technical efficiency and nothing more, or so it *seems*—and a “wider” perspective—technology fans out into countless complex networks of causes and consequences, and we can and should map those networks. I will call this in what follows and for the purposes of my argument the *central dichotomy* in the philosophy of technology.

The dichotomy already goes a long way in subverting “technology-as-something” thinking. Indeed, when you point beyond technology-as-just-efficient-thing toward a broader constellation of interacting elements, the technology-as-something (i.e., a thing to point to) partly disappears. In that capacity, philosophy of technology seems perfectly tuned to the technological developments toward invisibility. The domain in itself develops a *disappearing notion*. But at the same time, there is a big irony: in doing its job, so to speak, the philosophy of *technology* also partially annuls its very object.

Looking at Technology Anew

Of course, philosophy of technology’s disappearing maneuver has a positive value. It signifies technology’s “true nature”: technology no longer is, and

never actually was, a simple something. Any technology is spread across its networks of effects, other technologies, political-economic-social-cultural factors that constitute it as the technology that it is. We just get it wrong in everyday life, with our common-sense instrumentalist notion. We don't "get" technology. Sure enough, some insights of philosophy of technology have begun to seep into the collective consciousness. We are starting to learn, for instance, how a plastic container is never just a plastic container: it may harbor harmful substances such as bisphenol A. We are gradually mapping some technologies' larger-scale ecological effects. Yet the uptake of this kind of perspective remains slow and ineffective, and counterexamples are legion. We steer our cars roaring down the road, largely unmindful of environmental damage, the well-being of pedestrians and bicyclists, our own health. We use social media mostly unthinkingly, unaware of, or indifferent to, privacy concerns. We keep stuffing ourselves with industrially produced foodstuffs, possibly filled with pernicious ingredients. And so on.

Now one explanation for this latency in understanding is that we are still coming to grips, in our common consciousness, with the advances in intellectual-philosophical history achieved throughout the twentieth century. Like many other twentieth-century philosophical movements, philosophy of technology started out reacting to our modern philosophical-cultural heritage that circles around the Cartesian notions of subjects and objects, and a strict split between those two. Steeped in that worldview, we learn to see ourselves as subjects—autonomous, independent entities—positioned over and against objects that we perceive—regarded just as much as self-contained entities. Philosophy of technology teaches how technological things are never *just* things. Subjects and objects, with a term used in postphenomenology, "co-constitute" each other. But we still have to catch up with that new view. In everyday life, our modern legacy keeps working its influence, and we have a hard time shaking the epistemological habit of looking at technologies as nothing but freestanding objects that we, as sovereign subjects, effortlessly manipulate and command. The wider mode of grasping and understanding broader impacts, *beyond* the narrow, efficiency-oriented view, remains extremely inaccessible in practice.

However, if this would be the only issue, it would be solely a matter of integrating the insights from philosophy of technology more into our worldview, or waiting until this happens. Yet there is more in play. As stated, approaches in philosophy of technology elaborate a different view, in opposition to the modern legacy. According to these views, the human

being and technology are no longer to be seen as two independent entities: they constitute each other. The human and technology are interwoven, ontologically, from the start, these views assert. Indeed, we can see a logical connection with their *wide* definition of technology: if technology is spread out to such an extent, in the end it becomes impossible on a fundamental level to distinguish between “us” and “it.” Thus, we need new postmodern or amodern ontologies that radically go beyond the Cartesian subject-object split. Scholars such as Don Ihde, Bruno Latour, Peter-Paul Verbeek, and Bernard Stiegler have worked out such perspectives, based in different traditions.

Nevertheless, no matter how amodern these ontologies are, technological developments continue to challenge our idea of what it means to be human. This we notice on a day-to-day basis, when we (are forced to) face questions like: should we approve of GMOs? How far should reproductive technologies interfere in the “natural” reproduction process? Should we seamlessly mingle with brain implants? Et cetera. The amodern ontologies only go so far in helping us settle these disputes; we still need to *engage into the discussion*. Phrased differently: even though we are already *ontologically* merged with technology, we still need to make decisions about the extent to which, on an *ontic* plane, we wish to keep fusing with technologies.⁸

So here is a paradoxical situation. We ought to learn how technology is not a something but in fact is dispersed throughout a network structure, even to such a degree that we ourselves are part and parcel of that structure just as much. All in the same boat. Simultaneously, we’re pushed every day to think about and decide upon specific instances of merging with technology. So we remain powerless with the common-sense instrumentalist notion that cannot account for the condition of *being merged*. But we stay just as powerless with the amodern “interwovenness” perspective of philosophy of technology, that does see humanity and technology as ontologically merged, but remains somehow blind to the process in between, that is, of *merging*. Indeed, we easily recognize this conundrum in the public debate about particular technologies or media, such as artificial intelligence (AI), machine learning, or self-driving cars. Typically some parties in the debate warn: “Watch out!” While others reassure: “No worries; technological evolution belongs to what it means to be human.” Such discussions invariably arrive at a stalemate. Opponents see a certain technology as plainly incompatible with some essential human aspect. Proponents find no gap between the technology and the human being; however, we may have to mitigate nefarious side

effects in an initial stage (that is the price we pay for inevitable development and progress). In the meantime, the technological developments just march on, while all the while everyone is suggesting: “We should investigate this, we should investigate this now, before it’s too late!”

But this attests to the profound inadequacy of discussing these matters in terms of technology *x* or *y*, or in terms of something that we humans do. We need to start thinking differently about technology—not as a this or a that; but also not as an “us” (at least not in the way we are doing it currently). We need *another* lens. Now when a problem seems so convoluted, that must mean the solution is equally complex. Or that is what we would expect. But sometimes, solutions lie closer to us than we would think. In this case, we can find the solution (if such a term applies) surprisingly close to home, if we basically choose to revisit another common-sense idea about technology, namely, that we use it *for* something, for a certain *purpose*. Again, what could be more obvious? Yet philosophy of technology, as we will see, has in an essential manner forgotten about *purpose* along the way. To be more precise: it has relegated purpose to the narrow side of the central dichotomy, limited it to that side only. In everyday life we use technologies to achieve a purpose—better, faster, more cheaply, et cetera, thus, according to the dictates of efficiency. This lines up with the classic Weberian understanding of technology as purposive-rational action. But as we saw, there is *more* beyond this: wider consequences and effects. However, as soon as we enter that wider mode, we seem to have suddenly stopped talking about purposes—as if we can only make sense of “small,” instrumental purposes, which are “on the other side.” Yet there is a *wider sense of purpose* that we need to reinvigorate. But therefore we require a refurbished philosophical foundation or infrastructure. This, we will find, is actually already lying dormant within the philosophy of technology. But in order to fully bring it out, we need a conceptual key. That key, in this book, is the work of Gregory Bateson.

Gregory Bateson as Philosopher of Technology

He might seem an unlikely ally. Gregory Bateson (1904–1980) scarcely wrote about technology. He was also not a philosopher, but an anthropologist by training, and his subsequent career exhibits an eclecticism that dizzies even the most interdisciplinary mind. But he pretty much fell along the wayside

in the pantheon of academic stars: his name doesn't really ring bells anymore (if it ever did) with a general audience.

Yet, although removed from the big spotlights, Bateson's place in intellectual history is indisputable. He made advances in domains as various as anthropology, cybernetics, communication, psychology, biology, and cognitive theory. Often the terms or notions he coined are better known than him: *schismogenesis*, information as "difference which makes a difference," *double bind*, "ecology of mind." He is seen to have been a trailblazer for ecological awareness. Since his death, attention to his work has been steady but not overwhelming. There have appeared a few intellectual biographies. The famous popularizer of physics Fritjof Capra regards him as an important influence, pointing out Bateson's relevance for a holistic, nonreductionist view of life. Others have stressed his importance for ecological education, while still others focus mainly on his theory of communication and its paradoxes. There has been continuing attention, up until this day, to his psychological work on therapy and interpersonal relations. Occasionally, someone adapts a Batesonian phrase or term, however, then the terms go on to largely shroud their origins throughout their further adoption, as in the case of Gilles Deleuze and Félix Guattari (*plateau*)⁹ or Bernard Stiegler (*écologie de l'esprit*). Not in the least, through the writings and work of his daughters Mary Catherine and Nora Bateson, his legacy is kept alive.

But with this book I argue that beyond those readings, Bateson deserves an even more pronounced, more consistent stature as a great thinker for our time. In order to really unearth the grounds for that designation, nevertheless, we need to approach his work from another angle: it must be made clear how Bateson can help in confronting our day-to-day existential struggles. Those fan out into globe-spanning issues, and conversely, our global challenges trickle down to everyday life. At the junction of these concerns lies, indeed, *technology*—from our small daily dealings with smartphones, social media, financial transactions, transportation, health, and work to the big questions of automation, social injustice, climate change and power monopolies. All are mediated—and connected—by technology. Bateson's work, I believe, harbors unique perspectives to frame technology-related problems from a refreshing perspective. Nonetheless, bringing these out requires a special strategy. Judging superficially, one observes that technology plays just a marginal role in Bateson: he only sporadically mentions "technology" literally. Yet in fact the question concerning technology, to borrow Heidegger's phrase,¹⁰ lurks in every nook and cranny of his thinking. Now that we have the insights from

philosophy of technology at our disposal, we possess the right instrument to truly articulate this—by reading Bateson as a philosopher of technology. And at the same time, we can gain a fresh perspective on philosophy of technology by reading it through a Batesonian lens.

For Bateson, technology is first and foremost a matter of purpose. More specifically, it is the—often material—enhancement, or extension, of what he terms “conscious purpose”: the typically human drive of wanting to accomplish aims. But conscious purpose in Bateson’s account stands for only a small part of the whole “ecology of mind.” The larger network of patterns that connect human beings to other living organisms far surpasses our narrow focus on goals. At this point a certain ethics or cultural critique steps in: we have gone too far in pursuing conscious purpose, Bateson argues, and have thereby started to neglect the true, that is, interconnected nature of the world. Yet that nature “works” in certain ways, and to understand how exactly becomes the main task Bateson takes upon himself throughout his career. The end result is an intriguing, though not completely finished—Bateson was in the midst of systematically synthesizing his views when he passed away—picture of a two-sided reality in which a “flux” of processes is punctuated by “difference.”

I want to take these three aspects of Bateson’s thinking together—technology analysis, ethics and cultural critique, ontology—in an endeavor to disclose Bateson’s thought for the purpose of understanding our everyday involvement with technology. This is a particular effort not before undertaken in this form by any of his commentators. So at the same time I offer a presentation of, and introduction to, Bateson’s work that can help contemporary readers get acquainted with his thought. That thought is systems-oriented through and through—Bateson being of course one of the pioneers of cybernetics. But he elaborated possibly one of the most holistic versions of systems thinking, tying together cultural, psychological, and social perspectives into one mind-dazzling frame. That peculiar combination of “big” and “small” can serve us well. Technology is literally ever expanding into wider concentric circles of world-covering networks, becoming ever more our environment: the water in which we swim. But it also makes the reverse movement, radically: into us, fusing seamlessly with our bodies, practices, habits. As we’ve seen, in that sense it is disappearing, if only from an everyday experiential-perceptual viewpoint. Bateson offers a systems-view perspective, however a peculiar one, that is perfectly suited to this situation: he eminently helps us to see systemic relations that might at first be invisible or hard to spot.

Across the Gap of the Central Dichotomy

Bateson's framing of technological issues in terms of purpose can, exactly by overturning the premises of the debate, cast our problems with regard to technology in a liberating light. Suddenly one is freed from the myopic focus on technology, able to look at issues from a broader angle. Specifically, this new perspective can also help us to take on some of the more fine-grained conceptual matters with which the philosophy of technology as a domain is currently struggling.

Philosophy of technology emerged as a full-blown philosophical sub-discipline in the last decades, and since the famous "empirical turn" of the 1980s and 1990s it has received a significant boost.¹¹ The field showcases diversity and richness, with various approaches each digging into their own conceptual roots, such as postphenomenology, critical theory of technology (also now called critical constructivism), and philosophy of information.¹² All have one methodological guideline in common: they take technology as prime point of entry for their study of the ethical, existential, social, or political characteristics of the *condition humaine*. As we've seen, this is already problematic in itself. But there are some more difficulties that the field is facing.

For one, the question recently arose whether philosophy of technology has not remained, or again become, *too instrumentalist*. Indeed, in distancing themselves from purportedly determinist approaches such as Heidegger's and Ellul's that see technology as an all-encompassing, all-penetrating force, contemporary philosophers of technology have made a heartfelt plea for the malleability of technology. But this aspect has perhaps been taken too far, with scholars expecting too much from technology's instrumental room for maneuver. Moreover, the times may be asking for a—at least partial—return of the notion of technology-as-overwhelming-force. At stake here most importantly is the increasing *algorithmization* of life and society. Through the growth and further mainstreaming of types of information and communication technology (ICT) such as apps, bots, wearables, sensors, and cloud services, more and more domains of life are being "algorithmized." That is, mediated and steered by algorithms: markets, administration, policy, health, education, social interaction, security, transportation, and so on. In the shape of the already relatively mundane phenomena of, for example, social media newsfeeds, on-demand streaming, and computer-generated news messages, algorithms are having a direct influence on everyday life. And with the growing importance of the "quantified self," "quantified other" and

Internet of Things (IoT), this impact should only intensify. Nevertheless, as already suggested, much of these networks of data, artifacts, and other components remains unnoticed, behind the scenes. The rapid growth of this hidden mediatedness of our world makes ICT's actual scope and impact increasingly escape our perceptual and intellectual grasp. An overly instrumentalist approach risks losing sight of this. These phenomena raise the long-standing question of human control over the technological entity anew. We have not quite yet arrived at *Terminator*-like scenarios, but algorithmic structures at times exhibit a behavior that can be, at minimum, perceived as autonomous and all-encompassing. Do we need to cast technology in a more determinist or essentialist light again? If so, how to do this without relapsing into pure, massive determinism?

In line with this concern about instrumentalism, there has been a debate going on about the status of the *empirical turn*. Some facets of technology, it is said—political conditions, for instance—can scarcely be scrutinized in an empirical manner. Empirical turn perspectives are currently being assessed for perhaps having become too empirical,¹³ and calls are made for a return from the empirical: a re-transcendentalization or a “transcendental (re)turn.”¹⁴ Critics are concerned that too much focus on how technologies are experienced in specific, practical contexts—although looking at this is surely a commendable endeavor—may entail a dangerous disregard for their “system” characteristics. This may eventually cede the playing field completely to corporate and established political interests. The new developments in ICT described above make this lack even more pertinent. Also, there is a concern about methodology. As Dominic Smith argues, the heavy emphasis on empirical case studies enables a certain type of analysis but may block out others.¹⁵ The very character of a case study makes some phenomena more suitable for study than others. Often, Smith suggests, the factors that determine and limit the choice for a particular phenomenon will not be made explicit.

These problems have fundamentally to do, of course, with that big ontological question about where the human being ends and where technology begins: is there a distinction between the two, or are they continuous? We saw how philosophers of technology in recent years have converged on the latter point of view, in opposition to modern ontologies that pit a subject (human, spirit, mind) against an object (nature, matter). Amodern ontologies see the human being and technology no longer as two independent entities, but as constituting each other. Examples include cyborg theory, actor-network theory, and postphenomenology. But as stated previously, how

to rhyme this so-called human-technology continuity (or in Bruce Mazlish's words, "fourth" continuity)¹⁶ with our daily struggles and controversies on "where to draw the line"?

It should be clear by now to the reader that these problems not only are interrelated but have essentially to do with the main issue that I described above: *to study technology is to study a vanishing thing*. In everyday coping or common use of technology, this issue manifests itself as a kind of conceptual reification: we understand technology as a thing, whereas it is—or at least is becoming—*more or less than* a thing. In philosophy of technology, subsequently, diverse approaches try to make sense of this situation, through investigating the network-like character of technology, but in the end they *lose*, exactly, their object of study. It will become evident in this context that philosophy of technology's fundamental problem in relation to the aforementioned issues is epistemological in nature. The field has been successful in pointing out side effects, ethical consequences, and to some extent the sociopolitical construction of technologies, but it does not yet pierce through to the grounds of the blindness for technological matters that still reigns in everyday life. Bateson's work, because of its emphasis on processes of knowing—human and other—can make a founding contribution here.

The crux of the matter, as we will see, is the central dichotomy. In its most fundamental form, the dichotomy distinguishes between what we can designate as a discursive and a material mode. As mentioned, in common use, we regard technology as "just efficient." This is the discursive side. Here we *talk* about technology strictly in those terms: it is an *x*, with which to achieve *y*. We could also call this the instrumentalist mode. Philosophy of technology, as we know, endeavors to go beyond that: it wants to map the constellation of side effects and impacts. Beyond our narrow discourse about technology—technology is just about efficiency—we must observe how in a broader perspective, it flows over into all sorts of *other things*, artifacts, procedures, processes, et cetera. On this side, the "material" side, technology does have effects. Hence, we could designate this perspective as the determinist mode. Searching for a middle road, philosophy of technology links up the two modes, tracing the contours of their connection, instead of merely attending to one side, like the classic views would. Simplistically speaking, then, the core argument goes as follows: technology is more than we say (or think) it is. Beyond our common discourse about technologies, in material reality they are *much more*.

In this context, some have spoken of a "material turn" (dovetailing with the empirical turn). Later on, I outline how, currently, authors are already

extending or surpassing this material turn, seeking to bring to light what the turn forgets. Verbeek, for one, makes a plea for “one more turn” after the material turn, not only to understand technological, that is, material things, but also to make sense of how humans appropriate technology.¹⁷ Mark Coeckelbergh wants to refocus attention on discourses about technology, as these essentially shape how we understand it, and he goes on to meticulously analyze how our ideas about technology are still shot through with romanticism.¹⁸ The problem with these—in themselves highly worthwhile and relevant—efforts is that underneath them, the central dichotomy in its starkly dualistic guise is still lingering and doing its work. Put otherwise: the distinction between discourse and matter (or action) remains in place as a taken-for-granted building block. We will see how Bateson’s unusual ontological-epistemological framework helps to unlock this tangle. For him, in fact, a similar dichotomy takes central stage: the distinction between mind (i.e., “discourse”) and matter. But his whole work is bent on bridging the gap between the two, on describing what happens between the two sides. His notion of technology as a “materialization” of conscious purpose will be of cardinal importance here.

The Art of Living

My final goal will be to arrive at a framework that allows us to imagine technology—in ordinary use as well as in theory—in a truly different way. Bateson’s thought can facilitate such a different way of looking. This exercise is not meant to stay confined to conceptual realms. At base level, Bateson’s thinking was always oriented toward everyday practice—although he himself may not have made that sufficiently clear (this facet is actually more pronounced in the writings of his daughters Mary Catherine and Nora, who weave his work into their own), and in any case his practical orientation was at times ambivalent. He was wary, for a good part of his life—his attitude probably rooting in his World War II experiences—about any attempts to consciously change a skewed situation. That doesn’t mean that his work didn’t always ask the essential question: how do the “filters” before our eyes, the models through which we understand the world, shape our way of acting in it?

Bateson sees a way out, eventually. We can to a certain extent become conscious of those mechanisms and dynamics that mold our perception—the glasses that we wear on our nose, that distort our view. *Art* is the key

word. This is meant in the literal sense of art as artistic practice, production, and consumption, but even more in the abstract sense of “playing with perception.” Bateson develops the notion of art as a skillful navigating of epistemological waters that can offset the maladies of conscious purpose.

Out of my rereading of Bateson against the background of contemporary philosophy of technology, I want to distill a framework for an *art of living with technology*. All those three terms—art, living, technology—have a special poignancy in the Batesonian vocabulary. Bateson’s primary object of study are living beings. He maps the ecology of mind. Mind makes living beings stand apart from nonliving things. Technology, then, is in his work the seldom-named but ever-present shorthand for the (cultural) phenomenon of conscious purpose being extended, enhanced, and sometimes driven too far. Art, finally, can offer the remedying perspective but never in a clear-cut, “efficient,” solution-to-a-problem way. All three words in the phrase have equal conceptual weight. Nowadays, we more than ever need an *art of living with technology*. We must not focus on *technology* in itself too much, for the reasons described above: reifying technology makes us ignore its disappearing character. On a more mundane level, we might forget that our relationship with it takes the form of an intense, day-to-day involvement.¹⁹ But just *living with technology* may not do either: we would run the risk of simply going with the flow, using technology like somnambulists turn on the lights.²⁰ So we badly need that *art* component.

What could an art of living achieve? Googling the phrase brings up the most various connotations, from yoga and meditation to “lifestyle” concerns (are the colors in my house balanced?) to cultural consumption. Here I am concerned with the notion that has been a longstanding staple in philosophy. In antiquity, the search for an *ars vivendi* was almost synonymous with philosophy per se. Stoics, Epicureans, Cynics, Sceptics: all endeavored to offer practical guidance on living well, that is, wisely, beautifully, ethically, joyfully, elegantly. Before them, the Greeks had put forth the notion of “care of the self” (*techne tou biou*), which was certainly not merely about the individual “me,” but aimed at an ethical engagement with others and one’s environment. Throughout the Middle Ages, the “art” element receded a bit into the background but was picked up again in full force by Michel de Montaigne, and later by a host of nineteenth- and twentieth-century thinkers such as Nietzsche, Heidegger, Sartre, and Foucault. More recently, art of living (*Lebenskunst* in German, *levenskunst* in Dutch) has become a branch of popularizing practical philosophy, its best-known international

representative probably being Alain de Botton. “Popularizing” here should by no means be equated with “less valuable.” In a sense, all *ars vivendi* philosophers have reached out to wider audiences to provide advice and help. It is almost unimaginable as such that one should reflect about what it means to live a good life without reaching out to one’s contemporaries for conversation and consultation.

Only rarely within any of these traditions, however, is technology mentioned. Of course, one must remark that only in contemporary times have the effects of technology really started to be felt in everyday contexts. So earlier ambassadors of the art of living may be forgiven for this retrospectively attributed shortsightedness. Within the philosophy of technology, in turn, there has been ample discussion of “the good life” in relation to technology.²¹ That concept does incorporate many of the issues at stake in the art of living traditions. Indeed, at best, analyses along this line focus on what technology is, how it finds its place in society, how people relate to it.²² At worst, however, the notion of the good life—if only in its subsequent societal or political adaptation—winds up being equated with a sort of clinical balancing act, in which technology figures as the balancing chord: it is simply there, and one cannot do much more than develop the skills necessary for crossing. As such, living with technology becomes more of a technological practice than an art. Something still seems to be missing. We seem to be in need of something more. At this point, the art component comes in. And at this point, Bateson enters.

Our times need a Bateson: a framework that can expose and overturn reigning epistemologies that keep us trapped in vicious circles. We live in an age of exponential changes, and these have fundamentally to do with *us*, with how we think and consequently act. Climate change and global warming are developments we are scanty able to correct. Notwithstanding overwhelming scientific evidence, we have the hardest time taking effective global political measures, changing our behavior individually, and then sticking to it generally. We easily succeed in being “green” for a short while, since it is fashionable; but to enact long-term, durable change is a wholly different thing. Bateson was thinking about similar issues already in the 1960s and 1970s. He talks about the inevitability of “runaway” processes. In a cycle of positive feedback, a stimulus will elicit a stronger response, in turn provoking an even stronger reaction. By now, such insights are fairly standard fare (they weren’t in Bateson’s days, and certainly not at the dawn of cybernetics), but one aspect is still often overlooked: the fact that these

processes are almost impossible to transform. Even if one of the parties attempts to side-steer the pattern, the amplifying effect may still arise in different forms. Say I threaten to have a conflict with my neighbor over a practical matter—the height of our shared fence, for instance. I might decide to give in and bow down to his wishes. On the face of it, this would defuse the mechanism of mutual positive reinforcement. But here is the catch: this defeat might begin to fester in my mind. I might start to nurse a grievance, and this may subsequently influence my behavior toward my neighbor. He may unconsciously pick up signals of my unconsciously cherished grudge and interpret them as hostile attitude—again fortifying his frustration and thus extending the conflict. We would still be trapped in the cycle. Society abounds with examples of similar dynamics, runaway processes that we are hardly able to sidestep. There are the obvious, old-time examples of violent political and religious conflicts. But in a more contemporary vein we may enumerate things such as subprime lending, ever-increasing study loans, and, indeed, algorithmization.

What we need is a new pair of glasses, a new lens, to look at these phenomena. Such a project can start with a thought exercise. Imagine that all your life, you have been walking around with glasses on your nose that distort the way you look at things. What are you imagining exactly? Are you watching yourself from a distance, seeing how you remove the pair of glasses, squint your eyes in dizziness, reach out your hands to find support as you struggle to hold your balance? Or do you imagine that you are moving through life with the distorting lenses in front of your eyes? Your imagined self in that case must surely be oblivious of the distortion. Remember, you've been wearing these glasses forever. How would you know they are giving you a skewed picture of reality? What you perceive is—as far as you are concerned—reality as it is. Let's go a bit further. Perhaps the pair of glasses distort *more* when you look in a specific direction. Let's say objects at eye level come in untarnished. But when you look upward or downward things get warped; of course you don't notice. So you've got a worldview that is accurate in some respects and erroneous in others—troublesome, because you don't know which parts you are getting right. I will not be telling you now you've been wearing spectacles all your life that mess up your clear perspective. "And here is the right way of looking at it." No, this book is about *imagining* it is so. What if . . . ? What if elements of our worldview are simply the wrong way of looking at it?

What if we are looking at technology the wrong way?

Overview of Chapters

In what follows, I want to imagine a new way of looking at technology—in that way opening up new, and hopefully finding more adequate, ways of existentially coping with it. Beyond the view of technology as a something, I want to explore another way of conceptualizing it. More precisely, I will conceive of technology *as* purpose. In “*something* thinking,” we can only envisage a technology, *x*, meant to serve a purpose, *y*. We connect *this* technology to *that* goal or aim. What I am not after is outlining a program for finding new purposes for given technologies, which Andrew Feenberg aptly calls (in the context of a discussion on Marcuse) “a trivial idea.”²³ No, I believe we need to reframe our definition of technology as such, start seeing technology as wrapped up in purposive structures, not only of the narrow, instrumental-purposive kind, but also of a wider systemic kind—the kind of purpose we usually overlook, forget, or cannot even fathom because of the concepts that shape our worldview. Beyond our “*x* for *y*” reasoning habits, we should be on the lookout for the value of *detours* and, as it will turn out, to that extent also the *beauty* of detours.

Such a project necessarily entails a moving beyond “something thinking,” which is a move that philosophy of technology has already been elaborating and preparing,²⁴ however not sufficiently—given the persistent problems in the field, its inherent paradoxicality in regard to its object of study, and the issue of how to deal ontically with ontological human-technology continuity. Surprisingly enough, I will wind up eventually with an account of “objects” (namely, through implementing Graham Harman’s object-oriented ontology) that nevertheless does not conceive of objects as we know them but lines up remarkably well with the relational perspective on *contexts* that Bateson delivers. The logical conclusion of my investigation will turn out to be that the central dichotomy of philosophy of technology needs to be leveled down to *all* contexts, *all* objects. It needs to be multiplied, reenvisioned as a multiplicity—just like technology is more and more “smeared out” these days, dispersed into definitely not a something but rather a “we don’t know what.”

Notwithstanding the tangibility of these issues—going through the world and looking at the world, we can easily recognize the dynamics at play, for instance of technology disappearing from view—this investigation is necessarily also characterized by a certain abstractness. It is about developing a new vocabulary, about training oneself to see through a new epistemological lens, the consequences of which cannot immediately be made con-

crete—as in learning a new language, one also has to find first a sufficiently firm footing in it, acquire some minimal level of fluency, before one can reap the fruits, really “feel” what kind of world that language brings forth. *The abstract* shapes and conditions how *the concrete* will appear. In fact, a reflection on this relation, that is, between the concrete and the abstract, is central to the project. My aim here first and foremost is to provide pointers, stirring readers into playing with their presuppositions. In the meantime, I offer a comprehensive introduction to both the contemporary philosophy of technology and Gregory Bateson’s outlook. With all these ingredients in place, I am convinced a reflection is possible that is theoretical up to a certain point but that also has clear societal implications. If we really want to make sense of technology along the lines set out here, we can do this by way of *purpose*; by asking, actually, very simply, about things: “*What is the purpose?*” “*What’s it for?*” We urgently, desperately need to relearn to ask that question, all the time—however, in a special, specific way, and that is what I set out to delineate. The notion of purpose itself will also need to undergo some multiplication. Purpose as we know it—as well as efficiency—will have to be manifolded. For beyond our “something thinking,” there is always a “more.”

I will proceed in three big phases. Part I lays the groundwork. In chapter 1, I sketch Gregory Bateson’s thinking preliminarily in broad strokes, preparing the more detailed study further down the line. Chapter 2 puts in place the framework of philosophy of technology—which will serve as interpretive background for the rest of the study—offering a systematic description, as well as critical analysis, of the central dichotomy.

Throughout Part II, then, I lay out the Batesonian framework in detail, zooming in on the connection with technology. Chapter 3 first elaborates Bateson’s epistemology, and by proxy of that inquiry, his ontology (the two cannot be distinguished for him). Starting from his theory about mind that puts all living things on the same level, he develops a picture of a two-sided reality. Bateson’s work is on a fundamental level all about “twos.” Having its own central dichotomy in this way, his approach can be seen to dovetail exquisitely with the central dichotomy of philosophy of technology. Next, in chapter 4, I consider Bateson’s own views on technology, as far as he develops these in the context of his elaboration of the seminal concept of conscious purpose, and his critique of it. Technology according to Bateson amplifies conscious purpose—it is a kind of extension or enhancement of it. As such Bateson does not disapprove of technology; he is at the least ambivalent about it, but surely he sees it intensifying the nefarious effects

of conscious purpose. The interesting thing is that Bateson can enhance our understanding of technology because his definition does not *start* with asking about technology, but with the question of purpose (whereas many approaches within philosophy of technology would rather go about in the reverse way, if they even bring in the notion of purpose at all). To further make this clear and prepare the actual mapping of the central dichotomy onto the Batesonian scheme, I delineate two other but related perspectives on purpose that will help us make sense of different kinds of purpose: Humberto Maturana and Francisco Varela's famous autopoiesis theory and Morris Berman's broad-ranging historical sketch of "participating" and "non-participating" epistemological paradigms. Subsequently, in chapter 5, the issue becomes: what to do then about the "problems" of conscious purpose? Here the paradox of conscious purpose surfaces: if consciously striving toward goals may have pernicious side effects, how could we consciously strive to do something about that without falling into the same trap? Bateson at first remains pessimistic about the possibility of there being any way out of this conundrum, but he gradually begins to sculpt tools that help to subvert the paradox. His theory of levels of learning (levels of abstraction) and especially his reflections on art—as a way of navigating ladders of abstraction and, crucially, as an activity or process contrasting radically with the *idée fixe* of conscious purpose—are of pertinence in this context.

Along the way, I already regularly refer to philosophy of technology, but in Part III the comparative synthesis of the Batesonian and philosophy of technology frameworks begins in full force—considering, of course, the issues and questions sketched above in this introductory chapter. Chapter 6 is concerned more with the nitty-gritty of the comparison between Bateson and particular strands and approaches within the philosophy of technology, but in the process it already starts to synthesize the acquired insights, providing a notion of *technology as purpose*, which unfolds across the central dichotomy in between narrow (that is, instrumental) and a wider (that is, systemic) purposiveness. To push this analysis further, and also to investigate how the relation between those two modes comes about, I eventually introduce an extra component in the shape of the object-oriented ontology of Graham Harman, whom I, unexpectedly perhaps, will treat as a philosopher of technology. In fact, Harman's perspective exhibits many similarities with Bateson's ontological-epistemological observations, but apart from that, Harman delivers us a key element—specifically in his treatment of the Heideggerian notion of *breakdown*—for the completion of the framework. In chapter 7, then, finally, I embark upon a deep reassess-