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On the Incorporation of Technological Tools

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This dissertation is an empirically responsive philosophical exploration into the incorporation of technological tools within a framework comprising the structures of experience laid out in the early phenomenological tradition and an analysis of agency that draws from the analytical tradition.

Technological tools that have become so well integrated in our lives that they function like a part of us, transforming what we feel we are capable of, what kinds of problems we can tackle and even who we are. The bio-technological intermingling of self, body and world opens up new spaces of autonomous agency. However, since the inner workings of technological tools can remain invisible, we risk diminishing our own capacities.

Since we are fundamentally embedded in the world, we cannot understand ourselves without reference to the world and we cannot understand the world without reference to the way we are. The uniqueness involved in our use of technological tools like smartphones is embedded in and grows out of a more primordial uniqueness that makes technological tool use possible and sets us apart from our closest evolutionary relatives. Human culture defined by cooperation and the high-fidelity communication became a repository and a medium for the ratcheted transmission of innovation, a new medium of evolution.

The framework of complexity, which considers large numbers of interacting nodes in a network – human culture in our case – gives prominence to certain features of the technological world as it and we have co-evolved from the times of stone tools to our present age of smartphones and the resulting picture serves as a background for an examination of the phenomenological structures involved in the incorporation of technological tools.

Communication has a system-wide impact on the complexity of human culture. The innovation of language fundamentally transformed the ways people interact, helping us coordinate actions and extend their scope in space and time

Writing unburdened thought of the need to retain information in memory and thus freed it up for analytical depth. It enabled communication at further removes in both space and time between speakers and listeners who had to be present to one another.

Thinking began to improve itself in an iterative process that called into being an a method – logic – and an institution – the university – that could cultivate and improve the tools of argumentation by which the edifice of knowledge might be secured with a solid foundation

The printing press expanded the volume of information available to growing numbers of people. The new ways books were formatted and the information in them was organized along with new ways they were catalogued and indexed in libraries transformed the ways that bodies of information were articulated and the ways people accessed them, enabling a cross-pollination of ideas that were organized into fields of knowledge.

The improvements in communication represented by mail services, the telegraph, the telephone, mass-circulation newspapers, radio, television, film and the computer increased the complexity of the media ecosystem by further collapsing distances and accelerating the rate at which information circulated around it. But postal systems, telegraph cable networks, steam-powered rotary presses, radio and television transmitters, film studios and mainframe computers also required ever-larger outlays of capital. Thus, the media ecosystem was dominated by mass media, with limited numbers of creators communicating content one-way to consumers of information who were, for the most

part, passive and isolated. This changed with the arrival of the personal computer and the Internet.

The personal computer along with the software that ran on it transformed the media ecosystem from a one-way, read-only, mass-media dominated system to a read-write system in which content was not only consumed but created – with relatively small capital outlays – as well. The Internet represented a digitally connected ecosystem enabling larger and more distributed groups of people with related goals to find and collaborate in ways that had previously been too expensive and time consuming – too resource heavy to undertake. Eventually, the network effects of the Internet spread beyond the realm of the digital and out into the analog world, with both positive and negative effects.

Humans and certain other animals may extend their physical influence on the environment by means of tools. Unlike animals, however, we humans use tools to extend not only our sensorimotor capacities, but our cognitive abilities as well. And if tools that extend our perceptual and cognitive capabilities are most unique to humans, perhaps the most universal of human tools, which can be put to motor, perceptual and cognitive purposes alike, is the universal Turing machine that is the computer. Thus it makes sense to think of the computer as the prototypical technological tool.

When technological tool users are aggregated in large-scale networks, transactions among those users are enabled, fundamentally changing the technological ecosystem. And when the tools (equipment, devices and processes) fit the human body and the structures of experience, human agency can be projected through those tools.

We inscribe our picture of the structures of experience in a transcendental approach – that is, one which asks about the conditions that make experience possible. For Heidegger the scope of the transcendental question is not restricted to the conditions of cognitive experience or even intentionality. Rather, it is concerned with our very openness to Being. In *Being and Time*, Heidegger provides an account of human experience that aims to avoid the pitfalls of approaches in the philosophical tradition that applies epistemologically-based dualistic categories to experience, positing a mind disengaged from the world. The ontologizing of the disengaged perspective fails to account for the fact that we engaged human beings have a background understanding of the world that cannot be disentangled from our engagement with things.

Ultimately, knowing how is grounded in the care that structures the clearing which is Dasein's openness to Being. It is the whereupon Dasein's Being as clearing and the being of entities is disclosed. It is the existential-temporal condition for the possibility of the world.

The World that makes up Dasein's concernful Being-in-the-world is one in which what we consider near or far and present or absent is not necessarily that which is closest or furthest as measured along a line, but what we are concerned with and what corresponds to contexts of use.
To complement Heidegger's existential analytic, we consider Merleau-Ponty's account of our embodiment. Merleau-Ponty argues that the abstract spatiality of physics is derivable from a practical, engaged spatiality, a "praktognosia" that opens up a sensorimotor world and provides access to it. For Merleau-Ponty, tracing the derivation of abstract physical space from practical spatiality leads us to a specifically corporeal being-in-the-world.

Since technological tool use co-constitutes the world and since others are a fundamental dimension of that world – and of our own being – that co-constitution will apply to our own selves as social as well.

According to the conception of experience that ontologizes epistemological concerns, we experience our inner life with clarity and distinctness, in which we can never experience the inner lives of others. Therefore, the gulf between ourselves and others must be accounted for in a primarily epistemological manner. By contrast, in the phenomenological tradition our experience of others is conceived of not as the result of inference based on my inner experience of my mind. Instead, we experience others directly and there is no radical asymmetry between our experience of ourselves and our experience of others.

This view is developed in Sartre's analysis of shame, an example of an other-mediated form of self experience, and Merleau-Ponty's reversibility, according to which the condition for the possibility of being able to see is our participation in the visible by means of our body.

Since the co-constitution of self and world occurs when we act – that is, in the context of intentionality – we proceed from a consideration of the conditions of the possibility for the intentional arc to a consideration of the structures of experience more immediately involved in intentionality.

Doing so entails two tasks: first, exhibiting the ways we build on the basic structures of experience to make ever-expanding constellations of experience possible and, second, showing how these experiential possibilities are constrained by agency and integrated with the complex matrix of nested projects, both short- and long-term, within which we live our lives. The first task will show how the incorporation of tools is possible and the second will elucidate the contexts in which that incorporation actually takes place.

When we engage practically with entities, we do so thanks to a general familiarity with the space in which they are disclosed. That familiarity is based primarily not on knowledge or explicit rules, but on a practical know-how that organizes space into regions of concern populated with equipment.

On Merleau-Ponty's account, practical space is oriented according to the structure of the body on one hand and the projects undertaken to fulfill its needs on the other. Entities have a significance for us in terms of our bodily capacities to interact with them.

The body may be better understood not as a point, but as a phenomenological space undergoing constant reorganization. One form of reorganization takes place when different regions of sensorimotor intelligibility come to the fore at times while others withdraw into the background, shifting their forms of presence and absence. Another type of disappearance in addition to the complementary focal and background modes of the surface body is "depth" disappearance comprising the visceral, autonomic functions that take place mostly underneath the threshold of the intentional arc. It is the surface body which takes part in the reversibility discussed by Merleau-Ponty in *The Visible and the Invisible*. Depth and surface organs are not reversible.

It is a particularity of humans that we have the ability to open up spaces of disclosure that are not inborn. For young children, mental experiences and judgments on one hand and sensorimotor experiences on the other are regularly intertwined in everyday life. As a result, permanent connections develop that span neural networks associated with different domains of experience. Then, when the domains are both activated in different circumstances, new connections can be created, leading to new inferences. Complex metaphors can be formed at any point in life when different domains are coactivated, leading to the formation of neural connections on the developmental model.

Other domains of experience are built up in the course of life and incorporated into the intentional arc, trickling down from the realm of consciousness and absorbed into

the body's "I can" through habit. We supplement our physical bodies by incorporating physical tools into our phenomenological habit body as well. Tool use participates in the same process of sedimentation by which skills become incorporated into the body's "I can" as enabling absence

Since agency, or intentionality, plays such a significant role in our ability to transform our body schemas, it also plays an essential role in the incorporation of tools. We turn to the resources of analytic philosophy regarding the particular entailments of agency and intentionality.

The experience agency is central to intentional accounts. On "top-down" accounts it is conscious intentional processes that generate the sense of agency. On "bottom-up" accounts it is sensorimotor, embodied aspects that generate the sense of agency.

In order to put together a plausible account of the experiential sense of agency, which will need to be preserved during tool use if we are to achieve the type of incorporation we are interested in, we explore an issue in the philosophy of agency known as deviant causation. In dealing with the issue, philosophers have come up with ways of clarifying the nature of agency that will help us flesh out our analytical apparatus.

Central to our commonsense understanding of ourselves as free, morally responsible, autonomous agents is that we interact causally with the world. For event-causalists, there are no irreducible causal relations involving anything like a mind or agent that are not an event or a sequence of events. Event-causalists, however, run into difficulties when they try to account for deviant causal chains. According to a classic example, a man may trying to kill someone by shooting at him misses, but the shot causes a herd of wild pigs to trample the victim to death. Although we might consider the mental event involved – the man intending to kill someone – to be the right kind of cause for its respective event in the world – the victim being killed – to count as an action, our intuitions are violated. We would be reluctant to say that the intentions were satisfied in the right way Agent-causalist or intentional accounts avoid such difficulties by setting constraints on the causal path connecting agential cause and effect so that it develops in the right way.

John Searle's account of intentionality provides us with a forceful top-down account of the sense of agency. According to Searle, all actions are accompanied by a causally effective experience of acting. In cases of deviant causation, the causal paths are not regulated in the right way by an experience of causation. What is lacking is "a continuous efficacy of Intentional content under its Intentional aspects." Performing an action in the right way involves not only the proper constraints on the causal path connecting agential cause and effect, but a regular, reliable enabling Background as well, comprising "how to do things" and "how things are." Searle calls these "plannable regularities."
Searle's intentional account of our Background capacities bottom out in the brain. He thus points us towards the types of bottom-up accounts that can complete a picture of agency by going beyond his logical analysis and taking up the practical entailments of our embodiment. We delve into those capacities by appealing either to 1) Merleau-Ponty's account of bodily intentionality, or to 2) an account in which the sense of agency originates not in intentional structures, but in neural processes responsible for the motor aspects of action or the brain-based cognitive aspects of thought. The first indicates how plannable regularities are grounded in the body and the second how the efficacy of intentional content is made possible at a neurological level.

Some of the plannable regularities are comprised in the sensorimotor body's praktognosia as described by Merleau-Ponty, which comprises the physiological, visceral dimension of the body's "I can" – Searle's "deep" Background. Others are rooted in the

phenomenological body we described above, whose anatomy can be transformed through a process by which actions become sedimented by habit.

Plannable regularity required for intentional causation is not the same as statistical consistency. The distinction between having a sense of ownership for a movement and having a sense of agency for it allows us to refine the notion of plannable regularity. In normal coordinated embodied action, both senses are normally integrated. In certain cases, however, the two aspects of agency can be separated, resulting in either no intentional causality, or intentional "latency."

Sometimes, the senses of ownership and agency are not joined on the basis of original embodied intentional causality, but thanks to some form of mediation. Whenever an action is mediated, plannable regularity makes it possible to preserve and extend intentional causation and low intentional latency makes it possible for the skills enabling the action to recede into the background. In cases of intentional mediation, the intentional content is transferred to a medium, either physical or informational, that preserves intentional causality. The medium might be physical or informational. Intentional content can be preserved in the medium of language.

Eventually, technology evolved to a point at which a second-order sense of agency became communicable by technological innovations like the electrical telegraph, the telephone, broadcast media like radio and television. It was a matter of time before the latency involved was reduced to the levels involved in embodied action, thus making possible action at a distance with a first-order sense of agency. In order for this to happen, however, the tools used to mediate action had to become embodied – that is, they had to adjust themselves on the one hand to fit the body and its bodily "I can" – and they had to articulate more and more of the fine grain of the world. In order to do so, tools had to perform more and more complicated mappings between moving mechanical parts, electromagnetic fields, frequencies of sound and light. Slowly but surely technology did so, enabling such mappings automatically by means of the universal Turing technological tool.

Computers with sophisticated high-bandwidth interfaces and real-time rendering capabilities enable us to interact with rich virtual worlds through practically latency-free feed-forward-feedback loops and thus extend a robust experiential sense of first-order agency. The immersiveness of virtual reality highlights how technological tool use participates in all of the structures of experience we have been discussing.

To the extent that we participate in the digital, we are perceptible to the digital other and therefore have a digital outside. Thanks to technological advances enabling vastly increased capabilities for collecting, storing, and processing information over networked computers, all the bits of information we leave behind in cyberspace can be fitted together like pieces of a puzzle into a digital portrait. Whereas our physical visible bodies are most usually perceived within the flux of experience, our digital selves can leave perfect, indelible traces and therefore subject one to a permanent, panopticon gaze and even manipulation and harm.

Although Heidegger may not have wanted to outline a theory of right action, he was nonetheless committed to the sort of claims about value that underpin deontological claims. And the central value that seems to underpin his evaluative claims concerning authenticity, was that of autonomy.

Having specified in detail a phenomenological framework and taken autonomy as our pivotal evaluative criterion, we examine how the framework and the criterion might be applied to two concrete aspects of the incorporation of computer-driven technological

tools with the aim of assessing how such incorporation can either foster or diminish an autonomous life. The first aspect concerns technologically mediated privacy and the second technologically mediated agency.

We consider some of the ways privacy has been defined in the philosophical literature, focusing in on a non-reductive account that defines privacy as a condition of restricted access to a person. What gives this definition its teeth is that it bears in mind not only the individual – as a free agent deserving of respect and capable of control, possession and feeling pain – whose privacy is at issue, but the ways the web of social relationships we live in impinge upon privacy concerns. If we want to show that there is something distinctive about privacy concerns (and they are therefore not reducible to other concern), then we need to show how they are grounded in something other than social arrangements involving contingent values and preferences. So, we take into consideration features of the human condition that show how and why privacy is of concern to us. Architecture broadly conceived as the design and organization of the spaces (whether physical or digital) we live in also plays a role in regulating access to the personal sphere. Digital dossiers are a cause for concern because they provide others with the ability to wield power over us and cause us harm, they are reductive and distorting and can form the basis for false inferences. Just as the visceral depth body is absent from experience, there is a dimension of technological devices that lies below the threshold of experience. The digital depth body of the user on the Internet is not only visible, but the processes that take place in the digital depths are manipulable, too. Technology actively shapes our notion of who we are. If digital spaces are taken over surreptitiously by processes that take place under the threshold of our awareness, hijacking our choice-making processes, then the spaces where we can cultivate our individuality shrink considerably. Privacy involves behaving autonomously within a set of structures of access and those structures are not built by the individual alone, but by other members of the different social contexts we belong to and by norms and traditions that govern them. We are not only individuals with rights, like privacy, but members of communities with responsibilities towards one another. Individual rights must be balanced with social responsibilities; autonomy with the common good; privacy with concerns for public health and safety. One value cannot be allowed to dominate. However, even in technological societies that claim to be conscientiously balancing the common good with a concern for individual freedoms, the erosion of privacy can go unnoticed. Legislative architectures, which can have similar effects as spatial design and computer code on behavior, attitudes, interactions, and the sense people have of being free, in a safe, private space, can make people less vulnerable if they are designed right. Likewise, the ways the constantly on hand devices (and the software running on them) that mediate our online experience are designed can have as profound an impact on our sense of privacy as the legal and digital architectures that govern the spaces in which we lead our social and digital lives. Sensitively designed, technology can expand, rather than shrink, not only the scope of individual agency, but also the spaces where we think through the problems that challenge us all.

We then consider deviant causality within the context of technologically mediated agency. The cases of mediated intentional causation we consider, however, are deviant not because our intuitions regarding the right way intentional causality should develop are violated, but because our intuitions regarding our commonsense understanding of ourselves as free, morally responsible agents are violated. For the digital native, the practical know-how that relies on ubiquitous, perpetually on-hand computing has become part of the intentional Background. But the technological devices and infrastructure in

our increasingly digitized lives exist in a world inhabited by people who have often competing interests and ambitions as well as the whole range of biases people are susceptible to. When such interests, goals and biases are built invisibly into the technology that users integrate so deeply into their everyday lives it becomes second nature, the value of freedom is challenged. Sophisticated artificial intelligence with access to big personal data allow not only social media services, corporations and governments, but also cybercriminals and cyber-terrorists to target individuals with methods tailored to their psychological profiles. In addition to getting people to buy things, this type of AI might be implemented to influence a wide range of other behaviors as well, like recruiting terrorists, influencing voting, or pre-empting disobedience to an authoritarian regime. Not only is the periphery of my technologically mediated experience colonized by parties with a range of possible interests trying to sway my actions but whole ranges of the space of actions available to me are variously cordoned off by the invisible technological infrastructure that makes my mediated actions possible. When the competing values and aims of differing choice architects become cast in the technological devices and infrastructure that mediate our everyday decisions, they are taken out of the sphere of public discourse, where people can deliberate about them embracing, revising or discarding them as they see fit – that is, integrating them into the critical toolkit that underpins their autonomy. By relegating the inner workings of technological tools to the status of unconscious neural mechanisms, we risk limiting and perhaps stunting our own capacities for interpreting our past, engaging with the world, carrying out our projects and, more broadly, creatively defining who we are.

To conclude, we consider possible directions of future research. Different tools make our Lifeworld gravitate around certain forms phenomenological "vectors" of meaning and use. It is as if the gravitational pull of each tool deformed the Lifeworld space around it in its own particular way. Future research might consider how the incorporation of the computer-driven technological tools distorts the fabric of the Lifeworld along phenomenological vectors of constitution. An investigation into such vectors of constitution with the tools laid out in this dissertation might then be of use when considering the benefits and drawbacks of the incorporation of technological tools. Just as having a clear conception of how we are constituted anatomically and physiologically helps us to decide what is good or bad for us, the hope is that gaining some clarity regarding how we are constituted phenomenologically will help us figure out what the possible benefits and drawbacks we are interested in might be.

Generally speaking, Heidegger's technological attitude towards the world can be construed as a sort of phenomenological vector of constitution. Although in principle technology may expand the range of actions available to us, agency in general is technologized, relegating non-technological actions to the shadows. Technology filters out the turbulent noise of reality, disclosing it as transparent processes amenable to optimization with the right apps or algorithms. Virtual spaces provide opportunities for communication and connection, but they weaken the bonds of commitment. There is a tendency – spurred by the engagement algorithms of social media like Facebook and Twitter – to engage in emotionally charged, divisive shouting matches in echo chambers. Finally, the agency entailed in the technological tool use we have been considering might constitute a sort of tyranny of the intentional. Solving problems is seen as requiring action. But perhaps we need downtime from our devices and action more generally in order to focus and be creative.

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- o Spoluučil kurz "Tělo a mysl: nová fenomenologická literature" (S. Gallagher, D. Zahavi) - YBF126 s konzultantem doc. Karel Novotný, Ph.D. na Fakultě humanitních studií.
- o Vyučil kurz „Introduction to Philosophy" na Anglo-American University v Praze.
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2011–2012
- o Vyučil kurz "Agent-World Matrix Revisited" na Fakultě humanitních studií; garanti: doc. Karel Novotný, Ph.D. a Petr Kouba, Ph.D.
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- o zúčastnil se Letní školy fenomenologie, kterou pořádalo dánské Center for Subjectivity Research pod vedením Prof. Dana Zahaviho.
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- o Podal článek „Searle's Background Grounded" k publikaci v časopise *Organon F*
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- o podal článek „Technologically Mediated Privacy" k publikaci v časopise *Philosophy & Technology*
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