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The Primacy of Action

Technological co-constitution of practical space

Thesis for the degree of Philosophiae Doctor

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Technical notes

For all books cited, I refer to the year the edition in use was published. If this does not coincide with the first publication of the book, the year of its first publication in its original language is used in the list of references. Note, though, that this does not apply to collections of essays, lecture manuscripts and the like which have been published posthumously.

Heidegger 1988, 1992 and 2002 are manuscripts from three lecture courses Heidegger held in 1927, 1925 and 1919 respectively, and have no relevant first year of publication in German (all were first published in the 1970s). I mention this because these manuscripts are used to elucidate and support the discussions in *Being and Time*, first published in 1927, and constitute what I sometimes refer to as Heidegger's 'early period'. (The essay 'The Question Concerning Technology', a lecture first given in 1953, and Heidegger 1969, which contains two manuscripts written in 1946 and 1955, constitute what I refer to as Heidegger's 'later period'.

In two cases, I have made choices about references that justify a remark. For Heidegger 1962, I refer to the relevant pages in both the edition in use and in the original German edition. For Kant 1929, I refer only to the page numbers in the A/B-editions, not the edition in use.

On quotations: Only when an author is mentioned in the same sentence, but prior to a quote, is he or she left out of the reference. For all other cases there will be a reference to the author, even when the source of quote is unambiguous from the context. I have kept italics in all quotes where they were used. In a few instances, I have added italics to a quote; whenever I have done this, I have made a note of it in the text.

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PRELIMINARIES

introduction

TECHNOLOGY, SELF AND ACTION

A technological lifeworld

It is hard to deny that technology permeates our lives, down to the smallest details. We wake up in the morning using an alarm clock, a clock radio or perhaps, if we are in a hotel, with a wake up call. We shower; using water that travels through kilometres and kilometres of pipes before and after it has been cleansed at a treatment plant. We eat breakfast; consummating food that has been cultivated and processed in all sorts of ways. We drive to work, or we bike, or we walk wearing more or less comfortable shoes. Does anyone have a job that is without technological enhancement or support? In communicating with friends, loved ones and colleagues, we read emails, send emails, and hardly ever telephone each other anymore; instead, we send an SMS. At some point during the day we take a painkiller (possibly because of a headache induced by too much coffee), and in the evenings we sit in front of the TV, the hi-fi or, more and more commonly, the computer. Before we go to bed at night, the last activities of our day are probably technologically supported: We brush our teeth, and set the alarm before we snuggle under our bedcovers and rest our heads on comfortable pillows. Everyday routines are technologically embedded. Escaping technology, on the other hand, means making an effort, going out of our way – if it is even at all possible.

The ways we relate to each other, the ways we communicate, have been technologically enhanced since before the alphabet evolved, when a system of tokens, in the form of small modified stones, assisted farmers and artisans in keeping track of their stock without the help of written lists. (Schmandt-Besserat 1996:7) These days, a great deal of communication is mediated by electronic and digital technologies, whether it is by us being online or always being available through our mobile phones. There seems to be a widespread opinion that electronic and digital technologies, more than previous forms of technology, and not just in communication, represent a somewhat new or different impact on humans. In fact, digital and electronic technologies have entered our lives to such an extent that Edward Tenner claims that the very concept of *technology* "appears to have become a synonym for electronic systems". (2003:*ix*) The Internet, combined with technologies for compressing music and film files, is in this respect the prime example of the changes we are going through right now. Almost every day we hear of 'pirates' spreading a new album that has not yet been commercially released, or of a movie that is 'all over the Internet' within hours after its release on DVD. The change in consumer habits is felt in other media as well; tabloid papers complain about falling circulation, and in February 2009, the long-established Norwegian encyclopaedia, *Store Norske Leksikon*, was compelled to go online free, which probably signifies the end to new printed editions.

It is not all negative news, of course. For instance, the Internet provides access to all sorts of information that is readily available; the scholar can easily find and access research papers, and news of forthcoming conferences, seminars and lectures, spreads rapidly and broadly through e-mail lists and blogs. Distance education makes it possible for students (and the simply curious) to follow a syllabus from afar, perhaps even hear or see lectures that have been posted, or are streamed 'live'. TV programs, both new and old, can be accessed online and seen a long time after they were first broadcast. Through Facebook, we are re-united with friends that we have not spoken to in years (although, in a few cases, we might have preferred it to stay that way). With the use of mobile technology we are 'always' available (not all positive, of course), and by communicating with SMS we carve out personal spaces where we can interact 'silently' in near real-time while being in public places, a phenomenon that has been dubbed *telecocooning*. (Habuchi 2005:181) The list goes on and on… There is an abundance of claims about the kinds of changes new information and communication technologies (ICT) have made, are making, and will continue to make in the ways we communicate; in our leisure life; in how we get to know,

digest and distribute information, and how these technologies challenge the monopoly of media owners (and give rise to new ones) in this process.[1]

Such claims seem well supported. Apart from our own experiences of these recent technological developments, they are the subject of research in various fields, including sociology, anthropology, media studies and philosophy. A great many researchers are guided by *empirical* questions, such as:

> Does using the Internet change the amount of time people spend on the other activities they engage in? Does performing an activity online take time from comparable offline activities or from different ones? Does the use of mobile phones and online communication change people's social resources – the number of people they communicate with, the type of social ties they start and maintain, and the quality of the relationships they have with other people? (Brynin and Kraut 2006:5)

My concern in this thesis, however, is with different *kinds* of questions, namely philosophical questions that focus on what this so-called transformation *means*. I will not be asking *whether* it is true that society is being transformed by these new technologies – I take this to be undoubtedly correct *in some sense or other* (this across-the-board statement will be modified later). Neither will I *map* the extent of the transformation – this is continually being done by researchers, journalists and bloggers alike. Instead, I will be asking questions such as: What do we mean when we say that a kind of technology (ICT or another) changes society? What does such an impact, if it is to be reckoned with, tell us about the relationship of technologies to society? What does it tell us about the ways we, as humans, interact with technologies? And what does it tell us about *us* – can we understand the technologically related transformation of society to *say something about ourselves* and about the ways we relate to our social, cultural, biological and physical surroundings? Does it tell us anything about how we conduct and organize our lives? How we structure the world around us? And, finally, does it tell us something about technology as a phenomenon in itself? From this philosophical point of view, understanding the meaning of ICT's social impact requires an investigation of what characterizes technology in general.

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[1] "The term 'information and communication technology' dates from the mid-1980s and in particular from the British PICT initiative, a programme for looking at ICTs… One glossary from the programme leader's summary of that work defined ICTs as 'all kinds of electronic systems used for broadcasting, telecommunications and computer-mediated communications'… [examples are] 'personal computers, video games, interactive TV, cell phones, the Internet [and] electronic payments systems'… This combination of general definition and examples conveys a sense of what ICTs can include, without having to draw absolutely precise boundaries." (Haddon 2004:1) As these examples illustrate, the expression 'new media' can also be, and is frequently used to denote ICTs (cf. Chapter 7).

The problems to be addressed

A lot of questions, indeed; and to a certain degree I touch upon them all in the next 250 or so pages. From this sea of questions, four research questions crystallize:

1. The question that forms the point of departure for this thesis is the following: *In what way does ICT contribute to communication and meaning construction*? This question is, in fact, an adequate empirical question. Like all empirical questions, however, it presupposes a conceptual framework in which and from which it is asked and answered. Rather than pursuing this question in the direction it is pointing (that is, towards the way that particular technologies shape communication and meaning in particular historical contexts), I turn around, so to speak, to investigate the presuppositions and preconceptions that prompts such a question, and that goes into its empirical investigation. What interests me in this thesis, then, is the *conceptual framework of* the question of technology. So, in the bulk of this work, I will concern myself only *indirectly* with the first research question (although it is brought closer to the surface in Chapter 7). The main part of my work, therefore, will consist of a conceptual investigation the aim of which is to discuss the existing frameworks and to propose a new and more adequate one. My investigation will be guided by a general question, a specific question, and finally, a reflective question.

2. The most *general question* to be dealt with is: *Does technology have a philosophically interesting impact on society and us*? Or, is the impact we talk about related to the needs and motives of those inventing, developing and using the technology? If the latter is the case, technologies are mere instruments. On the face of it, this seems to be a pretty good description and in line with much of our interactions with technology. I pick up a pen if I want to write something, I log onto the Internet if I think that I can find the answer to what that terrible rash on my right leg is, etc. Seemingly, the prime relation is between the world and me; technology only enters the picture if I need to manipulate the world somehow. In this view, which I call *instrumentalism*, technology is what we, personally and socially, define it to be.[1] As early as in the next chapter in this preliminary part of the thesis, I provide good reasons to deem this view misleading. In doing so, the ground for the investigation into the concept of technology is cleared.

[1] As I discuss in Chapter 1, instrumentalism involves the view that the meaning of technology is socially governed/constructed.

3. There is a danger in rejecting instrumentalism, namely of being accused of being the opposite, a *technological determinist*.[1] Andrew Feenberg describes this position as claiming that "[t]echnological development transforms what it is to be human" (1999:2) because "technological advance has an automatic and unilinear character". (Feenberg 1999:3) Determinism, also, is a less than plausible position, and the need to avoid it leads to a *more specific question* that needs to be addressed, namely: *In what way does technology have an impact*? This question forms the direction of the discussion in the three chapters that make up Part 1, and pursuing it entails spelling out the specifics of the technological impact, or, to put it differently, to formulate the concept of technology.

4. Evidently, if technology is conceptualized to have an impact on society and on us, the more specific problem implies a *reflective question*: *What does technological impact mean for our understanding of society and ourselves*? This question (which entails an investigation of the self-concept and of the relation of self and society) is the main focus for the investigation that constitutes Part 2. On the face of it, the two parts in this thesis seem unconnected, but I shall argue that the investigation in Part 2 is necessary for a full conceptualization of the concept of technology. What is gained by combining the two investigations of Parts 1 and 2 is explained in the section below.

The first research question problem presumes an affirmative answer to the general question, and is clarified by the investigation into the two more specific questions. In fact, the latter two investigations *frame* and give meaning to the first question, and with it, also empirical enquiries into the extent of ICT's impact.

Key theoretical concepts

In the following, I present the central ideas that go into the elucidation of the problems. I also outline the main concepts and arguments, and, most importantly, I show the way in which the arguments that make up the investigations of Parts 1 and 2 interconnect.

– The primacy of technological action –

According to Roger Silverstone, the enthusiasm (and pessimism) following the change that new ICTs bring to society often seem exaggerated. The bulk of these changes are of quantity (pace and swiftness of exchanges, for instance) rather than quality, in the sense

[1] Or Heidegger's specific brand of *essentialism*, which is close to but not identical to technological determinism (cf. Chapter 1).

that they continue rather than contrast with characteristics well known from non-mediated and from earlier forms of mediated communication:

> The supposedly distinct characteristics of new media: digital convergence; many-to-many communication; interactivity; globalization; virtuality, are arguably, with the possible exception of the specifically technical, not new at all. Face-to-face communication is simultaneous and interactive and does not need a mouse. Globalization is prefigured in both cinematic and television culture. And any entry into electronic space has always presupposed and required a physical space as both its beginning and end point. Quantity, certainly, turns into quality in the matter of communication. This is true not just for the Internet but for all media networks. (Silverstone 1999:11)

Silverstone takes this as a cue to broaden the scope, and be less focused on the technologies themselves. Although new ICTs undoubtedly have social consequences, it is through those using and communicating with the new technologies that this impact comes about. Accordingly, the potential consequences of new ICTs should be investigated by studying the technologies *in use*. "The new media, indeed, affect and involve us fully as social and political as well as economic beings… the bottom line is found in use, and in our capacity to mobilize their potential for social and political good." (Silverstone 1999:12) In other words, the study of the technological impact on society coming from ICTs cannot be limited to the study of technologies, but needs to consider the entire use situation. Other writers underscore the same point:

> [T]here's more to technology than technology. It's human communication and *what we do with our technology* that really counts. What's more, it's all about the transformation of our patterns of social interaction – how we live and work through, with and around the technology. (Thurlow et al. 2004:2, my emphasis)

Consequently, in investigating ICTs' impact on society, we should look to *technological actions*, rather than to the technologies themselves. Undertaking communicative actions mediated by technologies also involves other factors than the technology: a) the users, with their personal competencies, motives and beliefs, and b) socio-cultural aspects, conventions for use, legal framework, ethics, peer pressure and so on. A technological action, therefore, is composed of several aspects, some of which pull the performance in differing directions. Focusing on the technologies in themselves ('Internet drove *Dagbladet* into bankruptcy', 'WoW ruined my grades') gives us not just a simplified picture of what is going on with the social changes we are living through. It potentially gives us a wrong impression of the causality behind the changes. Counter-measures against the perceived negative effects of new ICTs might therefore become misdirected.

However, redirecting our gaze to actions rather than to the technologies themselves, although a methodologically sound move, explains little in itself. And we should not take it as a signal to ignore the impact of technologies altogether. Is it not an interesting distinction in a person's choice of e-mail rather than a letter, or a phone call? These days, though, the interesting distinction shows better in the opposite choice, receiving a posted letter from a friend who usually emails us indicates that something important is being conveyed. Maybe it is an invitation to a formal occasion, his wedding, or his doctoral defence. Or maybe he just wants to make a point, putting on a nostalgic face (I recently received my first postcard in about 10 years, and was baffled, to say the least – it was from a friend who proclaimed (in an email, afterwards) that 'no one sends postcards anymore'). Surely, we choose *how* we communicate because the various media with which we can communicate express different things. These 'different things' might be due to the differing social role of the technologies, and/or it might be due to the differing functionality of the technologies. Both aspects are equally valid in denoting the difference between media, and both aspects must be reflected in the conceptualization of the technological action.

If technological actions induce change, what gives technological actions their causality? If a component of the technological action is a technology (and it is, by default, otherwise it would be an action), then technologies are part of the causality of technological actions. Saying otherwise amounts to instrumentalism, the view that technologies are *mere means*, subject to the user'(s) *rationale* for an action, and the socially governed use of it. As I try to show in Chapter 1, instrumentalism is misleading. We should acknowledge technology, just as we acknowledge personal and social aspects in pointing to the causality of technological actions.

Thus, taking technological actions as a topic does not mean turning away from technology; on the contrary, it means approaching the question of *the meaning of technology*. Not in the sense of its encyclopaedic entry, but to the process in which a type of technology attains its meaning, *how it becomes the specific kind of technology we perceive it to be*. As argued in Part 1, there are two kinds of forces shaping the meaning of a (type of) technology, one from the 'outside' (personal/social) and one emanating from the technological items themselves. We do not just imbue a technology with functions because of personal and social requirements; in a technological action a technology *realizes* some of its inherent capabilities. This is what I call a technology's *affordance*. Technologies

afford certain ways of being handled, and through that, afford certain actions with them. We use email instead of a letter, or a phone call, because of its technology-specific characteristics. The actions that are being afforded by the technology must be reflected in our understanding of technological actions, because the arsenal of such actions often exceeds those that the technology was designed to afford (cf. Chapter 4).

What is needed if we are to use technological actions as our focus point, is to investigate what it is that *constitutes a technological action*. Stated differently, we must acknowledge that technological actions are *not merely composed* of technology, the user(s), and the socio-cultural, but that what any component offers in an action is shaped by what the other components offer in the very same action. For instance, a carpenter can seem proficient when using a hammer, but turns into an apprentice if presented with a nail gun. Technology, user and socio-cultural factors *accentuate* specific characteristics in the other factors. I will express this by saying that a person in a technological action is not the person *per se*, the person objectively regarded, but is the person *appearing in a certain way*. The skills, the knowledge, the competencies, the beliefs a person uses actively in his close encounter with a technology would not have mattered in a different technological action.

Neither is the socio-cultural context everything that surrounds a technological action. Martin Heidegger argues that a hammer *points out* its social and physical context; those things that cannot be hammered on are simply not part of the context of the hammer (cf. Chapter 2). However, only by being in a 'hammerable' context is a hammer a hammer. Technology and context are mutually defining, as well as technology and user. Or, as I will describe their relation, they are *interdependent*.

A technological action is therefore not just an assembly of pre-defined entities. It is a *constituted totality*, comprised of constituents that are themselves constituted through the very same action in question. As a consequence, the appearance of any of the constituents in a technological action is *primarily related to the action itself* because every co-constituent of the action appears in accordance with the specific (kind of) action. The technological action is therefore not *an effect* of the contribution of the technology, the user(s) and socio-cultural aspects; *the action itself has primacy*. This is to say that the action defines its co-constituents.

– Providing a conceptual framework –

As mentioned, I have chosen to shift the focus from ICTs to technology as *a phenomenon in its own right*. In investigating the changes occurring in the wake of new ICTs, we need to relate ICTs both to other forms of communication technologies, and to technology in general. The most fundamental level here, of course, is the latter, and is what I concern myself with the most (Chapter 7 is an exception). With that, the main purpose of this thesis is to *provide a conceptual framework for empirical investigations* of the alleged social changes due to new ICTs: a framework for the design, the execution and the interpretation of empirical research into ICT and other specific forms of technology.

Throughout this thesis, I point out the manners in which technology has always transformed the human way of life.[1] Although not wanting to play down the impact of ICTs, a theoretical consequence of the conceptual framework is that the influential power of the dominating technologies in the digital era is *a continuation of how our lives always have been technologically enmeshed*. This is implied in the aforementioned refutation of *technological instrumentalism*; in order to understand the way ICTs transform society and ourselves, it is necessary to understand that *technologies are not just there*, readily available for us to employ in accordance with, or contrary to, a set of instructions in a manual. Technologies introduce something fundamentally *more* through being available for us to use. The modified stone used as a hammer in Olduwai Gorge did this two-and-a-half million years ago, the printing press of Johannes Gutenberg did this approximately 560 years ago, and the NeXTcube did this when it served as Tim Berner-Lee's server 20 years ago, thereby kick-starting what became the World Wide Web. A technology is not a transparent mediating presence between the user and the world, with it we *make the world* we interact with, and in so doing, *technologies contribute to the making of us*. What we think of as the world, what we think of as a person, ourselves or others, is affected by the entire technological *repertoire* in a society, and these days, especially ICTs. To understand the latter impact, however, we need to understand the former.

A counter-argument to this is that such a view amounts to *technological determinism*. If technology as such has this kind of impact on humans and society, would that not mean that we are *determined* by the technological presence? Is society dominated by the technology that inhabits it? Does technological development dictate social development?

[1] There is some precedence for using a capital T in writing about technology in general. (Heidegger 1977, 1993) I will not follow this because it implies that technology is more autonomous than I think it is.

Are we in some sense controlled by the technology in using it? Besides refuting instrumentalism, the understanding of technology that is developed in Part 1 counters determinism. It is equally important to understand the technology that mediates between the world and us in a manner that is not opaque as it is to understand it as not mediating in a transparent manner. Actually, possible accusations of technological determinism double the reason why we need to understand the relationship between humans, the world and technology properly before embarking on empirical investigations. Neither instrumentalism nor determinism offers an adequate framework for describing the relation between technology, society and us.

– Technology, society, self –

Clearly, this work concerns the relationship between humans and technology. Technologies have been an integral part of human activities for millions of years, so how are we to understand our relation to them? What do we gain, as human beings and as a society, by developing and using technologies? Of course, we expand our abilities, technologies enable us to perform certain actions that we could not perform as rapidly, efficiently, or at all, without them. This, I think, is unquestionable. But there is more involved, both as to how society is structured, and as to how we see ourselves and our possibilities in the world. In fact, technological presence has wide-ranging consequences for (but does not determine) how both the self and a society can be conceptualized.

Hans Achterhuis points out that technological change does not merely change the nature of the technological mediation, but it necessarily also changes the human experiences that accompany our employment of the technologies.[1] (2001:2) We only need to think of the example above, email vs. letter, to see what he means. The same message transmitted through different media attains a different meaning for us; we experience the interchange with our friend differently, and with it, our friend. Technological actions not only help shape the outcome of the actions, they rebound on the user's identity.

[1] In this thesis, I use technological mediation and technological action interchangeably, despite the fact that not all technological actions are mediations in the sense of standing between us and other people or the world. In Chapter 4, I review different kinds of human-technology relations, and while some technological actions are true mediations ('standing between'), others are interactions *with* a technology. Nevertheless, all technological mediations are technological actions, so what is true of the latter is also true of the former. To me, 'mediation' does not manage to encompass the importance of the context of use in the constitutional process, nor does it emphasize the dynamics between the constituents. For most part, I use mediation in two circumstances: in the scientific use of technology and in communication (cf. Chapter 2).

> When we use simple devices to move, position, extend or protect our bodies, our techniques change both objects and bodies. And by adopting devices we do more. We change our social selves. In other species, natural selection and social selection shape the appearance of the animal. In humanity, technology helps shape identity. (Tenner 2003:29)

This not only relates to how a person is perceived by others, but also to how the person sees himself. The most important argument that connects Parts 1 and 2 is that we not only change the range of our abilities by employing technologies, we change our self-image: how we perceive ourselves to be and what we are able to do and become. If technology is to be conceptualized in the manner described in the previous section, it is required that we also a) develop a notion of the constitution of the self that is open in the sense of 'allowing' this kind of influence, and b) explicate the nature of this influence.

For this reason, the investigation into technology needs a *complementary investigation* into the shaping of the self. There are two matters that especially need to be looked into in this regard: Firstly, the relation between the self and intersubjectivity, and secondly, the role of technology in the conceptualization of the self *beyond that of co-constituting the appearance of a person in a specific technological action*. Both factors are important if we are to conceptualize the relation of technology, society and self in an adequate way. Technology plays a dual role here. Besides influencing the self in the manner already indicated, technology influences intersubjectivity through its societal impact. The bottom line in the constitution of the self is that, as I shall argue extensively in Chapters 6 and 7, any understanding of the self must be of the self as *embedded*. We cannot understand the self, society and technology *without* understanding them in relation to each other, neither the 'simple' technological actions (explored in Chapters 2, 3 and 4), nor the terms in which our lifeworld, *the world as imbued with meaning*, is constituted technologically as well as socially (Chapters 4 and 6).[1]

This line in the investigation therefore looks beyond specific technological actions, but does not for that reason leave the primacy of action behind. In Part 2, I argue that the self is associated with its *potential* for acting and with what it might become. What the self can become is related to both the social/the intersubjective sphere and to its *practical space*, that

[1] 'Lifeworld' is a concept that has quite specific meaning and function in the theories of Edmund Husserl (1970), and Alfred Schutz and Thomas Luckmann (1973), as the world as it appears in the natural attitude, both in a pre-scientific and pre-phenomenological manner (cf. Chapter 3). I use it in a more casual manner, as an expression of *how the world around us is 'always already' structured* when we enter it (see below). That is, in being born we enter a world that is already meaningful, comprised of structures of meaning to which we cannot but relate. I therefore use it without regard to whether it is prior to any scientific or phenomenological investigation or not.

is, the horizon of its action potential.[1] In a line of thought well known from phenomenology, both a self and a lifeworld come into existence through embeddedness. Our awareness of ourselves is intimately connected to our *engagement* in our surroundings, and our awareness of our surroundings is intimately connected to *our* engagement in them. Therefore, it is necessary for the self to undertake some kind of action in his surroundings to become a self, in the (self-) reflected sense (cf. Chapters 3 and 6). This way, the self and the lifeworld are interdependent. Technology's role in the relation between self and lifeworld is in terms of being a lifeworld phenomenon, a part of what gives the lifeworld its meaning. In other words, *technology is a lifeworld structure*.

If we are to develop an understanding of technology as a phenomenon of its own, we need to see *how* it can be said to be a lifeworld structure, and with *what* it provides us in being that (it is only *for us* that there can be anything like a lifeworld, that is, the world as meaningful). I have already mentioned that this is connected to how we comprehend our horizon of potential actions, our practical space. Consequently, the question above reads as a question of how technology influences this practical space. In Chapter 4, I reject the view that technology is an extension of how we act in our lifeworld, favouring instead the view that it is an *upgrade of our practical space*. The main difference between these two views is that in the former understanding technologies extend our abilities within an already defined practical space, while the latter understanding means that technologies have a role in *designating the practical space*. Or, using the term already presented, technologies co-constitute the practical space; they do not just extend our abilities within an already constituted practical space. The main task in responding to the problem in Part 2, then, is to connect the self to the practical space.

– Thrownness and the structure of the lifeworld –

The relation of the self to its lifeworld can be described most effectively as *thrownness*. This concept, coming from Heidegger, indicates that we have never been in a position located outside of the social world, the *lifeworld*. (Heidegger 1962:321/276) We are 'thrown' into existence, and cannot but relate to our surroundings the way they are already structured.

[1] For Maurice Merleau-Ponty, 'practical space' conveys that how we are in the world does not come down to a mental representation of the world (mental space), but is more importantly related to our body and its motility. (Merleau-Ponty 1962:137ff) For Merleau-Ponty, the body has its own intentionality that cannot be represented mentally, so that practical space denotes the world in which the body can move. (Merleau-Ponty 1962:139) I borrow the concept, but as I do not discuss embodiment, it gains a slightly more specific meaning: the world in which we can act.

In our thrownness, we are *always already* beside others, and *always already* beside items in the lifeworld (but, as we shall see in Part 1, not as defined things). And, most importantly, we are *always already* within the same relations that others have to the lifeworld-items, that is, we share the socially governed meanings of items with others. This is the sense in which the world as we meet it in our thrownness is – to employ this distinctly phenomenological phrasing yet again – *always already* meaningful.[1]

This might sound stifling and oppressive, and although it can be, thrownness in fact harbours the possibility for us to become anything at all. Thrownness positions us among actualities, among potentialities, among challenges, among the possibilities to realize ourselves. As we shall see in Chapter 6, a crucial part of thrownness is that we are thrown in an attitude of projecting ourselves towards the future. Such a projection means that we project ourselves towards a horizon. In front of us, so to speak, is the intersubjective world and the thing world (and our own mortality) with their respective horizons. Between us and the horizons, we not only find the lifeworld as it is, but also the potential for how it, and we, might become (cf. Chapters 4 and 6). A main aspect of Heidegger's philosophy is that to be is *to become*. I will retain this aspect, but investigate more specifically technology's role in this becoming.

The investigation into the concept of technology is mainly driven by the need to work out a philosophy of the lifeworld that recognizes the constitutive role of technology. As mentioned, my contention is that the lifeworld *is* meaningful, and that technology is a principal factor in the meaningfulness of the lifeworld. As such, technology functions in a two-fold manner, as an always already structure, and as a (re-) organizing principle. In our thrownness, we meet the world as it is always already structured, that is, as meaningful. Aspects such as language, social institutions, statutory framework, and ethical and religious considerations co-constitute the structures of meaning that make up the lifeworld. My task is to demonstrate that technology is an influence on par with those mentioned. Of special interest is the role of technology in the *re*-structuring of the lifeworld. Because technology does have an inherent possibility to structure the lifeworld,

[1] 'Always already' first and foremost indicates the structure of time: "Every 'now', moreover, is already either a 'just-now' or a 'forthwith'… Every last 'now', as '*now*', is always *already* a 'forthwith' that is no longer; thus it is time in the sense of the 'no-longer-now' – in the sense of the past. Every first 'now' is a 'just-now' that is not yet; thus it is time in the sense of the 'not-yetnow' – in the sense of the 'future'." (Heidegger 1962:476/424) Considering the dynamical constitution of the meaningful structures that we cannot but relate to in our thrownness, I am also comfortable in calling meaningfulness 'always already' (cf. Chapter 3).

it also harbours the possibility of re-structuring it. We can *use* technologies to make new structures of meaning. In fact, this is what we do all the time. In developing new technologies or in evolving new praxes for existing technologies, we change the world, our possibilities, our goals and beliefs. In short, we re-structure the lifeworld. Only because technologies *have* the structural impact, can we make new structures by virtue of technologies.

In Chapters 2 and 4, I argue that the structures of meaning making up our lifeworld should be conceptualized as *articulations*. In a sense, the structures of meaning are constructed by various social (political, religious, ethical, economic) and technological forces exercising their influence in the co-constitutional manner described earlier. Accordingly, technological actions lead to the articulation of the meanings that structure the lifeworld.[1] Rather than thinking about this as relativism and as raising a veil between ourselves and a presumed objective world behind it, this is in fact a necessary way of creating reality. We cannot live in a world that is not articulated, and as mentioned above, we do not. We are always already within structures of meaning and have to cope with them. However, the particular articulations are *in some sense contingent*, offering us one possible articulation of reality (cf. Chapter 3). Another technology, another social praxis, another historical time, or another place would have created other articulations. As there is no non-perspectival access to 'the world', the way we apprehend it will always be through an articulated perspective, that is, *through structures of meaning*. Technological actions (which, to remind the reader once more, do *not* imply actions determined by the technology in use) *create reality*.

The two-foldedness of the always already structure and the re-organizing activity means that the structures of meaning that make up our lifeworld are continuously becoming: They are perspectival and contextual, and continuously constructed and negotiated in the intersubjective realm (cf. Chapter 6). To get a grip on how meaning is articulated we have to look at the always already meaningful and the potential meaningful as mutual necessary. Meaning *is* this complementarity. And, by implication, so is the lifeworld. My thesis, then, amounts to an investigation into technology's role in the complementarity.[2]

[1] Actually, as we shall see in Chapter 4, a material technological item is itself a *structure of meaning* as it is connected to various praxes and contexts, and can as such be regarded as an articulation in itself.

[2] The complementarity is particularly displayed through the concepts of actuality and virtuality in Chapter 4.

Undoubtedly, one of the most significant structural factors in our world is the presence of ICTs. ICTs are gaining an increasing influence on how we communicate, how we organize our daily lives, and on how our society functions; in other words, the influence of ICTs on the meanings that structure our lifeworld is discernible. As such, however, ICTs are only doing what other technologies have always been doing. We, and probably more so those coming after us, are thrown into a lifeworld permeated by online and wireless ICTs. To proliferate, to feel safe and comfortable, and to thrive in the lifeworld, we need to relate competently to these media, and as researchers, we need to understand what this relating involves. We need to see that it is only in interacting with what is an actuality (the world as it is) that one glimpses what might become. Things in their actuality *point forward to their potentiality*, For instance, what problems are there with that which already is; what can be done better with it, and what should be done to its negative sides? *The actuality and the potentiality of our lifeworld constitute our practical space*. Only by taking an actuality as a starting point, *only by interacting with that which already is*, for instance through a *technological* action, can we glimpse the potentiality of our lifeworld. Without action, we glimpse nothing. Action has primacy.

Methodological remarks

This thesis primarily (but not exclusively) concerns itself with *the phenomenology of being a technology user*. With a piece of technology in hand, a person is a different individual; when acts are technologically augmented, a person is faced with specific constraints and possibilities. Not only that, the world he acts in is also different. However, it is important that I also look beyond single technological artefacts and direct personal interactions with such. My investigation often revolves around the fact that technologies have their impact as a part of larger technological systems, and/or as a part of larger socio-economic systems. Few technologies involve user(s) in the sense that ICTs do, but are instead a component of larger systems whose impact we only encounter indirectly. We experience the car, but not the factory in which it is assembled. We experience the effect of the financial crisis, but not the Dow Jones. As such, the focal point of the investigation is on *our experience with technology by existing in a technologically permeated lifeworld.* Accordingly, the phenomenology of being a technology-user involves more generally the relation between the self and the lifeworld (which also makes good sense because our *personal* encounters with technologies more often than not are governed by social conventions).

The parts of the thesis that are concerned with the self and lifeworld draw on classical phenomenology, most notably on the work of Heidegger. However, this thesis does not provide an exegesis of Heidegger's work, nor does it aim to be a contribution to phenomenology proper. Instead, by focusing my investigation strongly on technology and technological actions (rather than other aspects that phenomenologists also argue is important for the constitution of the self, such as transcendental, temporal, historical, bodily and cultural aspects), I put ideas, insights and concepts from phenomenology to use in a discourse on technology.[1] This way, my approach has many affinities with the post-phenomenology of Don Ihde. Like this project, post-phenomenology is occupied with the importance of technology in the lifeworld, and takes, as the name itself implies, a phenomenological inspired perspective.

My approach, though, differs from post-phenomenology in one crucial aspect. Inspired by the sociological approach to the study of technology called Science and Technology Studies (STS), post-phenomenology takes case studies, usually from a scientific context, as its focal point, and describes and elucidates these from a phenomenological point of view. Although I often employ examples of technology-use to convey theoretical points, my main focus is to a larger degree on the conceptual framework rather than on the specific cases.[2] As such, my approach is also akin to, but yet different from, the study of technology found in Actor-Network Theory. Although obviously sharing many theoretical viewpoints with Bruno Latour, especially seen through my concept of *interdependence* (cf. Chapter 6), I rarely discuss technology in a scientific setting (note, Latour occasionally transcends this setting also).

Furthermore, I do not share Latour's scepticism of Heidegger (1999:176) and agree with Søren Riis (2008) that the two thinkers have more in common than Latour himself acknowledges (cf. Chapter 3). In the thinking in recent philosophy of technology (which includes post-phenomenology) Heidegger is not regarded as offering anything in particular to contemporary thinking about technology. For that, he is seen as being too preoccupied with the transcendental conditions for modern technology, and his concepts

[1] Heidegger, as we shall see over the following chapters, has written extensively on tools and technology, and both Edmund Husserl and Maurice Merleau-Ponty have written on subjects that implicate an effect on the self and the lifeworld through the use of tools and technology.

[2] Case studies, although always present, have become more conspicuous in Ihde's thinking over the years. It would not be incorrect to say that earlier stages of his thinking revolved more around the conceptual framework. (Ihde 1979, 1983, 1990)

as inadequately suited to display the specific characteristics of technologies. The consequence of this focus is that Heidegger presents modern technology (characteristically denoted with a capital T) as constituting one indistinct and comprehensive impact on society. This has led Heidegger to a negative, almost dystopian, view of modern technology (cf. Chapter 1). This, in turn, prompts contemporary philosophers of technology, including Ihde and Latour, to be less than forthcoming towards perspectives that take technology *in general* under consideration.

Although I agree with the criticism of the all-encompassing line of Heidegger's thinking, I nevertheless consider an investigation into technology in the general sense to contribute importantly to our understanding of various technolog*ies* and their specific impact on our daily lives. Consequently, the task I set for myself in answering my research questions is to develop the conceptual framework in a manner that encompasses technology as a phenomenon in its own right and yet *leaves room for the specifics of various technologies*.

Answering my research questions in this way, my investigation necessarily has a broad scope. Rather than entering into lengthy discussion of minutiae, for instance in phenomenology or about any one thinker, empirical and theoretical support for the developing conceptual framework has been found by combining insights and perspectives from a wide range of sources. Rather than focusing on knock-down arguments of a thinker or a position, I focus on the constructive contributions a thinker can make to my project. For this reason, I see my project as a contribution to both phenomenological research and to the field of contemporary philosophy of technology: To a larger extent than classical phenomenology, technology is brought into the constitution of the self and the lifeworld in a *positive* manner, and to a larger extent than in the philosophy of technology, the co-constitutional role of technology in our understanding of the self and the lifeworld is explored and conceptualized.

On the remaining chapters

The thesis is composed of two main parts, comprising three chapters each, and a preliminary part, comprising this introduction and the first chapter, which is prior to the actual discussion on the concept of technology and therefore also of a preliminary character. In that chapter, called The Impact of Technology, I present the definition of instrumentalism and discuss the two related notions of determinism and essentialism. I do not argue explicitly against instrumentalism, but find in both determinism and

essentialism good arguments against holding the view that technologies are transparent in terms of their impact. In this connection, transparent means that the impact of a technological action is 'dictated' by whomever is developing, using or assessing a technology. However, theories that imply an all-encompassing impact from technology have their own weaknesses, some of which are taken up in this chapter. In the end, I conclude that there are good reasons to think of technology as having some sort of impact. What this impact is, however, is explored in Part 1, which is called *Technology*.

The discussion on the concept of technology has a hermeneutical character. I find it hard to discuss the relevant concepts fully without having described why I discuss them. Consequently, I start Part 1 with outlining the main ideas of the concept of technology in Chapter 2, called *Technological Realism*. More precisely, I outline the main ideas by introducing the constitutional-articulative perspective on technology, reserving the full exploration of the two concepts to Chapter 3 and 4 respectively.

The third chapter, *Intentionality in Action*, is mainly a discussion of Husserl and Heidegger. I have chosen to 'lay low' myself, and just to present what amounts to a 'general ontology'. Through Heidegger's criticism of Husserl's theory of intentionality, a theory of our practical behaviour as opening the very world we act in emerges. Rather than being about perceiving the world, intentionality for Heidegger is primarily about acting in it. From this discussion the co-constitutional role of technology in the lifeworld is identified.

The fourth chapter, *The Revealing-Concealing Structure*, is *one of the two main chapters*. In it, the discussion on the concept of technology comes to a conclusion. I take a position where I can substantiate and specify *how* technology contributes to the constitution of the world and how technology contributes to the articulation of a lifeworld. In short, this consists of showing that the actual and potential actions that technologies embody constitutes our *practical space*. This illustrates that technologies really do have an impact on society without implying determinism or that this impact amounts to an indistinct and comprehensive one.

Part 2, called *Self and Society*, concerns the positive role of technology in the constitution of self and intersubjectivity. Formulating the positive role demands a critical assessment of objectifying approaches to the self, showing that such approaches presuppose mineness. In Chapter 5, *The Elusive Self*, I argue that mineness leaves us with only a minimal notion of the self that in its nature is open to constitutional influences from its surroundings.

Chapter 6, *Embeddedness*, explores this openness. From the minimal notion, we are able to see how the self is constituted embeddedly rather than independently of the world and other selves. This is *the other main chapter* in the thesis, as it is where the notion of technology is merged with the notion of the self to express the definitive definition of *practical space*. The actuality and potentiality contained in the notion of practical space is integral to the understanding of the self because the self is constituted primarily as future-directed. This means that the self is constituted in accordance with its possibilities, rather than its experiences and accomplishments.

Chapter 7, *Society, Communication and Technology*, leaves the self discourse, and directs our gaze to the connection between technology and the development of society. More specifically, it is an attempt to critically apply the understanding of technology developed in Part 1 on some of the claims put forward by communication theorists concerning the strong relation between types of communication technology and various stages of social development. Although interesting in many facets, such claims often implicate an untenable technological determinism. The question of how to conceptualize the impact of ICTs on our present and future society is affected by this discussion.

chapter one

THE IMPACT OF TECHNOLOGY

The instrumental definition of technology

Dutch philosopher Hans Achterhuis distinguishes between two generations in the philosophy of technology: The *classical approach*, found in the writings of Martin Heidegger, Karl Jaspers and the *dystopian par excellence* Jacques Ellul, as examples, and the *empirical approach* of recent American thinkers like Don Ihde, Andrew Feenberg, Langdon Winner and Donna Haraway. While the former approach is characterized by being preoccupied with "the historical and transcendental conditions that made modern technology", the latter is occupied with "the manifold ways in which technology manifests itself'. (Achterhuis 2001:3)[1] In this sense the two generations, when looking at modern technology, fix their eyes in opposite directions: "Classical philosophy of technology tried to understand technology from its conditions of possibility, from what must be presupposed in order for it to be possible." (Verbeek 2005:7) This backward looking, genealogical and *ontological* approach contrasts noticeably with the forward-looking project of the empirical philosophers, who in their technology-close approach are concerned with the possibilities of managing and influencing technological development.

[1] To regard the history of the philosophy of technology as consisting of only two homogeneous generations is a simplification well suited to map the theoretical origins of the empirical philosophers addressed by Achterhuis, but is not a fair representation of the actual development in the thinking about technology generally. Ihde 1993 and Mitcham 1994, for instance, provide a far richer background for the contemporary philosophy of technology.

Through this, they recognize the immediate need for attending to some unfortunate spin-off effects of modern technology, such as nuclear waste, global warming, prescription drug addiction, electronic surveillance and orbital debris. In so doing, the younger generation offers a far more politically based philosophy than that of the classical philosophers. To take control of technological development demands a proper understanding of the role and the impact of technology on society, which in turn demands a proper philosophical analysis of technology's *meaning*. However, precisely because of this, is it also apparent that the two generations have something very fundamental in common: Technology and technological development profoundly change the society in which technologies exist and operate.

In opposition to this shared key assumption is the opinion that technology is a mere device, a contrivance, a means to an end, an *instrumentum*. What matters in a technologically augmented action is the *rationale*, the end-goal and the motive, behind the action. This view, based on what Martin Heidegger calls the instrumental definition of technology (1993:312), results in technology and technological development being regarded as not in themselves worthy of thematization, but only as subordinate to the philosophy of science, environmental ethics, or some other philosophical, scientific or social discourse.[1]

A related definition of technology sees its role and function as insignificant compared to the social and political development in a society: "What matters is not technology itself, but the social or economical system in which it is embedded." (Winner 1986:20) Langdon Winner, who is critical of this view, calls this a theory of the social determination of technology. This is in effect a variation of the instrumentalist definition in the sense that *technology becomes ontologically transparent*. Instead, what is seen as significant is the social and political motivation behind the introduction of a technology in a society, and/or how the meaning of a technology is a 'construct' of specific social groups interpreting the technology within a context of use, with little or no regard to possible constraints in the technology itself. Seen this way, technological development can be fully controlled both socially and politically without much further ado. However, both generations of thinkers

[1] In the same paragraph, Heidegger offers an alternative, *anthropological* definition: Technology is a human activity. (Heidegger 1993:312) Heidegger claims that these two definitions belong together, but in a logical sense, this is only partly true; the instrumental definition presupposes the anthropological, but the latter is also true for theories that regard technology as being more than mere means for actions.

share a scepticism of the instrumental understanding of technology, which, if taken at face value, is seen not just as wrong, but also as potentially dangerous.

For the following, I define *instrumentalism* as the view that technologies are mere means and that they are transparent when mediating between motives for use and effects of use. Instrumentalism, then, implies that technologies do not bring in any philosophically interesting aspects to the shaping of society and in the constitution of those who use them. I will not delve any further into the definition of instrumentalism; this chapter is primarily an attempt to illustrate that there are good reason to accept that technologies in fact do have a philosophically interesting impact on society and users. However, such a notion includes both *technological determinism* and the more moderate view that technologies, in some sense, influence society and users, and I shall argue that determinism is as unacceptable as instrumentalism, while waiting until the next three chapters to formulate *how* the influence is to be conceptualized.

Technological thinking

Heidegger describes the instrumental definition as a correct, but not true, concept of technology. (1993:312-13) What he means by this somewhat cryptic statement is that on one level it is clearly the case that humans employ technologies based on purposes and knowledge, and as such technology is a tool, employed to achieve a pre-defined goal. This even applies to modern technology, Heidegger notes, but the definition is just not true because it fails to reveal the *essence* of technology. The question of truth is ontological rather than epistemological for Heidegger, and what is true of a thing such as technology reveals an ontological relation between the thing and the way we are in the world, that is, our particular and historically situated existence. An ontological relation means that it has a constitutive function, in the sense that the thing marks a disclosure, an *unconcealment* in Heidegger's words. The world is not just there in itself, it is brought forward in specific ways. In this sense, what is revealed is primarily *a* world, a condition of possibility for seeing the world, and the particular revealing by such a thing as modern technology entails that the thing's specific essence, its meaning, is a key part of *how* the world is unconcealed.[1] For this reason, it is crucial that technology is conceived in a way that exposes said relation. By regarding technology as transparent, by not making technology a

[1] A terminological clarification: 'Revealing' is used to denote an activity, while the thing or the world as revealed is referred to as the unconcealed.

topic for reflection, instrumentalism instead obscures the ontological relation. If we settle for the instrumental definition, we will not be opened up to the ontological ramifications of modern technology, and consequently neither to its real meaning.

An analysis of what is true of modern technology must therefore be approached in two steps. The first is an investigation into the nature of unconcealment, and a subsequent establishing of modern technology as indeed a kind of revealing; and the second, an investigation into the nature of this particular revealing, *how* modern technology opens up the world for us, *how* it constitutes things. In this chapter, I will ignore the first step, and proceed directly to the second, to the question of the essence of modern technology.[1] It is possible to accept the result of the first analysis, and reject the last one, which is precisely what I will do. For Heidegger, however, the two analyses taken together convince him that the problem of modern technology is that it conceals alternative ways of revealing, so that it is taken as the only kind of unconcealment. If that is the case, we are not free with respect to modern technology, or more precisely, to the world as unconcealed by modern technology. Literally, we cannot discover that there are other possible ways of being in the world because they remain concealed by the essence of modern technology. This, for Heidegger, is the true danger of settling for the instrumental definition of technology.

Through his analysis of modern technology, Heidegger shows its essence to be something he calls *Gestell*, which, as he says, "is by no means anything technological". (1993:311) Consequently, we will never disclose the essence of technology by scrutinizing technological items. In line with what I stated above, *Gestell* is best understood as our attitude to the world that we assume when we act in the world through modern technology. As such, *Gestell* shows itself in humans through the operation of modern technology. In putting modern technology to use, whatever it is that the technology operates on is 'ordered' into being resources, the *Bestand* as Heidegger calls it, for the technological activity.[2] This ordering does not come in the form of a decree, but should rather be regarded as how nature is treated due to the effect of modern technology. The *Bestand* can be understood in two ways, one literally, where natural things are lined up as resources, and then more figuratively, where it alludes to a state of mind, a way of

[1] I will return to the first step, the structure of unconcealment (revealing) and concealment in Chapter 4.

[2] *Gestell* is often translated as "Enframing", but this usually brings about a number of reservations as to how it should be understood in English. Albert Borgmann proposes 'framework' as an alternative translation. (2005:428) *Bestand* is usually translated as 'standing-reserve', but according to Borgmann, 'resources' would be less awkward. To avoid lengthy terminological discussions I will keep the German words, and instead try to convey their meaning.

regarding the world. For Heidegger, modern society is declining due to the influence of *Gestell*. First natural resources, instead of having a meaning and a value of their own, are reduced to *Bestand* for humans, but eventually also us, the humans who perform this reduction through our development and employment of technology, start to treat each other the same way, rendering the human race itself *Bestand*.

Perhaps a way to make this quite abstract analysis a bit more tangible is to relate *Gestell* to a particular kind of thinking that Heidegger refers to as *calculative thinking*. This concept alludes to our tendency to be unscrupulously goal-oriented in our activities rather than contemplative on what it means to be *underway* to something. Calculative thinking "computes ever new, ever more promising and at the same time more economical possibilities. Calculative thinking races from one prospect to the next. Calculative thinking never stops, never collects itself." (Heidegger 1969:46) This is perfectly in line with how *Gestell* challenges nature: "This setting-upon that challenges the energies of nature is an expediting, and in two ways. It expedites in that it unlocks and exposes. Yet that expediting is always itself directed from the beginning toward furthering something else, i.e., toward driving on to the maximum yield at the minimum expense." (Heidegger 1993:321)[1] Both calculative thinking and *Gestell*, then, push towards a maximizing of efficiency, ultimately not because it is for the best for humans and society, although we – under the influence of the instrumental definition of technology – might think this is the reason, but because *efficiency becomes a goal in itself*.

To convey the affinities between *Gestell* and calculative thinking, the concept of *technological thinking* has surfaced. (Dreyfus 1993, Feenberg 1999) Technological thinking, although not a concept used by Heidegger himself, not only denotes calculative thinking under the influence of *Gestell*, but also displays splendidly Heidegger's idea that the challenging of nature necessarily is carried out through and by human beings. (Heidegger 1993:323) The concept of technological thinking therefore harbours the already mentioned challenging of nature.[2]

[1] Lovitt's original translation reads 'challenging-forth' instead of 'challenging'. (Heidegger 1977) Admittedly, this is more accurate when one considers the complete analysis of *Gestell* as a "sending from Being". For some reason, Krell (Heidegger 1993) has undertaken a slight alteration to Lovitt's translation, and for now, I follow Krell, but read on.

[2] Tabachnick 2004 equates technological thinking with *Gestell*, which to me seems a bit inaccurate because *Gestell*, for Heidegger, primarily is an ontological concept, while technological thinking rather should be understood as how *Gestell* directs human thinking in one specific direction.

The inflexibility of technology

The crux of Heidegger's reflection is that if we confine ourselves to believing that technology-as-instrument is the true definition of technology we will be enchained to *Gestell* and subject to the negative social, political, and philosophical development that follows. A related, and equally dangerous issue is that the propagation of technological thinking means that instead of us refining and enhancing our thinking abilities (as we might fool ourselves to think), we are heading toward a forgetting of thinking, a forgetting of asking questions, a machine-like existence much like modern technology itself. We are then in a position where we cannot catch sight of other possible ways of unconcealment, other possible ways of being in the world. However, if we in something that resembles an act of meditation open ourselves to what is true of technology we will gain a freedom towards it and the technological way of thinking. This freedom does not mean that technology ends up as a mere instrument – the *Gestell* is still the essence of modern technology – it just does not have ascendancy over us anymore.

Heidegger warns against taking active measures to overcome the *Gestell,* as this only will demonstrate how entangled we are in the technological way of life. "Because the essence of technology is nothing technological, essential reflection upon technology and decisive confrontation with it must happen in a realm that is, on the one hand, akin to it and, on the other, fundamentally different to it." (Heidegger 1993:340) One problem is that since the essence of technology is seen as not being technological, it would not suffice to gain control over the technology itself, we need to take control over what controls technology. A more serious problem is that the *will to dominate* that shows itself in the attempt to control technology or its development is *itself a typical characteristic of technological thinking*. (Heidegger 1969:59, cf. Dreyfus 1993) This is why Heidegger resorts to a rather vague prescription to overcome the demands of the *Gestell*: "Here and now and in little things… we may foster the saving power in its increase. This includes holding always before our eyes the extreme danger." (1993:338) By careful and mindful association with technology we can "let technical devices enter our daily life, and at the same time leave them outside, that is, let them alone, as things which are nothing absolute but remain dependent upon something higher". (Heidegger 1969:54) If we are able to relate to devices in this relaxed, meditative way, "we no longer view things only in a technical way". (Heidegger 1969:54) [1]

[1] For Heidegger, it is primarily art that has the potential of revealing real ontological truths. Hence, works of art can play a crucial role in salvaging us from the opening by *Gestell*. (Heidegger 1993:339ff) One of the reasons for this is

The younger generation of technology thinkers, however, is not convinced by this train of thought, and feels that the threat of modern technology should be worked out in an engagement *with* technology rather than withdrawing from it: "Heidegger's argument is developed at such a high level of abstraction he literally cannot discriminate between electricity and atom bombs, agricultural techniques and the Holocaust." (Feenberg 1999:187) The specific functional and material properties of technologies have no significance for Heidegger. The level of abstraction leaves his concepts not only useless for an analysis of how modern technologies have changed society, but more worryingly, also useless in the struggle to eliminate or pacify the unfortunate development that Heidegger and Feenberg agree really does follow modern technology. Combined with the proscribed passivity, the level of abstraction entails that we either lose our influence over the technology and the technological development or, at a minimum, that we lose how to conceptualize such an influence. Heidegger's non-interventionist approach seems to forbid political measures against, say, global warming, nuclear rearmament, and so on, lest one entangles oneself even further into the hands of *Gestell*. This is wrong-headed, Feenberg claims: "Real change will come…when we recognize the nature of our subordinate position in the technical systems that enroll us, and begin to intervene in the design process in the defense of the conditions of a meaningful life and a livable environment." (1999:*xiv*)

Furthermore, Heidegger's neglect of specific technological properties leads to a notable consequence. On the face of it, his essentialism[1] seems to be the exact opposite of the instrumental definition; as we have seen, technology, in Heidegger's view, is far from ontologically transparent. However, a closer look into the presuppositions of instrumentalism and Heideggerian essentialism reveals a common attitude, namely that a *technological action's meaning is determined, fixed, outside the action itself*; either the meaning of a

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that art is in some sense already related to technological artefacts in that they are made, reflected in the Greek expression *technē* (see below). (Heidegger 1993:318f), I will not go into this aspect in Heidegger's theory, as it demands a specific non-technological response. I am more interested in our handling of technologies and what it entails.

[1] A word of caution about calling Heidegger's take on modern technology 'essentialism'. This is not "what these days is called and criticized as essentialism. Critics take exception to essentialism because they think of it as the oppressive imposition of a timeless mold on what is in fact historically changing and multiple in its appearances. Heidegger obviously does not disagree with the claim that reality changes fundamentally over time." (Borgmann 2005:421) Instead, 'essence' used in phenomenology denotes something that is *essential* in our experience of the thing; that is, a thing without this aspect would not be experienced as *this* thing, but another. As such, the essence is a part of the meaning of the thing for us, and therefore as historically situated as we are. This way, 'essentialism' used here does not imply an autonomous Platonic *idea*, or an Aristotelian *nature* that resides in, or throughout, a thing.

technological action is in the *Gestell*, or it is in the purposes and aims of the subject or subjects (or society) engaging in technological actions. In neither case will the actual technology, not its function or its materiality, have a profound effect on the meaning of the technological action. For this reason, we cannot say that Heidegger's view of modern technology is *technological* determinism, even though it implies that society is shaped by technological thinking. Before ending the discussion of strong views on technological impact, I will now turn to a more explicit argument for technological determinism.

The machine

Both generations of philosophers of technology acknowledge that modern technology in some fundamental way is different from earlier forms of technology. More precisely, modern forms of technology are regarded as being dissociated itself from the local cultural belonging that characterized pre-modern technology. In an often-cited example, Heidegger points to the way a hydroelectric power plant interferes in the Rhine's natural course by damming up the water and regulating the river's flow at a rate that optimizes the plant's production of energy. In doing this, Heidegger notes, it is not just the energy extracted from the stream that is at our disposal, "even the river itself appears to be something at our command". (1993:321) What is typical of the power plant is that it extracts the energy from the river even if there is an energy surplus in its vicinity. In such situations, the energy will be stored and distributed to far away places. This is typical of the *Gestell*. It pulls natural resources from its natural habitat for the sake of being at our disposal whenever we find it convenient to put it to use.

In contrast, pre-modern technology emanated a certain *respect* towards that with which it interacted, the user and the objective of the technological action. The change from the earlier to the modern form of technology is seen in the differing contexts surrounding the production of the technological artefact. Heidegger famously contrasts the modern perception of technology with the ancient Greek concept of *technē*, which signifies both technological artefacts and works of fine art. According to Heidegger, tools and devices back then revered the beautiful in addition to having proper functional properties. (1993:318f)[1]

[1] It might be more accurate to say that *technē* means the *craft* of making artefacts in a technologically but also at the same time aesthetically informed way. In contrast to Heidegger's claim about the parity of the two meanings, though, Richard Parry claims that the Greeks regarded the practical use of *technē* as a higher form of use than the aesthetical use. (Parry 2003)

Jacques Ellul describes much the same phenomenon with regard to pre-modern technology, but in the work of a Swiss armourer in the sixteenth century:

> The modifications of a given type [of sword] were not the outcome of calculation or of an exclusively technical will. They resulted from aesthetic considerations… As for the idea, frequently accepted since the triumph of efficiency, that the beautiful is that which is well adapted to use – assuredly no such notion guided the aesthetic searchings of the past. (Ellul 1964:72)

Like Heidegger, Ellul sees technology as having taken on a novel and dangerous form in its modern variant. What has happened is a change in the emphasis placed on the technology itself. While earlier times were concerned with perfecting the utilization of a tool, the modern view emphasizes the tool itself. Technological perfection used to be an achievement in the mastery of a tool, but in modern technology, in particularly demonstrated by *the machine*, perfection belongs to the mathematical rigor in the machine's construction; it is the machine that needs to be perfect, not the technological action of the human. The aesthetical dimension, therefore, has become separated from the technology, or, as it appears in Ellul's statement above, the aesthetical criteria are inverted, *technologized.*

Furthermore, this has brought about a different norm for what constitutes a good (or even beautiful) tool, most prominently, efficiency. This is reflected in Ellul's definition of modern technology: "the *totality of methods rationally arrived at and having absolute efficiency* (for a given stage of development) in *every* field of human activity". (1964:*xxv*)[1] In his gloomy book, *The Technological Society*, Ellul argues that not just aesthetical considerations but all of society's moral, political and economic etc values and decisions, or *all human actions*, are technologized. That is, human activity in general becomes, although not acknowledged as such, a result of considerations that eventually support or enhance the technological aspect.[2]

As in Heidegger's case, the concept of modern technology includes much more than the specific technological artefacts; it denotes a whole way of thinking. Although Ellul's definition of modern technology clearly echoes Heidegger's concept of calculative thinking, which also has 'absolute efficiency' – efficiency for efficiency's own sake – as its main objective, he does not share Heidegger's thoughts about a non-technological *Gestell*

[1] Ellul preferred the concept '*la technique*' (trans.: technique) to denote the driving force in what amounts to the technological society that we live in today. It is therefore more accurate to think of *la technique* as the combination of technologies and the thoroughly technologized structure of society. Admittedly awkward at times, I will nevertheless, except for quotes, continue to use 'modern technology' when I refer to his descriptions of *la technique.*

[2] Ellul is without doubt highly influenced by thinkers like Max Weber and Karl Marx (Scharff & Dusek 2003b). It is beyond the scope of this work to trace the genealogy of Ellul's thoughts.

reigning over technology (and humanity). The felonious party is technology itself. More precisely, the introduction of the machine is the main reason for the modern technologized society. However, the machine in itself is not enough. Although alienating and harmful in its own way – Ellul talks especially of the grittiness and slums of the large cities as directly caused by the introduction of the machine and the subsequent possibility of mass production – the mere presence of the machine does not constitute the more long-term danger, the technologization of society. Something else is also needed:

> The metal monster could not go on forever torturing mankind. It found in technique a rule as hard and inflexible as itself. Technique integrates the machine into society. It constructs the kind of world the machine needs and introduces order where the incoherent banging of machinery heaped up ruins. It clarifies, arranges, and rationalizes; it does in the domain of the abstract what the machine did in the domain of labor. (Ellul 1964:5)

The mathematical precision, efficiency and rationality of the machine must be transformed into ideas – rules as Ellul calls them – of rationalization and effectiveness. The machine itself is too unlike the human, but ideas are human-like. But this, of course, does not deprive the machine of its pivotal role; when we start to think that these ideas are *ideals*, and when we start to think that the most effective is the most beautiful, it is the machine that has generalized its own machinistic logic into ideas. Again, it is impossible not to see the parallels between Heidegger and Ellul. However, in the latter's insistence that the guilty party is technological rather than non-technological, it is hard to regard modern technology, or even the machine, as anything but inherently *evil*.

In Heidegger's view, it is the non-technological *Gestell* that is autonomous, not the technology, but for Ellul, the condition for the technologization of society *by* technology is that technology itself is autonomous. This autonomy is new with *modern* technology and means that the technological system "has become a reality in itself, self-sufficient, with its special laws and its own determinations… technique tolerates no judgment from without and accepts no limitation". (Ellul 1964:134) Pre-modern technology was bound to local habits, local values, and local *praxis*, something that is visible in the diverse appearances of pre-modern technologies that perform basically the same function. As we saw above, the machine in itself is not autonomous either. Autonomy then, is what results when the machine's evilness has transformed itself into social ideas:

> As long as technique was represented exclusively by the machine, it was possible to speak of "of man *and* the machine."… But when technique enters into every area of life, including the human, it ceases to be external to man and becomes his very substance. It is no longer face to face with man but is integrated with him, and it progressively absorbs

> him. In this respect, technique is radically different from the machine. This transformation, so obvious in modern society, is the result of the fact that technique has become autonomous. (Ellul 1964:6)

Autonomy is possible because modern technology is self-augmented. In an analogous fashion to how technology has inverted our ideals of beauty and efficiency, technology has turned its own autonomy into a moral, political and economic goal. This is manifest by our willingly building machines that require less and less human intervention. Our involvement in production looks increasingly like that of a technician – the normal state is to observe the production, intervention is only necessary when something breaks down. In fact, after a while this becomes the principle for production and therefore also the norm for the design of new machines; the less human involvement the better: "Freeing man from toil is in itself an ideal. Beyond this, every intervention of man, however educated or used to machinery he may be, is a source of error and unpredictability. The combination of man and technique is a happy one only if man has no responsibility." (Ellul 1964:136)

Instead of reacting against the gradual invasion of machines into the production, which we should, we happily let this happen. Why? Because we are already dominated by technology: "[t]he power and autonomy of technique are so well secured that it, in turn, has become the judge of what is moral, the creator of a new morality". (Ellul 1964:134) The autonomy of technology is thus fulfilled: It has made us believe that this is for the better for humanity, when in fact it is only good for technology itself. Modern technology has, Ellul adds, reduced humans to a 'technical animal', and society as whole has become a thoroughly technological society.[1] To briefly sum up Ellul's position, the introduction of the machine unleashes a technological 'spirit' that in a linear and deterministic fashion reduces everything in society to a technological entity; every social action is founded on the support and enhancement of the technological ideals inherent in the machine.

Ellul's vision of the technological future is even bleaker than Heidegger's. While Heidegger prescribes an alleviation of the effect of modern technology through a meditative, relaxed attitude towards it, all that Ellul leaves us with is to resort to a form of Luddism.[2] If we want to combat modern technology, we must throw the machine out the

[1] Ellul also treats other important characteristics in technology's autonomy; they include rationality, artificiality, universality and self-directedness. See Ellul 1964, Chapter 2.

[2] Luddite was originally the name for workers who opposed the mechanization of cotton and woollen mills in England in the period 1811-1816. Now, Luddism is a term for those who oppose modern technology in general.

window, so to speak. No alternative use or alternative attitude towards it will change the threat of modern technology. Ellul's analysis of the machine's inherent dangers aside, his claims of the shifting mindsets and ideals in the wake of modern technology do not really seem correct. Even though the political climate has cooled off a little since the seventies, I think one would be hard pressed to find an example of automation, reorganization and streamlining in a corporation that results in the lay-off of employees that is not met with massive protests. When the production at the Union factory in Skien, Norway in 2005 was shut down – even though the factory had a healthy cost/profit balance, the owner, Norske Skog, had decided to leave that line of business (a prime example of 'efficiency for efficiency's own sake'?) – various forms of support for the factory followed. The workers themselves and their union, the local community, some investors in Oslo, and politicians at the national level came up with various solutions that would secure a continued production at the factory. Some even argued that the corporation had a responsibility towards the local community, seeing that many smaller companies' business was partly dependent on the continuation of the production at the factory. In spite of all this, however, the factory closed on March 1, 2006, and 340 workers lost their jobs. Ellul might have predicted the outcome of this conflict, but the massive protests and involvements do not align well with his contention that the technological society has already succumbed to technological ideals.

As already mentioned, the younger philosophers of technology have criticized Heidegger and Ellul for overemphasizing the 'uprooting' of the cultural embeddedness that characterized pre-modern technology. Now we can see why: Modern technology takes on a form that *renders impossible any room for a defining cultural influence over the technology*. Given that the impact the other way around, from technology to the human realm, is highly operational on Heidegger's and Ellul's views, "[t]echnological development transforms what it is to be human" (Feenberg 1999:2), and badly so. This is the unhappy *cul-de-sac* that the younger generation seeks to overcome.[1] Ontologically the monolithic view of technology is discarded, and methodologically the *a priori* and transcendental analysis is rejected. Instead, we have a view of technology that rejects the determinism/essentialism,

[1] It is possible to be a technological determinist and think that it is positive for humanity. This is more unusual than the pessimistic/dystopian kind, but Marshall McLuhan is an example. He ridicules instrumentalism, calling it 'somnambulism' (McLuhan 2001:11), and does not let his essentialist leanings take him into the dystopia of Ellul and Heidegger, but sees the "current translation of our entire lives into the spiritual form of information" as an opportunity to make "the entire globe and…the human family, a single consciousness". (McLuhan 2001:67) In Chapter 7, I discuss an approach to communication technologies that is inspired by McLuhan.

but retain the idea that technologies have the power to influence society in various ways; just not in the monolithic (and non-negotiable) form that both Heidegger and Ellul describe.

Technology as a system

Heidegger's and Ellul's analyses mean that while pre-modern technologies are seen as scattered and primarily linked to local technological actions and *praxis*, modern technology forms a homogenous entity where each particular technology primarily is universally linked to other technologies. This constitutes modern technology, in contrast to pre-modern technology, as a *system*. While Heidegger does not elaborate on this specific concept – admittedly, it can only be said to be implicit in the unifying *Wesen* of modern technology, it is explicit in Ellul's treatment of the autonomy of technology.

As the title of his first book, *Autonomous Technology* indicates, the American philosopher of technology Langdon Winner follows up on this specific concept. 'Modern technology' designates for Winner a system of technology rather than a class of technologies; Heidegger's examples of modern technology are mostly singular, such as the already mentioned power plant, an airplane, a highway intersection etc.[1] Winner's technological system is made up of interconnected technologies with complex rules and complex interactivity concealed within the structure. While single or small clusters of technologies are designed, constructed, run and adopted willingly by individuals or societies, *technology as a whole* is a complex assembly that develops in a manner that cannot be manoeuvred fully by human intervention. Although not in the absolute sense of Ellul, Winner regards technology as being autonomous. Furthermore, we must acknowledge that because they are (semi-) autonomous, technologies have consequences with non-technological ramifications, that is, consequences for the structure of society as a whole. Technology is in this sense a part of the shaping of society, *on par* with other socio-political factors. This is expressed in the title to Winner's most famous article: 'Do Artefacts Have Politics?' Technology comes with politically charged consequences, and it is therefore of utmost importance that we ourselves engage politically with technology.[2] If we do not, technology

[1] Ellul has a touch of both; although some of his arguments revolve around the inherent evil of 'the machine', the system is evident in the technologization that transforms everything in society into a form of technology (in the sense that all values and norms eventually support the technological element).

[2] The understanding of (modern) technology as something that should be studied as a part of a larger system is also found in the sociological approach of technology as expressed in the edited volumes of Bijker et al. 1987 and MacKenzie & Wajcman 1999, as two examples. More on this approach below, and again in Chapter 2.

has the potential of being the prime shaper of society, which must be avoided, according to Winner.

Winner, like Heidegger and Ellul, regards modern technology as something that can only be understood as being somewhat outside across-the-board human control, and finds, like Ellul and unlike Heidegger, this to be due to technology itself. Not only has technology in its modern appearance grown into such a huge structure that no human or society can oversee or control it, but because of this, it requires a surrounding socio-economical network so that it can function and prosper. However, as I mentioned, Winner does not understand the autonomy of technology to entail the determinism that Ellul holds. We cannot control technology as such – its total consequences will always escape our control, but that does not mean that we in return are controlled by technology. Winner does not view modern technology as inherently evil; the autonomy of technology is therefore not envisioned as a certified road to catastrophe.

The autonomy of technology is related to the distribution of technological knowledge. Now, this could mean a number of things. For instance, few people even understand the most common household technologies well enough to undertake a simple repair should something break: "Knowledge of how things are put together and how they work exceed the grasp of everyone other than the expert directly concerned with the particulars." But the expert only knows so much, of course, and "is largely oblivious to the nature of processes and configurations outside his field". (Winner 1977:28) This is not just a trivial fact; it is a consequence of the demands the increasing technological complexity puts on society. One of the characteristics of modern technology is its specialized system of production: "People work within and are served by technical organizations that by their very nature forbid a perspicuous overview." (Winner 1977:28) The individual not knowing the technological make-up of his own house is a symptom of the growing complexity of modern technology.

The body and the depth of the world's knowledge increase continually, but individuals cannot keep up. We are, relatively speaking, becoming more ignorant; individual knowledge might have increased generation by generation, but the shared pool of possible things to know has increased even more. So also for the body and the depth of technology. There is a complexity in modern technology that renders our relation to it almost religious: "[A]ll people do, and indeed, must accept a great number of things on

faith. They are aware that the major components of complex systems usually work, that other specialists know what they are doing, and that somehow the whole fits together in relatively good adjustment." (Winner 1977:284)

In this sense, the technological system amounts to what in cybernetics is called a black box. Taking his cue from electrical engineering, psychiatrist and cybernetics pioneer William Ross Ashby extended the application of the concept to the operation of just about any complex system, even something seemingly as uncomplicated as the opening of a door:

> The child who tries to open a door has to manipulate the handle (the input) so as to produce the desired movement at the latch (the output); and he has to learn how to control the one by the other without being able to see the internal mechanism that links them. In our daily lives we are confronted at every turn with systems whose internal mechanisms are not fully open to inspection, and which must be treated by the methods appropriate to the Black Box. (1956:86)

A black box is something whose internal workings we do not oversee, but that we can learn to operate and manipulate; we learn to couple the input with the desired output. However, that does not mean that we control it. If the mechanism between the handle and the latch should stop working, the child would be helpless, much like what happens to us when the washing machine breaks down.[1]

The concept of the black box is not all helpful, though, as the concept primarily applies to those instances when the relation between input and output is predictable in spite of the hidden procedures within the box. As we shall see, at the heart of Winner's theory of autonomous technology this does not hold. The output is not necessarily predictable from what we put into a technology in terms of ideas, function and predicted consequences. Winner's black box is still a black box, though, because we do not control all the relations and connections within the system. The technological system is more like a door that is connected to and opens many other doors as well; doors that we never meant to go through in the first place.

[1] Arguably, the most famous recent application of the black box concept is in Science and Technology Studies (STS), for instance in Latour 1987:2f, 1999:183ff. Latour's definition is in accordance with Ashby's, but Latour primarily narrow down its utilization to a technoscience setting. Winner employs the concept sarcastically in a criticism of one of the branches of STS, social constructivism of technology (see below).

The technological imperative

According to Winner the increasing complexity of modern technology is due neither to a Heideggerian *Gestell* nor Ellulian *evilness* harboured in the midst of the technological system. Winner nevertheless sees the development from an easily supervised kind of technology into the modern concealed variant as based on what follows naturally in the wake of technological developments. Naturally, but not deterministically. A technological innovation, usually brought forward as a solution to a problem that itself can be or not be technological, brings with it the possibilities of new preferences, which in turn brings with it new problems that seek new solutions, etc. Inspired by examples from Karl Marx, Winner points out that:

> At a certain stage in the development of technics, the need for physical mobility actually becomes the need to have access to automobiles, airlines, or effective equivalents. Such needs are as basic for that stage of technical capacity as the need for good oxen or a good pair of sandals might have been for an earlier one…the feeling that soap is one of life's necessities appeared only with the coming of industrial techniques of soap manufacture. With the spread of this innovation came an unprecedented desire for well-scrubbed cleanliness that is now second nature to most of us. There have been times and cultures, however, in which our need to do away with dirt, "germs", and odors would have seemed totally puzzling. (1977:84)

Now, what is puzzling, but also the most interesting, is the role and function of *choice* in technological innovation. For the most part, we will have a feeling of freedom of choice in our technological decisions. But that does not mean that we can foresee all the consequences of our choices. In a longish example,[1] Winner shows how an entire community in Sevettijärvi, Finland was changed culturally and economically due to the introduction of snowmobiles to the reindeer roundup. Initially based on a *choice*, the presence of the snowmobiles led to consequences definitely not chosen. First came a positive change in herding *praxis*, then a less positive change in the reindeer population: New forms of stampeding led to physiological strain on the animals, especially on pregnant female reindeers, and eventually a decrease in the number of families that were able to continue making a living based on the small reindeer population. The most conspicuous change was in the relations within the community; the initial economic prosperity led to a 'need' for modern household products like washing machines and telephones, eventually leading to a hitherto never seen social hierarchy within the community between those who adopted the snowmobiles and those who did not. In a

[1] Borrowed from a 1973 study by Pertti J. Pelto.

sense, Winner observes, the population knew what they were doing when they chose to modernize their business, since the snowmobiles made herding far more efficient than the old methods, mostly done by foot. "From another point of view, however, they never knew what hit them." (Winner 1977:87)

Although clearly inspired by Ellul's thoughts on the self-augmentation of technology, Winner does not follow his pessimistic thoughts on the deterministic linearity in the technologization of society. The examples above illustrate that Winner acknowledges that profound unexpected changes follow in the wake of technologies. Furthermore, he emphasizes that those kinds of changes are right at the centre of the meaning of technology – they are due to the agency of technology, what he calls *the politics of technology*. To demonstrate the importance of this fact, he rhetorically asks us to imagine a world where technologies do nothing but that which we construct them to do. It is hardly conceivable how such a world would be, other than a radically different world than the one we now inhabit. Ellul focuses on the negative aspects of this, Winner on the positive. "Technology, in its various manifestations, affects the world by enlarging the scope and power of human activity in general as well as in the specifics." (1977:98) More precisely, technology affects the world instrumentally and economically; that is, technology often requires the creation and sustaining of a socio-technological structure around itself. Instrumental requirements, not to be confused with the instrumental definition of technology, allude to the well-known aspect of advanced technologies requiring the development of other advanced technologies to reach or even stretch their maximized function. Think of the evolution of the telescope, from Galileo Galilee's handmade one (which also demanded the presence of additional technology to keep it steady)[1] and the ultra high-tech Hubble space telescope.[2]

Economic requirements are non-technological requirements for a technology to work properly or reach further. This is not just infrastructure, laws and other socio-economic aspects that need to be in place for a technological object or small-scale system to be able to function, which, granted, are quite trivial. More importantly, this concerns the complete socio-economic direction a society takes after the introduction of a technology. We have already seen how a technology can lead to a new social norm, such as cleanliness as a result of the introduction of soap. Technology can also create the need for energy,

[1] http://cmi.yale.edu/bh/week3/pages/page2.html (possibly a replica) [02.01.2009]
[2] http://hubblesite.org/ [02.01.2009]

materials, labour and information where none such need existed previously. "Before the invention of heart transplanting, there was no scarcity of hearts; one per person was universally supplied. With the advent of transplants, however, the organ became suddenly a scarce commodity." (Winner 1977:101) We can also see this in the introduction of various medical and microbiological technologies. This has resulted in an enormous demand of resource use in varying arenas: Further scientific and technological research is a given, but it also requires bioethical debates, new journals, extensive legislation, protest groups and so on. Winner labels the instrumental and economic requirements a *technological imperative*. This imperative shows how the introduction of a technology leads to a socio-technological *dialectic* to meet the novel 'problems' and 'needs' posed by technology.

In addition, the phenomenon of *reverse adaptation* will elucidate the coalescence of technology and society. Defined as "the adjustment of human ends to match the character to available means" (Winner 1977:229), it is in effect a 'naturalization' of the semi-mystical aspect in Ellul of how the ideals of the machine are generalized as human ideas. At the core of this concept is the by now familiar description of how technological thinking invades all our other considerations. The ideals of efficiency, speed, rationality and goal-orientation replace playfulness, fantasy, relaxation and creativity. This can be on a personal level, but also on a social level where we can see to how political and economic objectives and aspirations change in the aftermath of a technological innovation or breakthrough to accommodate the use of said technology. One of Winner's examples concerns the vacuum left after Neil Armstrong fulfilled President Kennedy's space-related goal for the sixties and set foot on the moon. Here NASA was left with a huge high-tech system of experts and fine-tuned equipment, now what? A plethora of suggestions was put on the table – expeditions to Mars, space shuttles, etc. All had the same argument at their fundament: The high-tech system should continue to exist; the fulfilment of one goal is not enough, give the system more money to pursue new goals. The self-argumentation is telling in how technology 'argues' for its own proliferation: "if the system is deemed important to society as a whole, and if the new purpose is crucial to the survival of the system, then that purpose will be supported regardless of its objective value to the society".[1] (Winner 1977:245)

[1] Winner probably exaggerates the lack of plans immediately after the moon landing; further plans were surely well underway in 1969. However, that does nothing to change the bottom line of the argument.

Comedian Jerry Seinfeld points out an absurdity that reflects the coalescence of technology and society. Apparently, he says, we were involved in activities that resulted in cracking our skulls open. Instead of avoiding these activities, we invented the helmet so that our head-cracking lifestyle could continue. Now, as it turned out, this was not enough; people were still cracking their heads. Therefore, we had to come up with a helmet law to make people wear those helmets. The main absurdity, Seinfeld continues, is that the idea behind the helmet law is to protect a brain that is functioning so poorly it is not even trying to stop cracking open the head that protects it! Technology is introduced as a solution to a problem (rather than disposing of the cause to the problem), and entangles itself even more into society by ending up as a part of a legislation that makes sure that people use the technology. This is an innocent example, but Seinfeld describes an escalating self-preservation system that also is seen in the simple fact that most of our remedies for things that have gone awry because of technology (I presume that in Seinfeld's example the head-cracking activities are bike riding, motorcycling, parachuting, downhill skiing and other technologically enhanced activities) are themselves technologies: solar-power to respond to the demand for electricity, medicine to soften the side effects of other medicines, farmed fish because the oceans have been overfished, and so on.

The technical imperative and reverse adaptations are central concepts for Winner, as they are the processes by which we understand how technology and society go together and form the entire system that surrounds technology. The concepts also display the agency of technology, that is, *how* technology influences this system. Therefore, the concepts should not be read as being all negative, because they draw "attention to the momentum of large-scale sociotechnical systems, to the response of modern societies to certain technological imperatives, and to the ways human ends are powerfully transformed as they are adapted to technical means". (Winner 1986:21) To powerfully transform could mean a descent into the technological society in the Ellulian way, but it can also, as we saw above, "enlarge the power and scope of human activity". That we acknowledge this aspect of technology is presupposed in all our R&D on technology in the first place, of course, but the agency of technology means that the enlargement goes even further, thereby granting an innocent pill against high blood pressure the power of sustaining elderly men's active sex life. As for the 'invention' of the wheel – surely cars, office chairs and yo-yo's were not 'a part of the plan.' In a sense, we cannot do as Ellul does; accept

the negative and reject the positive. If technology has agency it should work both ways. The question is, of course, how should we go about to ensuring that it goes mostly in the good way?

Negotiating with technology

Technological imperatives and reverse adaptation can be seen as a rather more tangible description of the self-augmentation of technology. As we saw above, Ellul explained this phenomenon by pointing to the machine's inherent deterministic character, which set off a linear development towards the full technologization of society. Winner's account, on the other hand, does not entail (or presuppose) technological determinism. Without determinism, Winner evades two central, but problematic aspects of Ellul's theory: reductionism and technocracy. The first occurs through the process of technologization – when we 'act on behalf' of technology in social activities and decision making, eventually all personal and social entities will, willingly or not, support the integration of the technological ideals.

Technocracy is a crucial element in the theory of the technological society, as the power will befall those who know how to deal with modern technology. A technocracy is a state that does not arrive at its decisions through political negotiations, but through technical-scientific considerations. (Smits 2001:157) Typical for a technocracy is that there exists a

> gap between the intellectual incapacity of the mob of specialized workers on the one hand and the monopoly of technical means by a technical elite on the other. The new elite *is* an elite even when it is popular with the people… Technique shapes an aristocratic society, which in turn implies aristocratic government. Democracy in such a society can only be a mere appearance. (Ellul 1964:275)

Because the means for the unification of society – planning, propaganda and legislation – are already in the possession of the state, it follows that a technocracy will be vital in determining how modern technology, unlike pre-modern technology, becomes such a universal force. In fact, modern technology will enhance the possibilities the state has to unify and control society, so the self-augmentation of technology is seen at work once more. States, whether they are dictatorships or democracies, have no other option than to yield to technological expertise: if politicians resist the expertise they will be pushed aside by the experts, if they give in, well, they have given in. (Ellul 1964:259)

The different views of Winner and Ellul on these questions can be seen in their differing ways of understanding autonomy. For Ellul, autonomy means that technology itself

initiates and directs technological actions. For Winner, however, autonomy is made up of two irreducible principles: a) we choose the technology and, b) technology has agency, i.e. social consequences. Technological actions are always initiated by us, by actual choice (Ellul would say that the choice was only ostensible).[1] That, however, does not entail total control over all consequences of a technological action or the introduction of a technology to society. If we lean towards technological determinism (or instrumentalism for that matter), we will lose sight of the actual actions that are necessary in order to have a decisive influence over the socio-technical development. It is therefore crucial to get the analysis of technology right, and this includes the meaning of the concept of autonomy. Winner seems to be saying that, yes, technology is an overwhelming system, and therefore the expert is necessary, but the expert only controls part of the system and for that reason, we need to treat technology politically. A political level can co-ordinate subsystems of experts, and thereby gain a higher level of control. That is how we can come to grips with technological development. This does not mean that we gain total control over the technology though, as it still is autonomous in the minimal sense that Winner proposes. Instead, technology could be treated as another political player, and then we could expect the same kind of flexibility/inflexibility and egalitarianism/non-egalitarianism from technology as we expect from a political opponent. When it comes to the shaping of society, we *negotiate* with technology.

When it comes to the specifics of this negotiating process, Winner becomes much more vague. This theme is not really explored in *Autonomous Technology*, except for a very general last (half-) chapter on what he calls epistemological Luddism. After reviewing a few options that all resemble a plea for a return to a romantic pre-modern technological society – options that he writes off on the grounds that "[t]here is no living body of knowledge, no method of inquiry applicable to our present situation that tells us how to move any differently from the way we already do" (1977:328), he again stresses the importance of acknowledging "the fact that there are already technologies occupying the available physical and social space and employing the available resources". (1977:239) Instead of looking away from this fact, we must make the most of it; to open up the black

[1] This is simplified and exaggerated, as it is a practical impossibility to impose a choice on all and every instance of technologically tinted incident that falls upon us: "Each individual lives with procedures, rules, processes, institutions, and material devices that are not of his making but powerfully shape what he does. It is scarcely even imaginable what it would mean for each of us to make decisions about the vast array of sociotechnical circumstances that enter our experience." (Winner 1977:86) The important thing is that even if there are instances where we could question the range of choices we have, this does not mean that we *never* choose.

box, to lay bare the interconnections, to gain entrance, so to speak, to the labyrinths of the technological system. That does not necessarily mean to dismantle the actual technological artefacts, but to deconstruct the system; proper access to socio-technological development goes through a proper analysis of it. Epistemological Luddism is primarily a methodology intended to disclose patterns and types of human dependency on small and large-scale technological networks.

How does Winner think that this should be accomplished? Can we get at the core of these problems through some good old-fashioned armchair philosophy? Here Winner becomes somewhat of a more traditional Luddite after all as he proposes a number of experiments to see how deeply dependent we really are on the technology around us. One experiment is to "disconnect crucial links in the organized system for a time and [study] the result". (1977:332) Admittedly, this will create social commotion, but it still offers a chance to learn about the innermost nature of the systems and institutions. However, is not this as romantic and utopian as the alternatives Winner himself dismissed? How are we to disconnect the systems? Does Winner believe that it is possible to come to a socio-political agreement on this? Private/corporate investors control many, perhaps most, large-scale technologies connected to production and infrastructure. Could we sidestep a society's economic (super-) powers by a democratic decision to shut down, or disconnect the business of these economic players? Would Microsoft accept that, 'just as an experiment'? I doubt that even the governmentally owned Norwegian oil-company StatoilHydro would accept this kind of intervention. If not, does Winner then encourage civil disobedience, or sabotage? That does not integrate well with his emphasis on democracy elsewhere in his screed.[1] However, like it or not, the power in a society is distributed unequally; some considerations, usually economic, will always outweigh others, even from the perspective of a democratic state.[2]

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[1] Winner does recognize the danger (or the advantage!) of sabotage in modern technological society. (Winner 1975)

[2] Although this is not the place for a politically inclined discussion, Winner displays what I think is a *naïveté* concerning democratic processes (cf. Smits 2001:167). He occasionally talks about a more extensive layman participation in the development of new technologies, recently proposing to a US Congressional committee that nanotechnology research should be performed in a way that allowed for non-professionals to scrutinize the research. (Winner 1995, 2003, 2006) Admiringly, in discussing these matters he shows an unlimited belief in the inherent good in people. Although fully aware of existing political and social power relations, he seems to believe that given the chance in a truly egalitarian society people would generally act and decide in an informed and selfless way, sometimes referring to Scandinavia as a place where non-professionals roles are taking on a more active part in "the shaping of technological order". (Winner 1995:78) To me, as someone who lives in a Scandinavian country where one of the largest political parties is a right-winged populist one, this sounds a little flawed. However, undoubtedly there are ways of explaining the current political tendencies in Norway that would shed light on why richness, freedom and possibilities for participation tend to draw people towards egoism and indifference.

A more hands-on experiment would be to refuse to restore technological artefacts as they break down, or even to let the systems they are a part of die. Too many resources are spent without any questioning on keeping fragile, oversized, or perhaps obsolete systems running. "We build more and more freeways, larger and larger suburban developments, greater and greater systems of centralized water supply, power, sewers, and police, all in a frantic effort to sustain order and minimal comfort in the sprawling urban complex." (Winner 1977:333) Again, concerning the major players in both national and international economies, I must ask how realistic this is. Is it not likely that anyone with a large investment in the infrastructure of a society would fight against the mere disintegration of the investments? In addition, more theoretically, would this not create even more chaos out of the technological system? Unless all examples of a type of technology break down simultaneously, this would either lead to a kind of social hierarchy that resembles the Finnish reindeer herding community after the introduction of snowmobiles, in the sense that some have the technology (that still works) and some do not. Alternatively, it would lead people to find alternative solutions. Presumably, it is this last alternative Winner hopes for, but unless this is a pre-modern sort of alternative, we would have the presence of a competing technology with its own agency, setting off a dialectics of its own. The complexity of the socio-technical system would increase, not diminish. The black box would become even more unhandy.

The terrorist attacks of September 11, 2001 could be viewed as a kind of disturbance to the socio-technical system that would give us the chance to re-think our relations to the socio-technological society. But as Winner himself has noted (he has written extensively on this event), this interruption has not led to a more open, participatory, and democratic society, the kind of society Winner hoped for in his 1977 musings about epistemological Luddism. The technologies for and appurtenant legislation concerning surveillance, security and control have increased extensively in the last few years. The measure that is apparent to most of us (not just Americans), the tightening of airplane security, is only one, and perhaps innocuous, effect on our daily life. "We cannot know the specific intentions of the September 11 terrorists. But if one of their aims was to render our way of life much less open and free, they have succeeded beyond their wildest dreams." (Winner 2004:163) The socio-technical system that surrounds the attacked, that is, the 'interrupted' component reacted by protecting the overall system: "The country is building new barriers around crucial systems, strengthening their internal components,

surrounding them with elaborate methods of policing and surveillance." (Winner 2004:167) The black box has turned blacker, sturdier. To me, this looks like a reaction one should only expect from the system. As long as the system is not experiencing a total breakdown, but only disturbances, it will protect itself. The kind of socio-technological system that Winner describes is more akin to a network of (semi-) independent components rather than a building where the top 90 floors are dependent on the first floor. We can, of course, question the legitimacy and the democracy challenging aspects of these control intensifying processes, but as long as the power in a society is politically, economically, or technologically far from equally distributed, the methodology of epistemological Luddism seems as romantic and utopian as the alternatives Winner dismissed. The way I see it, it is a long way until we can reach a point where a democratic dismantling of socio-technological systems that Winner yearns for is possible.

As we have seen over the last few pages, Winner shares the worry of Ellul and Heidegger about the escalating haste of modern life – an escalation spurred by modern technology. And it seems to me that this is partly what he wants to come to grips with. But is the pace of modern life inextricably linked to modern technology? Non-Western cultures have integrated modern technology without necessarily adapting the lifestyle. I am not aware of any comparative studies between the Western and the non-Western 'way of life' as influenced by modern technology,[1] but there very well can be other reasons besides technological ones that have led the Western civilization to adopt its specific pace. To blame our hasty existence on technology might be too close to the reductionism of Ellul.

Exploiting the agency

Winner is a little less Luddite in spirit when he writes about how we can exploit the agency of technology. In the aforementioned article 'Do Artefacts Have Politics?' Winner explores how we can use technology to promote certain political ideas. More precisely, how a certain technological structure can deliberately lead to a social structure that fits certain political ideas. The most illustrative example is his well-known interpretation of

[1] An attempted example of such is found in Hubert L. Dreyfus' study of the Styrofoam cup in Japan. (1993) Dreyfus sees this as a prime example of how modern technologies can be received through a very different understanding of things and existence, giving way to a different role all-together for the modern, where the modern and pre-modern can co-exist. The Western mistake is to let the modern become the only way of life. We simply have forgotten the other ways of being, as Heidegger would say; we have forgotten how to ask questions. Then again, in Japan there is even an established expression, *Karo-jisatsu*, that means 'death by overwork', so perhaps we should be careful to conclude that Japan has escaped the Western pace from this example alone.

New York City planner Robert Moses' design of the bridges that pass over the Long Island Parkways from his time as civic planner. These bridges are relatively low, allowing only cars to pass below them. No trucks or buses fit underneath. One of the consequences of this was that at the time the overpasses were built, only people who were relatively well off could gain access to the recreational areas and beaches that were out on Long Island. In effect, Moses blocked all racial minorities and low-income groups from visiting these areas. Now, Moses was also the planner for some of these areas, such as Jones Beach, and Winner asserts that the socially biased consequences were not accidental, but were meticulously thought out in advance, and then built into the designs. Through a specific design and construction of the technology, Moses achieved a political and social goal without compromising the prime function of the overpasses; other vehicles could pass over the parkways without disturbing the traffic underneath (and therefore it can be hard to notice socio-political implications of technological structures like this). More generally, Moses' planning tended to favour highways instead of the infrastructure of public transportation.

This example illustrates an additional effect of the agency of technology; we can utilize this agency, we are not just under its influence. We do not merely need to find measures against them, or to diminish their effect, we can actively shape the world around us through them. Winner himself points to several examples of the same phenomenon, Baron Haussmann's wide boulevards in 19th century Paris (to discourage situations that fuel revolutionary tendencies), the construction by American universities of huge plazas in the late sixties (to defuse student demonstrations). In fact, it is conceivable that many kinds of city planning will include some choices that will be of a social and political character. The monumental structures along Berlin's Karl Marx Allé, especially the Frankfurter Tor and its adjoining buildings, were surely not constructed by the DDR for merely functional purposes; standing outside the buildings will make anyone realize his diminutiveness compared to that of the State.

Winner has been criticized for his unambiguous interpretation of Moses' work, because it leaves no room for context-sensitive receptions of technologies. (Woolgar 1991) In line with this thinking, a technology's effect cannot be determined in advance, either from a designer or from inherent characteristics of the technology itself. It would therefore be wrong to fix its meaning unequivocally from one of the perspectives, for instance the design perspective, the meaning rather being regarded as constructed socially within its

context of use. Others have expressed the worry that Winner (in general) is too ideological in his writings, presenting his politically inclined interpretations as facts. (Pitt 2000:73) Steve Woolgar's criticism spurred Winner to write a widely discussed criticism of the social constructivist perception of technology.[1] Taking Woolgar's criticism of himself as a prime example of this kind of thinking, Winner condemns what he perceives as a naïve value-neutral methodology. Although obviously finding the constructivist methodology of 'opening up the black box' of technological systems valuable (no wonder, it does bear a striking resemblance to his own epistemological Luddism), Winner is not content with a mere opening as it will fail to expose the significance of certain technological choices. This renders the constructivist analysis descriptive and lacking in normative potency.

Winner attributes this to a commitment in social constructivism to study the origins of the conventional use of technology rather than its consequence. "What the introduction of new artefacts means for people's sense of self, for the texture of human communities, for qualities of everyday living, and for the broader distribution of power in society – these are not matters of explicit concern." (Winner 1993:368) Woolgar, who in criticizing Winner depends on the general social constructivist aversion against postulating inevitabilities, sides with Pitt in attacking Winner's categorical interpretation: "In order to present technology as either requiring or being compatible with a particular form of social organization, Winner advances a definitive version of the capacity or effects of that technology." (Woolgar 1991:34) For Woolgar, this means that Winner, instead of opening up the black box of the technological system, once more 'black boxes' it, in as much as he treats "as definitive what might elsewhere be treated…as essentially contingent and contestable versions of the capacity of various technologies". (Woolgar 1991:95) This, in Woolgar's eyes, brings Winner too close to technological determinism. I cannot agree. If anything, this criticism implies that Winner himself suddenly advocates instrumentalism and that the technology is reduced to a mere instrument of Moses' intentions. If politics and social issues from the design perspective are the driving force behind, and constitutes

[1] Winner 1993. Although social constructivism primarily is associated with the criticism of objectivist conceptions of the nature of scientific facts (Bloor 1976, Latour & Woolgar 1986, Collins & Pinch 1993), it can more generally be regarded as a methodological approach to any man-made concept that has been thought to refer to an inherent nature independent of how humans see or think about them, from 'countries' to 'subjectivity' and 'gender', and as such a critique of theories of determinism and *inevitability*. For a sympathetic but critical overview of constructivism in general, see Hacking 1999 (he prefers the term constructionism). Whenever I discuss 'social constructivism' (here and in the next chapter), it is the social construction of *technology* that I am addressing.

the meaning of a technology, does it then make sense to speak of an *inherent* politics of the technologies themselves? (See also Smits 2001:167) This is, in fact, an ambiguity in Winner's conceptualization of technology that leaves us in doubt about the organizing qualities of the technologies themselves. As the next three chapters display, technologies, *because they have agency*, have far more ontologically interesting properties than being instruments for our goals and intentions.

The main problem with any value-neutral approach is that one misses the fact that there is a sliding scale in how much we can influence technologies' consequences. Some technologies are open in this regard, that is, their effects are flexible, open to negotiation (and control, such in the example of the overpasses), and their socio-political function is to a large degree dependent on the context they are employed in, that is, both intentions and social conventions. This is true for most technologies. Even if not all their consequences can be anticipated, unwanted social and political effects can be eliminated and remedied after the fact.

However, other technologies are *authoritarian*, meaning that their social and political effects are less flexible and more deterministic.[1] In such cases, "the initial choice about whether or not to adopt something is decisive in regard to its consequences. There are no alternative physical designs or arrangements that would make a significant difference." (Winner 1986:38) An authoritarian technology opens up a social and political developmental *trajectory* that is hard, perhaps impossible, to alter. The main example, perhaps the only real clear-cut example of a thoroughly authoritarian technology, that Winner mentions, is the atom bomb. Once it was created, it had, and still has, a range of socio-political consequences, some of which could not possibly have been foreseen by Oppenheimer and the Manhattan Project, such as the Cold War itself, through 'Glasnost' and beyond, and up to the recent fear of terrorist groups possessing 'dirty bombs'. Unpredicted consequences are to be expected from any technology, something that is also emphasized by social constructivism (Oudshoorn & Pinch 2003), but this particular trajectory seems to have been impossible to halt through socio-political means. Even though the Cold War has ended, the atom bomb has shaped our society forever.

Because some technologies are more authoritarian than others, it is of utmost importance for politicians, entrepreneurs and all those involved in large-scale technological planning

[1] Winner owes this distinction to Lewis Mumford (Winner 1986:19).

and decisions that one does *not* regard all technology as normatively neutral concerning values and social effects. To do so, "to believe that they are working on a rather flexible technology whose adverse social effects can be fixed by changing the design parameters" (Winner 1986:39), would be an outright self-delusion, and a dangerous one at that. Instead of being an expression of a determinist (or instrumentalist) approach, Winner's criticism of the social construction of technology is a highly normative socio-political statement.

Social structure and agency

It should be noted, though, that this normative element in Winner's analysis of the agency of technology, democratic or authoritarian, usually brings him to fairly negatively tinted investigations. Authoritarian technologies are negative in themselves, but also when discussing democratic technologies, the question often becomes how we should delimit the possible dangerous aspects of use and misuse. Only occasionally does he explicitly mention the constructive possibilities inherent in his own view about the agency of technology. Because of this, Winner (especially in *Autonomous Technology*) appears to still have a lot in common with the sweeping and depressing analysis of Ellul. This is especially apparent in their opinion that modern technology amounts to the structuring of society, and it is evident that they do not regard this finding in a positive light. "However important and impressive mechanical technique remains, it is only accessory to other factors which are much more decisive, if less spectacular. I have in mind the vast amount of organization in every field." (Ellul 1964:11) For Ellul the organization is what results when the machine's ideals are converted into social standardization and rationalization. (Ellul 1964:11f) Winner, in defining 'organization' in much the same vein ("the term *organization* will signify all varieties of technical (rational-productive) social arrangements" (Winner 1977:12)), implies strongly that modern technology shapes modern society in a primarily negative way; the social structure has 'the negative' built-in.

For both thinkers, the concept of organization is linked to modern technology. While pre-modern technology was structured through local cultural praxes, modern technologies inherently have organizational powers. The consequence of this is that Winner follows Ellul (and Heidegger) in reinforcing the contrast between pre-modern and modern technology. Of course, as I have mentioned earlier, this contrast should not be taken too lightly, but one crucial implication of this is that pre-modern technologies end up as being

explained instrumentally; the relation between pre-modern man and pre-modern technology is explained as an instrumental relation. We then face a situation where technologies in the pre-modern era are seen as mere instruments, while technologies in our days are ontologically and politically oppressive.

One of the reasons why this 'dualism' occurs is because the relation between modern technology and social structure is treated entirely as a political one. Because the structures in our surroundings are analysed as belonging to the political domain the relationship becomes an expression of a power relationship. However, if we instead treat the social structure as a more general expression of how our lifeworld 'always already' is meaningful, a different picture emerges: a) pre-modern technologies can be seen as having 'organizational powers' as well, and b) the organizational activity due to technologies can be both negative and positive, both harmful and constructive *in both pre-modern and modern eras*. In this sense we can have a continuation between pre-modern and modern use of technology, while at the same time keeping the explanatory means to carry out a political analysis of the role modern technology-as-a-system has taken in the industrialized parts of our world.

In closing

The political analysis aside, Winner's conception of the duality in the agency of technology points us in the direction of the general aim of this project: How the meaning of technology is two-sided. The world that we are thrown into at birth is (always already) meaningful; we meet the *world-as-structured* through sets of meaning-structures. This is the lifeworld whose arrangement and appearance we just have to acknowledge upon entering. A large part of how today's lifeworld presents itself is due to technology. At the same time, all activity in the world is an *organizing* endeavour; we use technology to create new structures of meaning, or to alter existing ones. In neither case is instrumentalism, the thought that technology is ontologically transparent, an option.

When we discuss instrumentalism, the question is not whether technology shapes our society or not; I think most people will agree that it does. It is absurd to deny that there is a relation between the car and the many highways cutting through almost every Norwegian valley or mountain pass, as one example. Instrumentalism is instead a denial, implicit if nothing else, of the marked impact on our world, our society, from technology *itself*. It is a denial of technology's inherent politics, as Winner would phrase it.

Instrumentalism is to put the entire responsibility of the miserable, or otherwise, conditions of our world on the people and the society that use the technology. Even the unanticipated consequences of technological innovation and use are located at the user end of the technological action, as a result of the unforeseen consequences of our decisions or of our inferences. To say this, however, is to lose a valuable analytical tool, whether one is studying history, sociology, or philosophy. The changes that the introduction of a technology brings become somewhat mystical and elusive. By acknowledging that technology has an influential role, we can grasp the changes at their root, although we will be just as ill-equipped to foresee precisely what consequences will follow in the wake of a technological innovation. Technology is ontological – it shapes our world, our lifeworld.[1]

However, there is a certain ambiguity in Winner's conception. On the one hand, he tells us that technology has agency, that is, it has organizing qualities. On the other hand, the examples he provides point in the direction of the instrumental definition of technology; because of this agency, we can use technologies to organize society in a manner of our own choice.[2] The way I see it, this stops short of a full analysis of the impact of technology on our world and on our society. Therefore, we need to explore the full extent of this impact, which amounts to exploring *the meaning of technology*.

The main task for this chapter, then, has primarily been to argue that technologies (modern and pre-modern) have an impact on society that needs to be recognized. I have shown the inadequacy of holding that technologies are mere means for our intentions, and by implication, also as neutral in relation to socially governed (i.e. conventional) uses. I have also argued that there is a sense of negotiating when we interact with technologies, thereby implying the erroneousness of determinist and essentialist conceptions of technology. The question facing us now, then, is what exactly is the meaning of technology?

[1] There is obviously a sliding scale between near-instrumentalism (or near-social determinism) and near-technological determinism. Some examples will point in one direction, others in the opposite. Even if an example *points* in one direction, this does not mean that it should be taken as an expression of the extreme end of this direction.

[2] Instrumentalism, remember, is the instrumental definition coupled with a notion of technologies as transparent. Winner does not hold the latter notion, of course.

part 1

TECHNOLOGY

chapter two

TECHNOLOGICAL REALISM

Defining 'technology'

Stephen J. Kline claims that the only thing writers on technology agree on is that technology is important. (2003:210) Apart from this, there is little agreement to be found in the literature. Disagreements can be about the relation between the social and the technological development. This includes questions such as those we encountered in the previous chapter about technology's possible autonomous drive; whether technology has a specific essence, whether the autonomous drive or the essence implies de-humanization, and so forth. Another often-discussed question is the ethics connected to use and development of technology, both within and outside a scientific setting. This is especially evident in the flourishing field of bioethics, where the proposed needs and possible consequences of both the development and application of biotechnologies are scrutinized and discussed by scientists, philosophers, ethicists, non-professionals with economic interests, and politicians alike. Further, one can discuss the relation between technology and science, with a philosophy of technology only recently coming out as a discipline of its own. (Ihde 1993:3f, Dusek 2006:1) The questions concerning technology are themselves plentiful; accordingly the answers even more so.

Like questions of religion, disagreements on technology and its relation to science, ethics or some other social and cultural matter can sometimes be traced to differing opinions about the definitions of the concepts involved in the discussion. (Dusek 2006:26) What, exactly, in our surroundings should be labelled a technology? What is the difference between a *thing*, or an artefact, a tool, and a technology? Looking at how the concept of technology is employed across disciplines; from philosophy to sociology and anthropology to architecture and engineering, and across academic cultures (continental vs. Anglo-American), one can safely conclude that the concept itself comes without any rigid rules for its application.[1] Because the concept encompasses phenomena so diverse in their characteristics and so varied in their use, it seems impossible to define it sufficiently general. Thomas Hughes points to another problem in tracing the concept of technology:

> [H]istorians of technology today are applying the word to activities and things in the past not then known as technology, but that are similar to activities and things in the present that are called technology. For example, machines in the nineteenth century and mills in the medieval period are called technologies today, but they were not so designated by contemporaries, who called them simply machines and mills. (2004:3f)

Instead of finding one definition that suits all, maybe 'technology' should be seen as a family resemblance type of concept – Ludwig Wittgenstein's notion for general concepts whose instances share characteristics with some of the other instances, but none shares characteristics with all. (Wittgenstein 1953:§66-67, Dusek 2006:29) Rather than grasping for a universally valid definition, it will then be necessary to form a set of criteria that delimits the *extension*, namely, the set of things, artefacts, systems that 'technology' refers to in specific points in time. However, this approach presupposes that we already have a preconception of what 'technology' means (in this specific point in time) – how else could we point out the extension?

As we shall see, Martin Heidegger argues that to regard an item, for instance a hammer, as a thing with specific properties that renders it a piece of technology is an *abstraction* of how the item already functions, or is meant to function, within a certain context. Ontologically, the use is prior to the definition. This means that before we can say *what* technology means, we should explore *how* it performs; technology-in-action is prior to the conceptual meaning of technology. In shifting the centre of attention from the concept of technology *per se* to technologically mediated actions, a very interesting perspective

[1] Mitcham (1994) exposes theories and thoughts about technology in a variety of approaches, from the humanities via science to engineering.

emerges: Technological actions make the world appear in a way that is related to the properties and aspects of the technology in use. Consequently, technological actions, and by that technologies, take part in the constitution of the world. It is my opinion that this is the most profound approach to the question of the meaning of technology (in the general sense), and for this reason, I will explore the meaning of technology through the technologically related appearance of the world. In this chapter, I introduce the main ideas related to this perspective, which I call *the constitutional-articulative perspective*, while the next two chapters expand on the ideas that are presented here.

If technology was defined by its *Wesen*, as Heidegger wants it, the extension of 'technology', would be given: Anything that instantiates this *Wesen*, anything that enhances and supports technological thinking, would qualify as a technology. However, once Heidegger's brand of essentialism is rejected a different approach to capture what the concept of technology refers to has to be utilized. Val Dusek claims that technology understood as tools and machines is "the most obvious definition". (2006:31) Most philosophers of technology, however, Dusek himself included, regards the extension of 'technology' to include more than tools. Larry Hickman for instance, defines technology as "the invention, development, and cognitive deployment of tools and other artefacts". (2001:12) In fact, artefacts seem to be more important to the definition than tools are. Don Ihde defines technology as "those artifacts of material culture that we use in various ways within our environment" (1990:1), while Carl Mitcham starts his *Thinking through Technology* with the following: "Technology, or the making and using of artefacts…". (1994:1) Tools might be an obvious association to form upon hearing the word technology, but it is not an exhaustive category. Chairs, cupboards, refrigerators, trains, medicine, jeans and blankets, presumptively, could be labelled technological items straight off, but rather more awkwardly tools. Furthermore, tool-use does not necessitate using a technology, as the emphasis on artefact means that a tool must be manufactured to be identified as a technology. Using a hammer to hit a nail, then, entails a technological action, while using a randomly picked stone does not, even though the two items could be used interchangeably and the stone is used as a tool.

Using artefacts as the basis for the definition – that is, to require that a technology is something manufactured – delimits technology to the human realm. (Ihde 1993b:47f) Tool-use, however, is more widespread. Opportunistic tool-use, to utilize a naturally occurring item, is well documented among other primates, for instance chimpanzees use

blades of grass to fetch termites from their nest and sticks to beat objects down from trees. Similar kinds of tool-use are found among non-primates as well, vultures can drop rocks onto ostrich eggs to crack these open, and the sea otter is known to use rocks to open up the shells that protects the abalone.[1] (Stanford 2001:111) Adaptations and small modifications of found tools can also occur among primates; chimpanzees choose particular stones for their functionality, twigs are lopped off sticks, straws are shaped to improve the termite 'fishing', and so on. (Ihde 1993b:48, Stanford 2001:111ff, Ambrose 2001:1748f)

To a certain degree, such examples threaten the human exclusivity of manufacture, but approximately 2.5 million years ago, with the first hominids, the *Homo Habilis*, a different method of manufacturing tools emerged, which marks an entirely different kind of tool use all together. *Homo Habilis* created a certain type of tools that is called Olduwan, named after the site of their initial discovery, the Olduwai Gorge in today's Tanzania. These tools are remarkable because they were manufactured using *other* tools. Oldowan tools are stones with sharp edges that made them suitable to skin animals, to cut flesh, or to cut open bones. (Mithen 1996:106ff, Ambrose 2001:1749). The edges were made by chipping flakes off the stone in a single stroke using another stone. This demands a fine-grained technique, but more interestingly, the chipper-stone had itself been modified to suit the task. Furthermore, this chipping was performed on top of a base used as an anvil. (Ambrose 2001:1749) Hence, we see the beginning of a system of tool making (accordingly, the Olduwan tools are sometimes referred to as the Oldowan Industrial Complex).

Although we should be careful to proclaim that the Oldowan tools marks a *qualitative* different kind of tool making, it is doubtless a more advanced kind, and seems to be quite specific for humans. Kanzi, a bonobo (pygmy chimpanzee) has been trained to make stone tools in a similar fashion, but has not been able to perform an adequately fine-grained operation; to make Oldowan tools the strike must be both forceful and accurate. (Ambrose 2001:1749) Of course, this primarily shows that the physiological evolution of the bonobo has not equipped Kanzi with the required bodily and cognitive skills that *Homo Habilis* had evolved by the time the Olduwan tools were created, rather than saying

[1] Abalone is a clam, who, like the common mussel, the scallop and the oyster, resides within two shells.

that industrial human tool use is qualitatively different from that of opportunistic and proto-manufactured tool use by animals.[1]

Technological action

Moreover, using 'artefact' as the definition of technology would presuppose the very thing that is to be defined. There is nothing in the thing that we call a 'hammer' that tells us that it is a piece of technology (or even a tool). We can easily establish that it is a manufactured object (as opposed to a stone), but so is a painting, a sculpture, or any objects of art or religious belonging, which, although usually made by technological devices, should be kept out of the definition of technology. Therefore, unless we already have determined that any manufactured item defines as technology, we gain little by inspecting the hammer-in-itself. Instead, we need to consider the overall context for the hammer, what it is made to do, how it performs this task, etc. In this sense, a hammer is a technology because it enters a *praxis* of, say, hitting nails, or constructing houses (these days it has been replaced with a nail gun in this particular *praxis*). Or, at least, that it has the potential for entering such *praxes*.[2] We can tell that a hammer is a piece of technology because we recognize its action potential in light of a given context. That the hammer is dependent on the context in this sense can seem to be a fairly trivial argument, but when the subject matter is the meaning of technology, this relation attains a more substantial importance. The hammer and its context are what I will call *interdependent*. The hammer is a hammer because it can be used as such within a context, but what stands out from the world as a relevant context is in turn dependent on the hammer itself. What the hammer affords – rock hard hits or pulling things, points it toward things like nails and spikes, things that afford hitting or pulling.

Heidegger's discussion in *Being and Time* of the primacy of our practical understanding of objects in the world over our theoretical knowledge of them emphasizes this line of

[1] Although I too will consider human belonging as a requirement for technology, it is with certain unease, as it is difficult to see a clear-cut argument for *why* technology should be confined to the human realm. Cultural embeddedness is widely regarded as important (Ihde 1993b:50), so it might be taken for granted that cultural *praxes* are exclusively human. However, Stanford points out that the novel and successful ways of handling and modifying tools often propagate and remains over generations within a group of chimpanzees, leading to great variation in use between groups. In this sense, tool use among chimpanzees forms a cultural expression, or *praxis*. Stanford also points out that several primates' shows *behavioural traditions* – socially transmitted patterns of behaviour specific to groups, although not always connected to tool use. (2001:115) Besides reinforcing an untenable dualism between nature and culture, technology defined as exclusively human might reflect a lingering anthropocentrism in our thinking about the difference between human and animal tool use.

[2] This is the crux of Heidegger's tool-analysis, which I will explain more fully shortly.

reasoning. Heidegger claims that when we are in-the-world, we do not find ourselves in a geometrically defined room, or space, surrounded by 'neutral' or pure entities that we then are free to interpret in any way we choose. Instead, the space we are in is defined through the entities that fill it. However, this should not be understood to mean that the room is merely 'the sum total' of these entities, because we get to know, firstly, the entities through a certain in-use-approach that defines them as the kind of entities that they are, and secondly, the space as connected to the entities in the *way they are*. The way we are able to approach an entity is attributable to its readiness-to-hand, its *zuhandenheit*, which defines how the entity can be put to use. We should be careful how we understand this, because Heidegger does not see readiness-to-hand as something belonging to an entity, or as a way of describing it, instead "[*r]eadiness-to-hand is the way in which entities as they are in themselves are defined ontologico-categorially*". (Heidegger 1962:101/71) This means that readiness-to-hand is primary even to calling it an 'entity', or a 'thing', not to mention calling it a 'hammer'. Readiness-to-hand is how the thing exists, how it *can be* approached by us, that is, the mode in which we get to know something that we can call a thing, or a tool. It follows from this that all entities are primarily approached as tools, or equipment as Heidegger calls them not to limit the analysis to hammers and axes. Equipment "includes everything we make use of domestically or in public life. In this broad ontological sense bridges, streets, street lamps are also items of equipment". (Heidegger 1988:292)[1]

The theoretical knowledge we have of an entity as a specific thing and as a thing with a particular functionality is therefore something that only can emerge from a practical engagement with it. For instance, it is through the act of hammering that an entity is constituted as a hammer, because it is in the act of hammering that the entity displays the particular kind of manipulability towards the environment that distinguishes hammers.

> No matter how sharply we just *look* at the 'outward appearance' of Things… we cannot discover anything ready-to-hand. If we look at Things just 'theoretically', we can get along without understanding readiness-to-hand. But when we deal with them by using them and

[1] Just as readiness-to-hand is the kind, or mode of being that equipment are, we are in a mode of being as well, which Heidegger calls *concern*. *Concern* is the attitude with which we are in-the-world; we are not just there, we are there in a certain way, and this is therefore part of the reason why we approach all entities as equipment. It would take me too far away to go into *concern* here, but it shows again, as with *Gestell*'s essence (cf. Chapter 1), that the kinds of being other things are, reflect back to ourselves because we are the only being for which there can be other Beings. (Heidegger 1962:32ff/11ff) Things in the world have another mode of being that Heidegger calls *Vorhandenheit*, presence-at-hand. This is not things considered theoretically, but things *as they can figure theoretically*, detached from their equipmental context, and as they are, in themselves, in their *what*. More on the relation between readiness-to-hand and presence-at-hand in Chapter 3.

> manipulating them, this activity is not a blind one; it has its own kind of sight, by which our manipulation is guided and from which it acquires its specific Thingly character. (Heidegger 1962:98/69)

Through its readiness-to-hand, the equipment displays a structure of *in-order-to* that constitutes the relation between the particular entity and its environment. The structure of in-order-to involves a *referring* that we cannot grasp in analyzing the thing outside of its context of use. This kind of referring is not a mere index; instead, it has an ontological character. That is to say, the referring serves a dual purpose: It constitutes what in the world can serve as context for it, and through doing so, the entity in turn is *constituted* as a tool within the context because of its 'specific thingly character:'

> Equipment – in accordance with its equipmentality – always is *in terms of* its belonging to other equipment: ink-stand, pen, ink, paper, blotting pad, table, lamp, furniture, windows, doors, room. These 'Things' never show themselves proximally as they are for themselves… Out of this the 'arrangement' emerges, and it is in this that any 'individual' item of equipment shows itself. *Before* it does so, a totality of equipment has already been discovered. (Heidegger 1962:97f/68f)

Even the room itself, where we ourselves are and where we encounter the totality of equipment shows itself to us as equipment for residing (thereby belonging to the totality of equipments). Heidegger's ontological argumentation sustains the claim above, that we cannot deduct the technologically relevant properties of the hammer from considering it in isolation from neither its action potential (in-order-to) nor its context of use (environment, totality of equipment). The hammer as something we would call a technology can only emerge from its 'hammering' readiness-to-hand.[1] Relating this back to what we discussed above, grasping the extension of technology should therefore be regarded as a hermeneutical endeavour, with a fluctuating movement between parts (technologies) and wholes (contexts).[2]

The importance of taking into account the context when we consider the extension of technology is also implied in the conceptions of technology's socio-political impact

[1] Heidegger's tool-analysis harbours (at least) two further aspects; how the world unfolds because of our involvement with it (revealing, cf. Chapter 1), and the relation we have to tools in technological actions. These aspects will be discussed in the two following chapters. Another aspect is in what mode does an entity that we do not know presents itself, as when someone who has never seen a hammer sees one for the first time. Heidegger argues here that the entity nevertheless presents itself and are approached as something in-order-to, only that the referring is not yet known. It makes no structural difference of the relation to the thing that the equipmental context is not known from before; we never encounter an entity as a mere *thing*. (Heidegger 1988:304, 2002:60f) As with my concept of affordance, if we avoid seeing the *toolness* of tools as a case of (representative) interpretation, unknown tasks and functions present no problems to the theory.

[2] This movement mirrors the hermeneutical circle. See Heidegger 1962, §32-33, Gadamer 1989:266ff.

encountered in the previous chapter. We saw that modern technology emerged as a system that constructs itself around artefacts, hand-tools, machines or otherwise, to ensure that they run as expected. Langdon Winner accentuated the set of instrumental, economic and political connections built in and around artefacts, such as the Long Island Parkway overpasses and the atom bomb, while Jacques Ellul included the propagation of a certain state of mind, *la technique*, a set of psychological ideas or rules concerning the technological influence on society. In both cases, the concept of technology points to that of a social structure rather than that of a single artefact or tool. Seen this way, the car is a technology because it is embedded within a technological system of roads, gas stations, traffic rules, and laws for ownership and so on. (Kline 2003:211) The car could still perform all the actions it is made to do: Drive, honk the horn, keep the motor fetishist happy, but if we take away the surrounding organization, it would not have the same, if any, technological function.

Interestingly, this points us to a notion of technology that no longer merely refers to material artefacts, or at least not to the artefacts *in isolation*. In some, perhaps most, cases, the system around an artefact comprises non-material components. For cars, for instance, to 'function technologically' legislations in various forms have been created, social institutions like the Department of Motor Vehicles[1] have been established to support some of this legislation, a system of auto clubs like the Norwegian NAF, mandatory car insurance and so on, are also consequences of the car having its technological function within a society. These features are essential parts of the organizational changes to a society that artefacts bring about, but they exceed the artefact's proximate consequences, which for a car are phenomena like faster and private travel, pollution, traffic accidents, and so on. For some technologies at least, to grasp their meaning in the sense it was defined in the introduction to this part, how they make a difference to society and us, we need to look beyond the actions performed by them, and assess the broader organizational change they produce in a society. The 'meaning' of using Instant Messaging is not confined to the actions of sitting in front of the online computer, to type and to read and so on, it is also connected to the changing forms of communication, both in methods and content, which again has an effect on how we relate to each other. How can we justify the claim that these larger changes in part are due to the technology *itself*? What does that statement even mean?

[1] In Norwegian: Biltilsynet.

Introducing the constitutional-articulative perspective

I will not delve further into what items that could possibly be included in the extension of 'technology'.[1] My purpose has been to extricate a *methodology* of defining the content of the extension of 'technology'. The considerations above suggest that we should focus somewhat indirectly on actions and the changes following these. What kinds of actions would we label technological actions, and what constitutes the actions? Furthermore, what kinds of changes in our surroundings (material, social or organizational, individual or type of) would we think of as technological, and what define these changes as the specific changes that they are? Can we, for instance, discern any qualities in the technologies themselves that improve our understanding of the changes? The discussion above displays that the meaning of the technology employed in a technological action should be considered as influenced by all participants in the action (including the artefact itself).

More precisely, this means that technologies, user(s) and various contextual phenomena, including social and technological *praxes*, all bring significant qualities that have an effect on each other's appearances and therefore also the overall functional properties of the action. The relation between the participants will for this reason be expressed as interdependent, which differs from an interactive relation in that the latter indicates that the interaction between the participants is based on inherent or autonomously defined functional properties – properties that remains principally unaffected in the interaction. Interdependence, on the other hand, means that the person with a hammer is not 'a person plus a hammer', but is a *constituted* entity, interdependent on the person, the material *affordances* of the hammer,[2] the task at hand, the *praxis* the person is immersed in, and other contextual phenomena that augment or constrain the hammering action. In this case, it is suitable to talk of a constituted totality, while at other times, for instance in the case of a machine, it is more appropriate to talk of a constituted technological artefact (even if a machine never operates without doing so within an organizational totality). Contrary to Heidegger and Ellul, it is the goal of this investigation to formulate a meaning

[1] See Mitcham 1994, chaps. 7 through 10 for an extended discussion on what the concept of technology have been understood to refer to. See also Kline 2003

[2] 'Affordance' here alludes to how a thing's physical properties in themselves grants us (and deny us) specific ways of handling/using them. (Gibson 1986:127-143) Although Gibson's use of the concept is from visual psychology, the concept has been used outside this context, to denote material and social properties of items. (Hutcby 2001) I will discuss and define 'affordance' more closely and precisely in Chapter 4.

of technology without a fundamental difference between a self-contained artefact (a machine) or a totality (a hand-tool in use).

The constitution by interdependent contributors imply that whatever change a technological action brings about in the world, be it the alteration of an existing object, the manufacture of a new product, a change to the social organization, or a scientific image or model, it is 'produced' by all the constituents. In an ontological analysis, one can and should not emphasize merely one of the contributing factors.[1] More precisely, the outcome owes its function and meaning not only to which contributing factors were involved in the action, but also to the *manner* in which each contributing factor appears. The 'manner', of course, alludes to how each participant appears *as constituted* in the action. The outcome of a technological action is for this reason strongly related to the constituted artefact/totality of the action, but it does not follow from this that it is a mere projection, fiction-like, in view of the fact that the constituents are constrained by the existing material and social actuality. The 'product' has a dual structure of self-sufficiency and dependency. I have, to highlight this meaning, chosen to call the outcome of a technological action, whether it is a tin can or a mathematical model of the solar system, an *articulation*. Since the constituents are joined in an act of articulating, I will use the semi-neologism '*articulative*' to denote the act of articulating (and consequently, also for the principal characteristic of the technological artefact as constituted in the act).

We are faced, then, with two perspectives on the technological action, one that investigates the relation between the constituents of the technological artefact, and one that investigates the relation between the constituted whole and the outcome that the action results in, the material and/or social changes. Given that I do not want to convey an impression that these two perspectives are independent, I title my investigation into the meaning of technology a *constitutional-articulative perspective*. Because the outcome of the action, the point and purpose of picking up a technology to do something, is highly relevant for the constitution of the technological action, and because the constitution is highly decisive for how the material or socio-political outcome appears, the two perspectives should be held, simultaneously, together and apart. Before arguing more carefully for the perspective in Chapters 3 and 4, I shall discuss similar concepts to articulation, such as 'construction', 'presentation', and 'representation'.

[1] Although, for empirical studies it is a necessity that some parameters, categories like 'the social' (see below), or 'the psychological', will be more relevant than others will.

Construction | articulation

Describing the relation between the constituted technology and the outcome of the technological action as 'articulative' is an alternative to 'transparent' (technological instrumentalism) or 'subservient' (technological determinism), in the sense that articulative means that technological change – the outcome of a technological action, is not determined by any inherent qualities of the technology, and not pre-determined by the user's intention. Nor should the outcome be thought of as a social construction. Social constructivism, taken as one (of several) interpretational methodologies within Social and Technology Studies (STS), is primarily a narrative about the socially shaped meaning a type of technology attain through a social dialectic of variation and selection, somewhat comparable to the process of natural selection in evolution theory. (Bijker et al.1984) However, there is one notable difference. Variation in evolution theory is primarily explained in terms of differences in the genetic makeup of a species within an environment – through sexual reproduction and odd mutations. In social constructivism, on the other hand, variation is initially explained in terms of the different impact one and the same technology has on various social groups: A piece of technology is received, interpreted, employed and developed according to a specific group's set of already existing social meanings. It is therefore not the technology, 'species', that shows variation; it is the interpretation of the technology that varies. Examples of social groups are engineers, sales representatives, consumers, advertisers, filmmakers, critics, and women and so on. The kind of adaptation within a social group is often referred to as interpretive flexibility. (Pinch & Bijker 1987, Woolgar 1991) Since different social groups have differing needs with a technology, their adaptation will pose dissimilar problems that in turn will direct the development of the technology in different *trajectories*.

There have been several empirical studies in STS (not just in the social constructivist tradition) that substantiate the concept of interpretive flexibility by looking at the development and adaptation of technologies. (For instance, Bijker, Hughes & Pinch 1987, Bijker & Law 1992a, McKenzie & Wajcmann 1999a, Oudshoorn & Pinch 2003a) One of the most famous studies concerns the evolvement of the safety bicycle, the type of bike that has two identically sized wheels and a chain drive to the rear wheel. Before the safety bike, the most common bike was the rather unsafe Ordinary Bicycle, popularly called 'the Penny-Farthing',[1] who had a large, directly pedal-driven front wheel. Between these two

[1] In Norwegian slang: Velte-Petter.

types of bikes there was a short-lived type called the Bicyclette, which had a smaller front wheel than the Penny-Farthing, albeit still larger than the rear wheel, and a chain connecting the pedals and the rear wheel. With this type there occurred two problems, relating to two separate social groups, the ones that liked to ride in high speed – smaller front wheel meant slower top-speed, and those who liked to go for a tour with the bike – smaller wheel meant increased vibration. Eventually both problems were solved by adding an air tyre, and lowering the front wheel even more to add to the safety. (Bijker et al.1984, Pinch & Bijker 1987)

The process of development, selection and adaptation usually comes to an end, a state referred to as stabilization and closure, when the technology receives a predominant meaning and form of use. In the case with the bicycle, this happened a few years after the air tyre equipped safety bike prevailed over rival adjustments of the Ordinary Bicycle and the Bicyclette. The process leading up to the closure is then 'black boxed', which gives the wrongful impression of inevitability between the technology and its current meaning and form of use, thereby indicating that the understanding of a technology is determined by the technology itself. *In principle*, though, the black box can be re-opened at any time and the dialectics can resume. (Kline & Pinch 1996:767) In the case above, the solution to the two separate problems merged with the air tyre, but it need not be so; the solution to one problem could be ample enough for one of the social groups, but the artefact could still pose additional problems for the other. For instance, race bikers needed further modifications to enhance the speed of the bike, leading for instance to the buckhorn shaped handlebar (which, these days, has been replaced with yet another speed-enhancing variant). Here we see how the inconsistent adaptation of one and the same technology by different social groups can set off a development of the technology in a variety of trajectories, thereby reinforcing the interpretive differences, and eventually leading to variations in the material appearance of the technology.

This narrative implies that the actions for which a technology is employed, and the resulting 'constructions', are socially shaped. Although the technology is not regarded as an instrument for a user(s) intention, it is principally viewed as neutral, which renders the meaning less or not at all caused by any specific characteristics of the technology: "The developmental process is not determined by purely technological problems, but by technological problems resulting from applications of technology by specific social groups." (Bijker et al.1984:41) This, of course, presupposes that technology itself is

regarded as transparent in terms of the impact is has on society and in terms of its own meaning.

> The construal of a technology as a causal factor seems to imply that there are definite, identifiable features and characteristics of that technology, whereas the central thrust of social shaping is to suggest that such features and characteristics are contingent, that *any such features we would wish to attribute to a technology are the temporary upshot of a series of complex social (definitional) processes, largely due to the efforts of particular social agencies (groups)*. Or, to put the point another way, [the] invocation of a technology as a cause implies the possibility of providing a definitive description of that technology. (Woolgar 1991:31, my emphasis)

Although the constitutional-articulative perspective emphasizes technology's own role in the meaning it takes on in a society, this implies neither a causal relation nor a definite description of a technology in the sense that Woolgar criticizes. Instead, and as will be clearer throughout the next two chapters, constitutional interdependence entails that each constituent possesses certain properties that constrain how the technology appears *in a given, embedded action*. Neither the technology nor the social (or even the user(s)) is a causal factor in themselves, only the constituted totality can be said to be the causal factor. Therefore, as I will maintain, there *is* something to be said about technology related to its meaning, but this must be said through a constitutional analysis, not a causal-functional one.

The strong 'neutralism' advocated by Woolgar is not shared by all, for instance it has been claimed that to consider that "the attributes and effects of *all* technologies are *both* socially negotiated and real (physical, material, biological)" (MacKenzie & Wajcman 1999:26n), is not contrary to holding a social constructivist theory of technology. However, as the same writers admit, this clarification showed up in social constructivist literature somewhat later than the initial writings on it in the 1980's (cf. Oudshoorn & Pinch 2003b:3, Rappert 2003:567ff). Within STS-writings that deal with the role of technology's impact on society, the main interpretation of the relation between the technology and the social is what I would call *an interactive view*. Although this interactive approach avoids the reductionism of social determinism, it still maintains "a fairly stable and matter-of-fact division between the social and the technical". (Bijker & Law 1992:201)[1] I suspect that this division is upheld for methodological reasons. The social construction of technology,

[1] Bijker & Law distinguishes this from Bruno Latour and actor-network theory. (Bijker & Law 1992:201f) In certain aspects, this view resembles what I called the constitutional relation. It seems to me that Woolgar, while criticizing those who hold a causal theory of technology, retains the view that technology and the social are two separate categories. Only if this is done does his quote above make any sense. Latour's twist is to regard technology and social as being of the same category. If they are (which I also hold), there is of course no danger in giving technology itself its due place in the 'articulation' of its own effects. I will return to Latour in the next chapter.

after all, is a sociological and historical endeavour, and as such, it requires fairly clear-cut parameters to be empirically operative.

In emphasising the social embeddedness of technology, social constructivism has been important in exposing the complex developmental trajectories behind many technologies and in rejecting technological deterministically inclined accounts. However, as an ontological investigation (into the meaning of technology), it does not have a satisfactory concept of technology (and perhaps it should not either). The main reason for this is the uneasy role played by technology in the constructivist narratives, even for those constructivists that assume some sense of material 'agency'. In my mind, this is primarily because the methodological parameters do not encompass how the technology itself *affords* the technological action. For instance, in an essay about the introduction of the Model T Ford to rural America, Kline & Pinch is early on explicit about the shortcomings of earlier theories of the social construction of technology; it is "the neglect of the reciprocal relationship between artefacts and social groups. We agree that it is important to show not only how social groups shape technology, but also how the identities of social groups are reconstituted in the process." (1996:767) However, time and again the concept of interpretative flexibility is employed without any noticeable constraining (except from social factors). The operating parameters remain social throughout the essay, focusing on the social factors that changed the meaning of the automobile from 'a nuisance' to 'beneficial'. (Kline & Pinch 1996:767, 772, 777, 783) The precise role of technology remains inconclusive; one claims that the impact 'goes both ways', but fail to carry this through conceptually.

Social constructivism emphasizes the origin of the normal use of a technology, even if the path to the 'black boxed' stage is taken as non-linear.[1] This holds even though 'normal use' for a certain kind of technology can differ significantly from social group to social group: Confronted with a particular technology such as a bike we saw how different groups show different preferences; racers wanted a bike that enhanced speed, while touring cyclists wanted a comfortable bike. Hence, the normal use among racers will differ from the normal use among touring cyclists. In this sense, by focusing on the intra-

[1] A worry in social constructivism of technology is that there often will be sub-groups within a social group that for various reasons drops off the narrative, although it is quite likely that they do contribute indirectly or directly to the shaping of the technology. Typically, this will be groups like women, ethnic minorities and manual workers. (MacKenzie & Wajcman 1999:22. See also Oudshoorn & Kline 2003:4. Winner expresses a related concern for social "groups that have no voice but that, nevertheless, will be affected by the results of technical change". (1993:269f)

group dynamics leading to the emergence of differing normality, social constructivists take the technological variation crucial for the principle of interpretative flexibility for granted. This is also evident in the Model T Ford example. For rural America, the automobile had almost reached a state of closure: It was a nuisance. However,

> New meanings are being given to the car by the new emerging social group of users – in this case, technically competent farm men. To the urban user the car meant transport. For the rural users… the car, as well as being a form of transport, could be a farm tool, a stationary source of power, part of a domestic technology, or perhaps all of these. (Kline & Pinch 1996:777)

That the car itself afforded such 'new' uses is not reflected in the constructivist analysis. The analogy to variation within natural selection is not fully employed. Natural selection presupposes a genetic variation, that is, that there is a variation in a species in how the individuals are suited to survival and reproduction in an environment. We could say, albeit quite figuratively, that a species *affords* several different behavioural traits, some of whom are better suited within the environment than others. Taking this into the realm of technology means that we conceptualize the technology to *afford* several different ways to be used. This is not a trivial way of putting it, because it grants the technology itself an explanatory role in the concept of variation. The by-product is, however, that the analysis of technological actions must grant a place for the technological artefact.

Therefore, by focusing on technologies' constitutional role, we can investigate how technologies themselves afford the variety that makes interpretative flexibility possible. Because social constructivism puts so much emphasis on the receiver-end of technology (and accordingly, technology's neutrality), the basic concept of variation remains an ambiguous, even un-explained term. Analyzing the technology as constituted, however, enables us to regard it as *multistable*, affording differing interpretations relative to social and user-dependent perspectives, while at the same time keeping in mind technology's own contribution. (Ihde 2002:106) This way, we can grasp how a technology can gain several parallel closures and stabilizations without having to assume a stage of 'normal use' within a social group. The concept of multistability allows different synchronous stable meanings from, say, the design and the user standpoints.[1]

The concept of construction, because of *social* constructivism, has come to be associated with knowledge relativism and a strong emphasis on the social shaping and the

[1] I will return to the concept of multistability in Chapter 4.

appurtenant underplaying of technology itself, and as such, it has taken on a meaning, correct or not, that points to something resembling non-realism. (Latour 1999:114f, 2003) For this reason, I find it necessary, not only to distance myself from social constructivism of technology, but also from the concept of construction itself.

(Re-) presentation | articulation

It is not just technologies used for some kind of production, to make new artefacts, which has the character of being articulative. 'Articulative' is appropriate to denote technologically mediated actions in general.[1] The concept of articulation is meant to convey two ideas. First, the meaning of the outcome of a technological action is not (usually) an arbitrary construction, and secondly, the technological action triggers the object of the action to present itself *in a certain way*. Although a technological action *presents* an object, articulation is a more fitting concept because presentations of any object will always correspond to a perspective on this object. An object is presented according to both a situated requirement; what is the task at hand, and to the constituted totality that performs the technological mediation. Through technologies with other qualities, or alternative contexts, or through users with other preferences and aims, the technological action would have 'presented' the object differently but not for that reason necessarily less accurate; it would have been a *different* way of presenting the object, suited to the particularities of that constituted mediation. Therefore, to avoid the allusions of presenting something in its *purely* objective way, articulative is chosen to denote the process of technological mediation.

The operation of an X-ray apparatus can serve as a simple example of an articulative process (and the X-ray image as an articulation). Sometimes technology is defined as being the processing of nature or at least an intervention into something organic by inorganic or artificial means. (Gehlen 1980:5ff, Krogh 1998:2ff) This claim presupposes an essential contrast between nature and technology. Technology will often be regarded as either violating nature by turning it into something it is presumed not to be, or as an appendix, an addition to nature, as in the conception of technology as an exosomatic organ, where technology leaves nature unharmed but still appears as foreign to the

[1] 'Technological action' and 'technological mediation' is interchangeable. Although using a hammer to hit a nail is a clear-cut example of an action, to look through a microscope feels less so, and a computer generated image from a light wave even less than that. But these are all mediations, and they should also be regarded as actions for reasons that will be clear in the next chapter, when I discuss the relation between readiness-to-hand and presence-at-hand.

natural. However, looking at the relation between an X-ray machine and a body through the constitutional-articulative perspective indicates that technological interventions into nature need not be seen as a violation, but as a way to instigate nature to present itself (although, to repeat this once again, this means to present itself in a certain way, as an articulation). This perspective will enable us to question the entire concept of a 'pure nature', a contrast I will return to below. The X-ray image results from the interaction of an X-ray technician, the X-ray technology and *praxis*, and the body itself. This is *the constituted whole* that performs the action. Decisive aspects here are, for instance, why an X-ray is taken at all, the function of the X-ray equipment, whether the technician can operate the equipment properly, and so on.

The X-ray image produced is a certain way of representing the body. It is not the 'truest' or 'most objective' representation of the body, but is a *functional mode* of the body that reveals certain aspects deemed relevant for the task. The representation can hardly be called a pure objective depiction of the body, dependent as it is on the specific technical constraints of the apparatus, but it would likewise be absurd to regard it as an arbitrary construction, as it is clearly constrained by bodily properties. The technology focuses on and enhances, augments and translates certain aspects of the body, while at the same time play down or ignore others. It reveals aspects of the body and at the same time, it conceals other possible representations of it. Technician, technology and body are in this case mutual constraints. To look at a body through X-ray's does not produce an arbitrary image, and it does not invent something that is not there, but it *projects a certain functional perspective* on the body.[1] It is in this sense that the image is an articulation, articulated by X-ray technology, the competent use by an X-ray technician, *and the body itself*. It is, in this sense, an interpretation even prior to what we normally would label the interpretation of an X-ray image.

Articulation, then, is the way we can become acquainted with something; we can approach something only in as much as it is articulated, that is, as it stands out from that which it is not. From this it follows that articulation should not be seen negatively, as the 'only extent' that we can know something, but in the positive way as *the condition for us to know anything at all*. While 'representation' and 'presentation' are both concepts, the way I see it, that imply that the technological action, for instance of taking an X-ray, results in

[1] As I shall return to below, this is the crux in Don Ihde's concept 'technoscience'.

an objective portrayal of the body. This has the unfortunate consequence that the technology is rendered transparent (and that the other factors in the technological action are also in their most objective, truest, forms). As I have argued here, this does not allow for the specific constraints belonging to any technology, and for that reason I prefer 'articulation' to denote the products of technological actions.[1]

Technological realism

Emphasizing that the articulation is neither objective (as opposed to 'representation') nor arbitrary (as opposed to a specific interpretation of 'construction') locates the constitutional-articulative perspective somewhere between objectivism and reductionism. Objectivism is to consider the outcome of a technological action as an objectively true presentation or representation of the object in the technological action. Objectivism defined this way would be nonsensical for certain, perhaps most, uses of technology. When technology is employed for some kind of production, for instance to make fish fingers from fish, the fish fingers can hardly be called a representation of the fish. For this kind of technological action it does not make sense to think of the relation between the object before and after the processing as representation; the whole purpose of the technological action is to produce something new (and typically from several resources). Likewise, for kitchen utensils like knives, forks, pans, and strainers and so on, it is equally nonsensical to ask if they are representations of the objects with which they are involved. Sometimes, however, technologies are conceptualized as neutral aids or augmentations of our natural abilities, especially when put to use in a scientific setting. For instance, when Galileo Galilee employed a telescope to study the moon it assisted and augmented his vision. In such cases, it seems appropriate to perceive the telescopic image as a mere projected image of the moon. Although today's scientific use of technology, also the use of telescopes, is far more complex than this, objectivism is to regard the technological mediation in science as transparent, and by implication, to regard the result of the mediation, the generated image, as an objectively true presentation or representation.

However, the example with the X-ray equipment above suggests that to look at something through an apparatus inevitably focus on and enhance certain aspects of the

[1] Bruno Latour also employs the concept of 'articulation' (which, in relation with 'proposition', for him is an alternative to 'construction'). His use has strong affinity to my use, as something that "occupies the position left empty between the object and the subject or the external world and the mind". (Latour 1999:303) Also Heidegger uses 'articulation' in a related but not identical manner, namely to denote the connection between readiness-to-hand and presence-at-hand in the act of understanding. (Heidegger 1962:190/149, cf. Welton 2000:354)

object due to the inherent constraints of the technology. According to Don Ihde this was the case with Galileo's telescope; aspects relevant for the scientific examination of the moon (or of space in general) was enhanced and became presented correspondingly.

> We could say the Moon became larger, magnified. But it was also displaced – telescopically it was taken out of the night sky and relocated within the field of telescopic vision. It lost its place in the expanse of heavens and became a more focal, particularized object, now apparently, close up. (Ihde 2002:58)

Simple magnifying devices like optical telescopes, glasses and hearing aids might seem so innocently intrusive that the articulative element in their contribution easily can be missed. Accordingly, these kinds of devices often figure as paradigm examples of the transparency of technology. Nonetheless, even simple technologies articulate an object in accordance with how they are designed to present their objects, what they can discover and what aspects of the world they are tuned into.[1] Actually, it is *because* of this focusing, the removal of aspects not deemed relevant for the task, which makes technological mediation essential for modern science. It is because they are able to articulate the scientific object in *this* way rather than *that* way that they are useful in the first place.

Neither does the constitutional-articulative perspective denote a form of reductionism; that the meaning of the outcome represents a meaning imposed on the phenomenon from the outside. This is a form of reductionism in so far as the outcome is portrayed as supervening on merely one or a few of the contributing participants in the technological action. Typically, the attention is directed towards only one, technology or 'the machine' in the case of Ellulian determinism, *Gestell* in Heideggerian essentialism or the social constructed convention of use in social constructivism. As mentioned in Chapter 1, to over-emphasize technology and ignore it completely are seemingly contradictory, but instrumentalism and determinism concur in the sense that their methodologies are reductionistic towards the contributing factors in the technological action. While objectivism implies a naïveté in its realism, in the sense that it portrays reality as being unimpaired and shining through the technological mediation unscathed, reductionism implies a form of non-realism in the sense that reality becomes what we as individuals or as a society, or technology, 'want' it to be, thus rendering our conception of reality

[1] As Ihde points out, taking the optical telescope as a paradigm example of the relation between nature and science involves a double reduction, a reduction of science to a visual bias, and a reduction of vision to be biased towards motion and shape. (Ihde 2002:54)

arbitrary.[1] As often is the case when two opposites meet, the middle ground will turn out to be the more credible account, and through developing a theory of technological meaning that make allowances for all contributing factors, the constitutional-articulative perspective attempts to avoid the naïveté of objectivism and the non-realism of reductionism. It is equally absurd to regard the telescopic image as objectively true of the moon, as it is to regard it as not true at all.

The claim that a scientific image, fact, or model represents reality or conversely, that it only presents a constructed reality are arguments that are performed over a set of shared, but ill-conceived presuppositions. If something is said to be a mere constructed reality, this presupposes that there is something called reality somewhat behind or beyond it. Instead, regarding technologically mediated 'products' as articulations means that we use technology as a way of *making reality*. Use of technology should not be seen as either granting us 'direct access' to a pure nature-in-itself, nor should it be seen as putting a veil over this nature-in-itself. There is no such thing as a reality that we, by constructing the proper means, can describe in 'pure' objective terms. The technological articulation is for this reason not a reduction or a diminished form of reality, but is itself reality, however, without the illusion of being an 'objective truth' about reality.

So far, in this chapter I have introduced the two foundations of the meaning of technology. First, the relation between the factors in a technological action was briefly considered. This concerns the relation between technology and context (including user(s), task and goal) for the technological action. I suggested that this is an interdependent relation, with each of the constituents having non-trivial bearing on how the other constituents appeared in the specific technological situation. Then, based on this interdependence, I considered the relation between the technological action and the outcome of the action. I claimed that the interaction of the constituents resulted in an articulation, which is the way an object appears through the technological action. The object mentioned here could for instance be a new product, a scientific representation, a repaired artefact, a clothed person, or the Julian calendar. The articulation is merely one possible way the object reveals itself, and an object can reveal itself in a number of ways based on the specifics of the technological action. None of the ways needs to be seen as more or less accurate, they corresponds to different perspectives and functions. What this

[1] My account has, and not entirely by accident, somewhat messed up the distinction between ontology and epistemology. I will not deal with that here, but in the following chapter, this very distinction is re-thought.

also implies, and this claim will be reinforced through the discussions in the two following chapters, is that without a perspectival revealing, nothing would be revealed at all; making an articulation is to make reality. The concept of *making reality* is right there at the heart of the meaning of technology, not just in scientific mediation, but also in technological actions in general.

Science and nature

The reductionism of instrumentalism and technological determinism maintains a contrast, a gap between technology and user (and between technology and society), which implies that the relation between technology and us is a form for power struggle. Instrumentalism assimilates technology under the user's intentions, while the opposite holds for determinism (including Heideggerian essentialism) – especially in its pessimistic variety, in the sense that technology subverts and transforms both humans and society into something they are presumed not to be authentically.[1] The contrast between humans and society on one hand and technology on the other is also found expressed as a contrast between nature and culture (technology as an expression of culture), or as I touched upon above, the contrast between the natural and the artificial.

Walter Rammert finds that seeing technology in contrast to another substance has been a frequent tendency in the thinking about technology. Through time, technology has been seen in opposition to nature, to life, to culture, and more recently to society. (Rammert 1999:25) Rather than being perceived as working in tandem with, integrated into and even co-constitute how nature, life, etc. appear and are thought about, technology has typically been seen as alien and alien*ating*. As we saw in Chapter 1, this is quite evident in the thinking of Heidegger and Ellul, and even Winner's notion has this aspect lurking in the background as a potential danger. In the literature, then, we can find accounts of the artificial, lifeless, unnaturally organized technology in contrast to the living, self-organizing nature, or the *logico*-mechanistic technology in contrast to an creative meaningful culture, or the fierce algorithmic-linearity of technological efficiency in contrast to the heuristically unhurriedness of social processes, and so on.[2] (Rammert 1999:26ff)

[1] This implies not just technological essentialism, but also an essentialist theory of humans and of society.

[2] I will not pursue this claim further, but it strikes me as likely that the strategy of contrasting technology to another substance arises from the 'withdrawn' approach of the older generation of philosophers of technology. This strategy tries to work out a lexical definition of technology, rather than approach it from its situatedness. As mentioned, I prefer a different approach to delineate the extension of the concept.

However, these demarcations are now being challenged, in not only a theoretical sense, but also more materially, through new technologies. For instance, transgenic animals are animals that are genetically engineered and bred in the lab for the sake of illuminating our knowledge about diseases and the consequent search for treatments. Genetic engineering for this purpose has been around for many years in various animal life forms, such as the OncoMouse® in cancer-research. (Marshall 1997) Recently also primates have been employed for this purpose, marking a significant step towards examining human-like genetic processes (and adding further controversy to an already inflamed debate). (Chan et al.2001) Transgenic animals are alive, yet artificial, and perhaps they should even be regarded as technological.

Much of our knowledge about nature is mediated by technologies. This has been called *the* characteristic of modern science, giving rise to the classification 'technoscience': "The claim of technoscience… is that it reveals a world which, perceptually identified, is both a microworld and a macroworld which could not be experienced except through the mediations of instruments." (Ihde 1993a:3, see also Latour 1987, Selinger & Ihde 2003) In many cases, exemplified by optical telescopes and microscopes, the technological mediation retains the same basic perspective we ourselves have on the world, and poses as such no more fundamental problems to the contrast between technology and nature than basic observation does (although, as mentioned above, the mediation involves a reduction and focusing of the scientific object to aspects pre-determined as more relevant than others).

Technoscience does more than augment the human perspective, though, as high-tech manipulations can generate conditions that yield empirical data that otherwise would be impossible to obtain. For example, modern particle physics explains the fundamentals of the natural world in terms of the workings of subatomic particles like quarks, muons, gluons, and the W and Z bosons. The problem is, none of these particles exists disconnected in nature and is therefore impossible to observe naturally. However, their existence can be verified experimentally, making comprehensive use of fine-grained technology to create some fairly extreme artificial conditions. In huge particle accelerators, like the one at CERN in Switzerland, protons are technologically stripped of its accompanying electrons, and accelerated singularly. The single protons, when they reach a velocity close to the speed of light, are smashed into each other, creating a collision that releases sufficient energy for single particles to be formed and exist

disconnected for a short fragment of time. The generated particles are not observed directly, though, only indirectly through mapping their movements after the collision, using particle detectors to pick up electrical signals emitted by the particles. The signals are then processed by a computer, and charted as movements on a computer-generated model. From the kind of movement a particle performs (among other parameters), physicists are able to tell what kind of particle it is and how it interacts with other particles and how they mediate the fundamental forces of nature.[1]

Is there a difference between 'nature' and what we know about nature? Moreover, is there a difference between nature as it exists 'naturally', and how it is artificially triggered to present itself? The subatomic particles can only exist disconnected technologically – for a short fraction of time in a particle accelerator (or in the Big Bang), does that make them – *as described individually* – more technological than natural? What is observed in the establishing of the subatomic particles is not an isomorphism between the particles and nature, but an isomorphism between the mathematical theory that predicts the existence of these particles and the technologically generated particles. Still, these experiments do yield knowledge about nature; it does tell us something about how nature is (more precisely, in this case, it tells us about the Big Bang). Technoscience means that the boundaries between technology and nature, while not blurred altogether, at least have to be thought through carefully; as mentioned, there is no contradiction is regarding a phenomenon as both technological and real.[2]

The emergence of computers and increasing processing power has opened up technological possibilities for science in a number of other ways as well. Through gathering information from various fields such as zoology, physiology and palaeontology, one has been able to construct a computer model of the Tyrannosaurus rex. This has been done by plotting known data about the T-Rex and known data about physiology of animals in general into the computer model. The known variables have then made it possible to generate estimates about the unknown variables in the T-Rex's body, including walking and running performance. It has been estimated that its running speed was not

[1] http://public.web.cern.ch/public/en/Research/MinChall-en.html [26.11.2008] These days, particle physics is working hard to confirm the existence of the Higgs boson, a proposed but not yet observed particle whose existence would inform issues about other particles' ability to possess mass. (Cho 2007)

[2] For additional arguments for such a claim, albeit from a somewhat different perspective, see Latour 1999, Chapter 5. Latour, although being a key figure in STS, is not a *social* constructivist, but holds a theory not unlike the constitutional-articulative perspective (see next chapter).

very fast, and, because of body weight and bone structure, it took at least 1-2 seconds to turn 45 degrees. (Hutchinson et al. 2007) These statistics supports the hypothesis that the T-Rex was relatively easy to escape from for smaller, quicker animals, which some have taken to imply that the T-Rex was mainly necrophagous.[1]

With the use of computers, it is also possible to simulate certain evolutionary processes such as group selection to gain usable and applicable knowledge about it. Within Ethology and Evolutionary Psychology, group selection is thought to be at the heart of the development of altruistic (moral) behaviour in animals and humans. Earlier models of altruism, based on game theory, indicated that the development of altruistic behaviour was incompatible with the central tenets of evolution theory because altruistic individuals would always loose out to selfish individuals. (Sober 1994:10ff) However, recent computer simulations of group selection have suggested that this conclusion was premature, as computer models indicate that altruistically dominated groups can resist the invasion of selfish individuals, and altruism even can arise within a non-altruistically dominated group. (Ono et al.2003, Fletcher & Zwick 2004) Altruism, it seems, is indeed compatible and explainable in an evolutionary perspective.

What is the nature of the computer T-Rex and the simulated evolutionary processes? They are not entirely nature, technologically generated models as they are, but surely, they should not be regarded as entirely 'technological' either.

Human nature?

More broadly, one might ask what a culture amounts to without the presence of any form of technology. Or, broader still, what is a *human being* without being a tool-using animal. Tool-use has long been regarded as one of the defining features of being human, as reflected in the frequent use of the playful expression *Homo Faber*, the tool-making human. The scientific moniker for our species, *Homo sapiens* – Latin for 'the rational human', borrows its meaning from Aristotle, who defined the essence of the human as rationality. (2000:12/1098a) However, considering our species' evolutionary history, it is appropriate to ask if humans did "first get smart and then stand up, free their hands, and make tools? Or did they first stand up and make tools and then get smart?" (Dusek

[1] This study has employed several disputed parameters, so the findings are controversial (leading one scientist to dubbing such models as 'desktop palaeontology'). http://www.forskning.no/Artikler/2007/juni/1181050747.44 [02.01.2009]

2006:117)[1] While being relatively primitive, the earliest manufactured stone tools, as mentioned above, are about 2.5 million years old. Non-manufactured stone tools were used presumably a million years before this by the Australopithecus-genus, pre-dating the *Homo*-lineage.[2] Tool-use among other primates and animals (and pre-*Homo*) discounts it as *the* mark of the human, but it is nevertheless clear that tool-use has been a part of the human evolution for a very long time, possibly co-evolving with proto-language (and a great deal of other bodily, cognitive and social skills). (Mithen 1996, Johansson 2005).

Furthermore, it is still safe to say that tool-use was an integral feature of the development of culture. The so-called cultural explosion, which saw the occurrence of burial rites and artistic expressions like cave paintings, decoration of stone axes and so forth, happened about 30-60.000 years ago. (Mithen 1996) Considering that the relics of this explosion (cave paintings, decorations) were created with the aid of tools, it is reasonable to claim that humankind's social life developed from living in groups founded on the mutual requirements of gathering/hunting food and protection from enemies to being founded on the establishment of a group identity mediated by technology. In light of this, we can establish that "[t]here are no known peoples, now or in historic or even prehistoric times, who have not possessed technologies in some minimal sense". (Ihde 1990:11) Consequently, to say anything about humans (or culture) without technology amount to no more than an *idealization* from and a consequent ignoring of an especially important aspect of our situated lives. Moreover, could we not then ask, slightly rhetorical, would not this be a theoretically useless human being?

How feasible are thought experiments like these anyway? Don Ihde points to a notorious difficulty, well known in hermeneutical literature: "Since we envision it from the familiar and engaged position which we actually occupy within our more saturated technological form of life, we may not even be aware of just how deeply we are enmeshed, even at the perceptual level, in this form." (Ihde 1990:11) Langdon Winner provides an example of this oblivious enmeshment. Winner has from time to time asked his students to disengage themselves from at least one particular piece of technology for a week. The students would choose things like mechanical transport, electrical devices or industrially prepared

[1] Dusek argues that the *Homo Ludens* conception is only rivalled by language as the defining characteristics in the 20th century literature, and claims further that those who were pessimistic concerning technology's influence on human usually were the same people who held language as the defining mark. (Dusek 2006:112)

[2] Archaeological record of this usage is scarce because these tools were not modified; consequently, they are hard to distinguish from regular rocks. (Mithen 1996:24, see also Dusek 2006:117)

food. This low-key experiment was unambiguous; most of them could not even go a full day without the piece of technology.[1]

Thought experiments like 'culture-without-technology' and 'human-without-technology' are designed to establish and emphasize a contrast between technology and its surroundings. This distinction is a prerequisite for both the transparency of technology found in instrumentalism and constructivism, and also to support the admonitions of the alienating characteristic of technology found in determinism. However, as these short remarks have indicated, humans, society, nature and technology need to be thought of as intertwined in a manner that renders a sharp distinction between a (hypothesized) human-in-itself and a (hypothesized) technology-in-itself nonsensical.

In closing

An ongoing issue in this chapter has been to discuss the intermingling of technology and its context, whether the context is 'nature', 'the social', 'science' or 'the user'. This has enabled me to introduce the constitutional-articulative perspective on technological action/mediation, and to discuss it briefly in relation to the question of realism. I have indicated that the use of technology should be seen as a way of *making reality*. In this sense, the concept of 'making reality' is a continuation of what was started in the previous chapter. It was there suggested that technologies are involved in the world in a two-fold manner, as an organization of the world, and as a way we (re-)organize the world. In this chapter, I have argued that 'reality', as seen through the constitutional-articulative perspective, indicates that a requirement for us to have a reality at all is that the reality is organized. This is because what counts as reality, for any species, will be perspectival, that is, we do not live in a world objectively; we see and act in the world in a certain way. What this means, is that we relate to the world according to how it is organized through various sets of meaning-structures, and according to the constraints in how we (re-)organize it. This is the sense in which we live in a *lifeworld*. These meanings are made by us, these meanings *are* our world.

Technologies are part of how we structure our world. There are many ways of carving up the world so that it makes sense to us. For instance, we can regard our language as a

[1] Langdon Winner, in conversation. Don Ihde performed a similar but less dramatic experiment, when he asked his students to catalogue and categorize their interactions with technological items during an hour or two. The result was to the same effect, an overwhelming number of encounters of varying dependence. (Ihde 1983:10f)

means of structuring how we perceive the world (Taylor 1985:260), and, as Maurice Merleau-Ponty has pointed out, we influence the appearance of the world by behaving in it. (1962:203) Consequently, the constitutional-articulative perspective does not imply that technology is necessary for there to be a lifeworld – for instance, it can be argued that even animals that use very little or no tools still lives in a lifeworld, that is, have a relation to their surroundings that can be described as being imbued with meaning and not mere causality (Uexküll 1982). But technologies do make up a fundamental place in the web of meanings that make up *our* lifeworld. It would therefore be erroneous to regard the technological impact on our lifeworld as negative, in fact, this aspect is *in itself* positive in the sense that it co-constitutes our lifeworld; it helps us making our lifeworld. However, the technological influence can be negative, of course, and sometimes for reasons relating directly to how the technology organizes the lifeworld. This, again, remind us that how important it is not to regard technology as neutral, but as a lifeworld-organizing tool.

Using technology does not take us away from a mythical authentic, natural state, a state more real than our socio-technological present, technology makes our reality.

chapter three

INTENTIONALITY IN ACTION

Introducing constitution

What constitutes a technological action? What constitutes the technology employed in a technological action? Are these two questions really different questions? In an interactive approach to technological action (cf. Chapter 2), they would, as long as the technological action is seen as being performed by a set of separately defined actors and artefacts. This holds even if the interaction is seen as producing a result that cannot be reduced to either. The outcome of the technological action is in the interactive approach emergent on the specific situation, the technology and the actors. Through the constitutional-articulative perspective, on the other hand, these two questions would be considered as two different ways of asking the same question, the answers represent two perspectives on the same phenomenon. The technology employed in a technological action reflects the co-constitutional relationship between the actors and artefacts, and as such, it can even be said to be a materialization, *an embodiment*, of this interdependence.

What is a technological action? In the previous chapter, this concept was employed as an action carried out through technological means, to be precise, an action mediated by some piece of technology. However, what is the *technological*? 'The technological', as we saw in both Jacques Ellul and Martin Heidegger, is the *meaning of technology*. Although that

definition gives us few or no clues as to which items, or kinds of items, should count as technology, or how various technological artefacts differ in function, scope and impact on society, I will adopt the attitude that there *is* a meaning to technology. That is to say, there is a meaning to technology (in the general sense); technology can be investigated and discussed as a lifeworld phenomenon. Furthermore, it is my opinion that we learn something about specific technologies by working our way towards this general meaning. This was the lesson from the two previous chapters; technology (or technologies – here it does not matter if one chooses the plural or the singular form) is an integral part of how we live in and understand our world (and, as we shall see in later chapters, also an integral part of how we understand ourselves). If the two previous chapters established *that* technology forms a part of our world that exceeds its mere presence, now we need to turn to the actual question of Part 1, what *is* this meaning, what is the meaning of technology?

While the next chapter is a discussion of how the world opens up, is revealed, articulated, in specific ways though technologically mediated actions, the present chapter is mainly about the relation *we* gain to the world *through* technologies. More precisely, this chapter discusses the extent the constitution of subjects (us) and objects (world) is (co-) dependent on technologies. We shall see that a) the constitution of subject and object is mutual, and b) knowledge of objects is grounded in our activity in the world (hence the title of this dissertation). This chapter, then, is an analysis of the first half of the *constitutional*-articulative perspective, that is, the constitution of the totality that acts in technological actions.

Subjectivity | objectivity

There is a specific challenge to raising the question of the meaning of technology. For reasons that are discussed in the two previous chapters, we need to articulate the meaning so that it embraces all the things we would call a technology, but still leaves room for the specifics of each and every technology. Further, even if it is quite broad, the definition should not be empty or tautological; it should teach us something about technology as a phenomenon *and* about specific technologies. We need to strike a balance between technological instrumentalism and determinism. As we have seen, instrumentalism and related approaches to technology that do not recognize material agency is unable to grasp the intermingling of technology, users and society, whereas the so-called opposite view, technological determinism (and Heideggerian essentialism) over-emphasizes the agency of

technology. Both approaches fail, and for the same reasons. "The myth of the Neutral Tool under complete human control and the myth of the Autonomous Destiny that no human can master are symmetrical." (Latour 1999:178) Latour blames *modernity's* prejudice about a subject-object dualism for the myth and the subsequent theoretical *cul-de-sacs* that instrumentalism and determinism represents.[1] Assuming at the outset that objects (nature, society) and subjects (humans) are differentiated in an essential manner means that technological mediation takes on the role of putting subjects and objects together again, in which case the technological item or the action itself is seen as either neutral or all encompassing. Both alternatives are untenable.

What instrumentalism and determinism (and interactive approaches as well) fail to recognize is that there is no such thing as a subject without an object and vice versa; a subject is created *as a subject* in dealings with objects, and an object is only objective in contrast to subjectivity. This implies that what an object or a subject is, is not something *autonomous*, but necessarily depends on 'the other' to be meaningful as an object or a subject. This intermingling can for instance be seen in the relation between a gun and a man. 'Guns don't kill people, people kill people', the right-winged National Rifle Association (NRA) says to defy those who advocate stricter gun control in the USA. The NRA regards the gun as a strictly neutral instrument that does nothing to change latent compulsions of a user. If the user of a gun is a peaceful person, the use of the gun will be for peaceful purposes, but if the user is a criminal, the gun will be used for criminal purposes. The relation of the gun to the gunman and the gun-enhanced action is, in this respect, transparent; the NRA advocates technological instrumentalism. Determinism, on the other hand, seems to be implied in the gun control slogan that instigated NRA's response: 'Guns Kill People'. Who is right? If one regards the object, the gun, and the subject to persist as distinct entities, the description of the relation between subject and object becomes a description of a power struggle. Does man control gun, or does gun control man? Neither.

> You are different with a gun in your hand; the gun is different with you holding it. You are another subject because you hold the gun; the gun is another object because it has entered into a relationship with you. The gun is no longer the gun-in-the-armory or the gun-in-the-drawer or the gun-in-the-pocket, but the gun-in-your-hand, aimed at someone who is screaming. What is true of the subject, of the gunman, is as true of the object, of the gun that is held. (Latour 1999:179f)

[1] The subjectivity-objectivity dualism is palpable in not just the philosophy of technology, but in many fields with the mind-body dualism as perhaps the most notorious version of it. However, this is not the place to go into those.

What Latour proposes is not to eliminate the concepts of subjectivity and objectivity altogether, but to understand them differently, namely as products of a constitutional process, rather than as the condition for such a process. The 'problem' of this way of describing the relation, is that subjects, or objects, no longer can be described as having stable, autonomous essences. Instead, both become temporary entities, dependent on the specifics of their situatedness; a subject is only *this particular subject* in relation to *that particular object*, etc. At first glance, this might be a problem only if one intends to keep the prejudice of the modern alive, that is, to continue to regard subjectivity and objectivity as ontologically separate. However, the situated constitution of subjectivity (and objectivity) raises important issues about traditional notions of *the self*. What is the self, how is it constituted, how should we explain the feeling of being a lasting entity throughout an entire life, a largely static *subject* in dealing with a number of objects (and other subjects) from one situation to another, from one point in life to another, maybe years apart?

The problem of the lasting self will be addressed more fully in Chapters 5 and 6, where I will argue for the intimate relation between self and society in the constitution of the former. I will also argue that the concept of the self is as much about projecting oneself into the future as it is about recollecting oneself from the past. This, finally, will reveal the place for a technologically permeated social world into the concept of the self as the self's possibilities are related to its potential *practical space*. However, that analysis requires that we have already explored the sense in which a subject and object comes together as just that, as subject and object, and for that, we need a constitutional analysis of the concept of *intentionality*, and this is what I set out to do in the present chapter. More precisely, this is done through the *action-oriented* analysis of intentionality inherent in Heidegger's part elaboration, part criticism of Edmund Husserl's *transcendental* analysis of intentionality.

Like Latour, and among a long line of phenomenologists, Heidegger tried to develop an understanding of our existence in a way that sees the subject-object relation *because* of our activities rather than as a presupposition for it. The hammer-example we encountered briefly in Chapter 2 described the relation between equipment and us as far more intermingled than that of the relation between two autonomously defined objects and subjects. Primarily, the equipment-analysis showed an object as appearing as the *kind* of object it is, and *as* an object through our concerned contextual engagement. However, the analysis, as it was introduced in the previous chapter, does not rule out the possibility that the subject in the action is taken for granted, *Descartes-style*, as a presupposition for such an

action to be undertaken at all. Modernist philosopher René Descartes' claim was that it is necessary to establish an absolutely secure ground for knowledge about the objective world, and famously found this ground in the subject, in the *cogito*. (Descartes 1992) Subjectivity, represented by the 'I think', was for Descartes primary, epistemologically preceding all objectivity, ontologically separate from the objective world.

Later on in this chapter, I shall look more closely at Heidegger's equipment-analysis. It becomes apparent that his analysis does not imply primacy of subjectivity. Even the concept with which he denotes the subject, *Dasein*, reflects subjectivity's embeddedness, as we can see in its literal translation: Being-there. I shall not enter into a review of the problems with Descartes' position,[1] but limit myself to one formal dilemma with assuming the primacy of subjectivity: It would be to presume that the subject is somehow able to grasp itself in-itself, as in Descartes 'I think', prior to or beyond its actual existence among objects (and other subjects). If this were the case, subjectivity would depend on a *reflection*. However, a reflective act would imply, first, that to reflect upon oneself is to take oneself as an *object* for reflection, and second, as an object for theoretical consideration *prior* to any practical engagements in-the-world. Leaving aside for the time being how Heidegger explicitly argues against the possibility of the last implication,[2] an important dilemma emerges from the first implication: A subject cannot know itself as a subject without taking oneself as an object. This not only makes our acquaintance with ourselves into an objective *kind* of knowledge,[3] it also turns objectivity into a presupposition for subjectivity. Taking the subject as primary therefore seems to dissolve into taking an object as primary, which would amount to a contradiction in terms, because it is still unavoidably the case that "objects exist only for a subject that does the objectifying." (Heidegger 1988:157) However, how does Heidegger evade the mentioned dilemma? Above all, he does what Latour does; he denies the primacy of either.[4] Then he substantiates the non-primacy by investigating into the ontological conditions for Dasein's existence.

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[1] Such can be found in any textbook on the history of modern philosophy.

[2] As we saw in the previous chapter, Heidegger regards practical engagements as revealing the objectivity of objects, which in turn makes possible theoretical considerations about them. Much more on this later in the present chapter.

[3] More on the problem of this kind of self-theory sometimes referred to as a higher-order theory in Chapters 6 and 7.

[4] Despite Latour's own remarks to the opposite effect (1999:176), Latour and Heidegger have a lot in common when it comes to describing the relation between subject and object, and more general, the constitution of reality. If we look at the 'early' Heidegger of *Being and Time*, this is fairly obvious, but Latour himself dismisses the 'later' Heidegger, of the Technology-article (cf. Chapter 1). However, Søren Riis presents a strong argument for the similarities that also exists between the 'later' Heidegger's thinking about technology and Latour. (Riis 2008)

First, it is important to note that for Heidegger "subject and Object do not coincide with Dasein and the world". (Heidegger 1962:87/60) Rather than saying, as I did above, that Dasein is Heidegger's expression for the subject, a more precise way of explaining the concept of Dasein would be to say that it denotes a 'single human existence', the specific *human* kind of being. This existence, this being, can attain a subjective perspective, but it would only be one dimension of Dasein. Ontologically, Dasein exists first and foremost as Being-in-the-world, as something that is immersed within a totality of things and other Daseins. Existence, *to be*, is the most foundational fact about all beings, and no being exists without existing within the world (or, at least, *a* world). No being, not even Dasein, finds itself somehow outside the world in a position to enter it. Dasein finds itself in the world, or put more precisely, Dasein finds itself *thrown* into the world:

> [Dasein] is not a free-floating self-projection; but its character is determined by thrownness as a fact of the entity which it is; and, so determined, it has in each case already been delivered over to existence, and it constantly so remains… It exists as an entity which has to be as it is and as it can be. (Heidegger 1962:321/276)

Because modern humans are so focused upon the *why* of our existence, it is often forgotten that this thrownness, the that-we-are, is the basic mode, and the basic truth of our lives. The thrownness implicates that we do not exist in-the-world as a being in a relation to the world, the thrownness is more fundamental than that. Had we been in-the-world in the sense of a relationship, it would have been possible to leave and enter this relationship (and therefore also the world) at will. This is not the case. Instead, being-in-the-world is the (ontological) prerequisite for entering into any relationships at all. (Heidegger 1962:84/57) Now, once thrown into the world we do not most primordially find ourselves there as a subject. Neither do we find the world unfolding before our eyes as a predetermined, geometrically defined space; the world as we get to know it is *revealed* through Dasein's concernful engagement in its thrownness (see below, cf. Chapter 2). However, there is an assumption to this: Dasein is able to relate to other things than itself in the world. How is the relation between a subject and an object, or more generally between subjectivity and objectivity, constituted, given that neither is primary?[1]

[1] In the short presentation that this chapter is, there is a danger of obscuring a crucial aspect of Heidegger's Dasein-analysis. 'Being-in-the-world' is not merely an alternative formulation of Latour's situational constitutive relation. Heidegger would have thought of that as being too close in kind to the *spatial relation* of water in a glass. Being-in-the-world is not a spatial relationship, but is the *possibility condition* for Dasein to enter into spatial relations. (Heidegger 1962 §12, cf. 1992:157f) Heidegger's conception of ontological constitution concerns *Being itself* and delves into matters he labels 'existential', which are foundational for both common sense comprehensions and scientific

Intentionality

The concepts of subject and object are often discussed in terms of *intentionality*. Borrowing the concept from his teacher Franz Brentano, who himself revived it from mediaeval Scholasticism, Husserl described intentionality as a fundamental aspect of consciousness. "Intentional experiences have the peculiarity of directing themselves in varying fashion to presented objects… An object is 'referred to' or 'aimed at' in them, and in presentative or judging or other fashion." (Husserl 2001:98) No matter the precise content of our conscious experiences; what objects they are about, how we experience them, or what we think of them; conscious experiences are intentional in the sense of directing themselves to objects. Whenever we just perceive a thing, when we admire or desire it, or when we are judgemental about it, we *intend* the thing. It does not even matter if the thing we intend does not exist; we are still directed towards it. It is through being intentional that consciousness is about objects and the world. In other words, it is through intentionality that consciousness *transcends* itself. A full understanding of the action-oriented analysis of intentionality by Heidegger (which renders possible the full understanding of the co-dependent constitution of subject and object) requires an understanding of his reaction to Husserl's consciousness-oriented analysis of intentionality. Consequently, I will now spend a few pages on Husserl's notion of intentionality in order to be able to connect the concepts of intentionality, action and technology.

It is important to note that, for Husserl, intentionality is not something other than consciousness, something attached to it which consciousness must make use of in order to experience an object or to reach the objective world. As we shall see later, Husserl argues against the view that consciousness has a box-within-a-box structure, where consciousness is filled with 'objects' that we subsequently have certain attitudes towards. As Husserl says, "we do not experience the object and beside it the intentional experience directed upon it". (2001:98) The intentional experience *is* our conscious experience of the object. This way, it would be wrong to say that we first intend an object and then project particular attitudes, such as admiring, judging, hating and desiring – Husserl calls these the

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investigations into the lifeworld. Lifeworld relations, such as water-glass, and Latour's gun-man conception, are 'existentiell' matters and concerns Dasein *ontically*. The complex relation between ontic and ontological, and existentiell and existentiality, is not something I can explore in this chapter. Suffice it to say that methodologically Heidegger stresses the importance of the ontic as a way into the analysis of the ontological, but ontologically he shows ontic relations themselves to be constituted. See Heidegger 1962 §3 and §4, especially p. 33/12f. I, however, will disregard the ontic/ontological distinction in the following, and continue to use 'ontological' in the sense that is has been employed so far. Some of my uses of 'ontological' will probably seem 'ontic' to the Heideggerian.

quality of the intentional acts, towards the intended object. Intentionality is a fundamental structure *of* consciousness and is not something we possess besides being conscious creatures; to study intentionality is to study consciousness itself.[1]

This emerges from Husserl's argumentation against two possible conceptions of how subjects and objects are connected – namely, that the connection should be described as a *relation*, and that conscious experiences are intentional because objects outside the subject *cause* them. If the intentional experience of an object, what Husserl calls an intentional *act*, is happening because we stand in a relation to this object, with the subject as one pole and the object as another pole in the relation, it would be difficult to explain that we are able to think of non-existing entities such as the Greek god Zeus, nymphs or unicorns. Likewise, although it initially might seem plausible to say that the presence of a beautiful car causes our admiration of it, non-existing or absent entities can hardly be said to cause anything like an intentional experience. The relational and the causal views also presuppose that the subject and the object enter (and leave) this relation, causal or otherwise, as pre- and independently defined entities. We have already seen some reasons to reject views that have this as consequence.

Another reason why Husserl dismisses the relational and the causal view is the fundamental difference in how the object is thought of intentionally and how it is given in perception. While the object is perceived through a perspective, that is, it shows itself partially, with hidden sides, in a dim light that tones down some of its particular features, or as broken (for instance, a chair with the seat missing), and so on. Intentionally, the object is not like that; it is intended as a complete and full object. In fact, it is because we know that the perceived object is not as we perceive it; that it does have a backside and an underside; that it is a broken object of *this* sort and not a new kind of object of *that* sort, that we are able to say that the partially perceived object is an object of a particular sort. When I walk around a car, the car presents itself perceptually different from moment to moment. First, I might have the bonnet, the headlights and the windscreen right in front of me, then I will walk past the side doors, and after that, I will face the back of the car. Now the bonnet, the headlights, the windscreen, and the side doors are completely or partly hidden. Had the relational or the causal view been accepted, the intentional object

[1] There are several differences in how Brentano and Husserl use the term. For instance, Brentano regards all conscious experience as intentional, whereas Husserl excludes such experiences as pain, anxiety and pleasure from intentional experiences. (Husserl 2001:109ff) In addition, on Husserl's view, Brentano made the mistake of regarding conscious contents as *phenomena* in their own right, that is, as objects in consciousness. (Husserl 2001:97ff).

would have had to be identical to the object as it is perceived. The front view, the side view and the back view would then have appeared as three different objects (if *objects* at all). Intentionally, however, it is not like that; I walk around the *same* car; I perceive the *same* object but from different angles. There is a very simple reason for this, namely, we do not see our perceptions; we see things. (Husserl 2001:99,104)

Husserl substantiates this with two distinctions, one concerning the content of our intentional acts and the other concerning the independence of the intentional object. First, in our intentional acts, there are two kinds of content; on the one hand, we have the *reellen* (real) content, which he also refers to as the phenomenological content, on the other hand, there is the intentional content proper. The second distinction emerges when we analyse the intentional content, and is between "*the object as it is intended* and the *object* […] *which* is intended". (Husserl 2001:113) Concerning the first distinction, it can be expressed as the difference between the subjective, temporal experience of the intentional act and the objective reference of the act. The difference between a non-intentional and an intentional experience, can exemplify the *reellen* content. A feeling of pain, or of anxiety, will not be directed towards an object, but is a conscious experience, that is, an experience with a sensuous content. This content is *reellen*, but is not intentional. It is stretched out in time, that is, it is a temporal occurrence, which is subjectively experienced. In an intentional act, seeing an SUV at a car dealer's lot for instance, we will have both a *reellen* and intentional content. If I look at the car, close my eyes, and open them to look at it again, the *reellen* content of my intentional act has changed; it is a new occurrence, in the sense that seeing the car anew involves a new complex of sensations, temporarily and subjectively different from the previous one.[1] However, the intentional content (unless I change my attitude to the car) will not have changed.

There is a very good reason to distinguish between the *reellen* and the intentional content, namely that the *reellen* is immanent to the act.

> [*I*]*mmanent contents*, which belong to the real make-up (*reellen Bestande*) of the intentional experiences, are *not intentional*: they constitute the act, provide necessary *points d'appui* which renders possible an intention, but are not themselves intended. (Husserl 2001:99)

The intentional content, on the other hand, transcends the act itself; it involves aspects and features that cannot be immanent to the act.[2] This becomes clear from Husserl's

[1] I owe this example to Dan Zahavi.

[2] In the case of non-existing objects one could be induced to think that they are a part of the immanent content since they do not exist in the world, but a unicorn is as much a transcendental object as an SUV. *Non-existence makes no*

treatment of the distinction between the object as it is intended and the object that is intended.

This distinction emerges when we look into the difference between an intentional act's matter and quality. That is to say, the intentional object is independent both of how it appears in the intentional act, the *matter* of the intentional act, and of the attitude, the *quality*, we have towards it. For instance, the matter can vary without a corresponding change in intentional object or quality of the act. I can see an SUV and dislike it for its pollutive properties regardless of how the car itself appears. I can see it approaching through my rear-view mirror, I can see it shining new in a car lot or dirty and wrecked in a breaker's yard, I can see it vaguely through a mist, or I can walk around it, without changing how I think about it. The same applies if I perceive a car through changing light conditions. I might first recognize an object as an SUV through a very dim light and come to think of what I feel about this kind of cars. The light might then brighten up so that it reveals more and more details of the particular car up until the point where I see it lucidly. Throughout this sequence, the car appears differently in my intentional act, but not because of the object – the car itself – has changed, and not because I change my attitude towards it, but because the intentional content has a certain *matter* that is an outcome of the particularities of the situation in which I perceive the intentional object.[1]

In addition, the independence of the intentional object surfaces if we vary the quality of the intentional act. For instance, my politico-ethical dislike of SUV's might change into a guilty pleasure once I get to drive one and experience the overview of the traffic it affords; a shift in the intentional quality does of course not imply a change in intentional object. The quality of the intentional act can change even if I keep the act's matter the same; upon looking at an SUV through a retailer's window, I can first just perceive it, then I can admire it, then I might wish I had a car like that, and finally, I can decide that I do not want one after all. Throughout this sequence, the matter of the intentional act is constant, but the meaning of the intentional act changes because I change my attitude

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difference to the intentional structure, but concerns truth-conditions, which are not part of the analysis of intentionality. (Husserl 2001:99, 126f)

[1] An exception here is when changing conditions of how an object is perceived reveals the object as something else than one first had interpreted it to be. Husserl has an elaborate analysis of how intentions are fulfilled, and how fulfilment of intentions sometimes leads us over into new objects. (See Husserl 2001, the entire first section of Sixth Investigation) This does not concern directly the structure of the intentional act, between the intentional consciousness and the intentional object, so I will not enter that discussion.

towards the intentional object, the quality of the act.[1] In general, intentional objects can figure in a number of qualitatively different intentional acts; I can merely think of Husserl's *Logical Investigations*, I can read it, I can be frustrated about its impenetrable content, or I can admire the many phenomenological analysis contained in it. The object that is intended can figure in intentional acts that differ in respect of both matter and quality and will as such be different *objects-as-intended*. The intentional object itself, however, is not to be equated or identified with this content.[2] (Husserl 2001:113)

It is important, though, to realize that what has just been said does not imply that we first intend an object, in the sense of representing it mentally, and then intend our attitudes towards *it*. The intentional object, the object that transcends the immanent content, is not a mental representation. We are directed towards an object, but this object is not something we will find inside our consciousness. There are several reasons for the denial of a representational theory of intentionality. For instance, upon discussing the *image-theory* of perception, Husserl points out that for something to be a representation it must be constituted as such by a consciousness. Mere similarity between two phenomena does not make one a representation of the other; there is nothing intrinsic in a phenomenon that makes it a representation. Being a representation is not a characteristic like being red or spherical. (Husserl 2001:125) A representational relation is not a causal relation, it is a *meant* relation; it cannot be established by mere perception. As such, it requires a consciousness that interprets (or designs) the connection as representational. This means that two objects *must be intentionally given* in order for one of them to be taken as a representation of the other. Explaining the intentional object as being a representation therefore involves a vicious circle.

Further, a representational theory of intentionality implies that we, *in order to be intentional*, are not directed towards the object outside us but towards an occurrence in perceptual consciousness; an object representing it inside. In this case, intentionality, to avoid the vicious circle, is postulated as an additional level in consciousness (the box-within-box structure mentioned earlier). On this level, we shall be able to 'compare' the object in perceptual consciousness with the object outside consciousness, and determine whether it

[1] The combination of the act's matter and quality makes up what Husserl calls the *intentional essence*. The *meaning* of the act, however, is due to the act's *semantic essence*, which in some cases can be different from the intentional essence. (Husserl 2001:122f) Since I am trying to identify the intentional object, I will not go further into that distinction.

[2] If it had, the intentional object would have been a subjective intentional *construct*.

is sufficiently similar (as an image or as a code) to be intentionally established as a representation. However, how is the object established as an intentional object on *that* level? To avoid yet another vicious circle, we are compelled to postulate yet another level, taking the previous level as *its* object, and so on, in which case we have an infinite regress. (Husserl 2001:126)

Apart from the formal problem this involves, it also points us toward another reason why we should dismiss the thought of the intentional object as a representation, namely that it is totally at odds with the phenomenology of our intentional experiences. This is again a repudiation of the thought of intentionality as a (causal) relation between two poles in experience, a subject and an object. Besides the reasons we saw earlier for not accepting this thought, it is phenomenologically evident that we do not experience our activities in the way described above:

> [W]e simply 'live in' the act in question, become absorbed, e.g., in the perceptual 'taking in' of some event happening before us, in some play of fancy, in reading a story, in carrying out a mathematical proof etc. (Husserl 2001:100)

There is then, no phenomenological evidence that we experience the world mediated by immanent representations. Experientially, we are immersed in our activities, directed towards the world. The objects of our intentional acts are the objects themselves, as they are in-the-world.[1] Thinking the intentional object as a representation is not based on experience. Instead, Husserl claims, it is grounded in reflection.

The consequence of claiming that the intentional object is a representation comes down to giving primacy to the subject, and then wondering, as Descartes did, if and how subjective experience can transcend the immanent subjective sphere and reach out and contain truth about the world as it is. Instead, intentionality is the capacity of the conscious subject to relate to the world. In this sense, intentionality is a more fundamental aspect of human consciousness than the kind of self-reflection that enabled Descartes to question the validity of his perceptions. According to Husserl, Descartes failed to analyse the intentional foundation of his own reflections:

> In our *description* relation to an experiencing ego is inescapable, but the experience described is not itself an experiential complex having the ego-presentation as its part. We perform the description after an objectifying act of reflection, in which reflection on the ego is combined with reflection on the experienced act to yield a relational act, in which the ego appears as itself related to its act's object through its act. Plainly an essential descriptive

[1] Needless to add, this is not to say that we can only be conscious of existing objects or of objects in our vicinity.

> change has occurred. The original act is no longer simply there, we no longer live in it, but we attend to it and pass judgement on it. (Husserl 2001:101)[1]

Husserl's analysis of intentionality shows that the world is 'brought before' the intentional consciousness prior to our reflections upon (and question the validity of) the contents of our thoughts. Intentionality, therefore, is the key concept to understand how we are in-the-world, and is for Husserl a way of avoiding the sceptical problems arising from Descartes' analysis, and through it, the deadlock of modern dualistic philosophy.[2]

The question of the *being* of the intentional object

Husserl's theory of intentionality, however, according to Heidegger, remains within the limits of the subjectivist tradition of Cartesian philosophy, and consequently retains the primacy of the subject.[3] The main reason for this is that Husserl's analysis primarily is an investigation into how objects 'show themselves' for a consciousness, and addresses the relation of cognitive acts, such as knowing, believing, admiring and judging, to the intentional object in the sense of a *perceived* object. Consciousness then appears as the 'place' where the intentional object is constituted.

Heidegger follows Husserl in holding that it is only for a consciousness anything like an object shows itself *in its objectivity*, and therefore broadly embraces the concepts and distinctions in Husserl's analysis. (Heidegger 1988:55-67, 1992:27-47) However, there is, in Heidegger's opinion, an obvious shortcoming in performing the analysis of intentionality in perceptual terms, namely that "to be perceived is only a characteristic of a being that has to do with its being apprehended; it is not the determination of the being's being-in-itself". (Heidegger 1988:112) Even if the intentionality of our conscious experiences demonstrates the transcendence of the intentional object, and as such enables Husserl to shrug off accusations of scepticism, the being of the intentional object, its *existence* and its *how* of this existence, is not established through the theory of

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[1] Husserl changed his view on the ego soon after *Logical Investigations* [1900-01], saying for instance in a note to the second edition [1913] that an analysis of intentionality "can be systematically explored without taking up any stance on the ego-issue." (Husserl 2001:93) However, he did not change the argument contained in the quote above, that reflection on our own experiences is a fundamentally different act from *living* our experiences (and that the former act presupposes the latter).

[2] In the later work, *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy* [1913], Husserl elaborates his theory of intentionality. He introduces some new terms, but overall the concept of intentionality is as described here. However, an ambiguous use of the term *Noema* has given rise to considerably different interpretations concerning the status and nature of the intentional object. For an overview of this discussion, see Drummond 1997.

[3] Heidegger can sometimes be a tad biased when criticising Husserl, but as his criticism is important for the understanding of Heidegger himself, I will for most part take Heidegger's interpretations at face value. See Crowell 2001 and Overgaard 2004 for a more critical view of Heidegger's interpretations of Husserl.

intentionality; merely its constitution as a *perceived* object. Furthermore, investigating into the being of the intentional will reveal another, still more basic question about being itself, being-as-such. Failing the former will lead to a distorted account of the latter. For Heidegger, this dual *neglect* gives Husserl's account of being-as-such an element of idealism, which he finds highly unsatisfactory.[1]

The way Heidegger sees it, this problem is more palpable in Husserl's later treatments of intentionality, for instance in *Ideas*. Here Husserl builds his investigation upon the *phenomenological reduction*, which consists of three distinct 'movements'. First, there is the *epoché*, the methodological 'bracketing' of assumptions and theories of existence in the purpose of relating only to what is presented in consciousness as it is presented. Then there are the two reductions, the *transcendental reduction*, which we perform when we lead the investigation back (*Re-ducere* is Latin for 'leading back') from the intentional object to the structures of intentionality that are effective in regular world-immersed conscious experiences, but which we are not thematically aware of. Finally, there is the *eidetic reduction*, which is done by turning from an intentional object's particularities to focus on its *eidos*, its essence, "the What of an individuum".[2] (Husserl 1982:8/10) Heidegger's claim is that the methodology of the phenomenological reduction prevents an opening up to what he perceives as the more fundamental issue, namely the being of the intentional object and the consciousness where it purportedly manifests itself.

Heidegger points to two basic problems in this regard. First, the reduction involves a deliberate turning away from the more fundamental question:

> In its methodological sense as a disregarding…the reduction is in principle inappropriate for determining the being of consciousness positively. The sense of the reduction involves precisely giving up the ground upon which alone the question of the intentional could be based. (Heidegger 1992:109)

Even if Husserl's phenomenological analysis starts with an acknowledgement of the mode of being in the world among other beings in the world; existence in the so-called *natural attitude*, it deliberately and methodologically "seeks to arrive at…pure consciousness". (Heidegger 1992:109) The explicit purpose of the phenomenological reduction is to analyse consciousness itself, as it is in itself regardless of the state or the being of the

[1] In the lecture course from 1927, Heidegger says, "to this very day I am unaware of any infallible decision according to which idealism is false." (1988:167) Nevertheless, in light of his own investigations, he finds it 'untenable.'

[2] Husserl employed the basic idea behind the phenomenological reduction in the earlier treatment as well, but not consistently and never in an explicitly methodological way (Husserl 1982:140/117). The *epoché*, should not really be viewed as a part of the phenomenological reduction, but as a preliminary step towards the reductions proper.

world, without positing anything about the world that is other to consciousness. Also, through the eidetic reduction, to disregard concrete and individual consciousness and instead focus on consciousness as *pure*, that is, as universal and 'empty' of content; "the essence, the ideal being of lived experiences". (Heidegger 1992:103) However, being rather perceptive, Husserl makes several remarks to counter criticism to the effect that the reduction should involve an elimination of the existence and being of the world, and 'changing all the world into a subjective illusion'. A more careful reading, Husserl says, will reveal that the reduction "take[s] nothing away from the fully valid being of the world as the all of realities, just as nothing is taken away from the fully valid geometrical being of the square by denying that the square is round". (Husserl 1982:129/106-7) In fact, the opposite is the case; the main objective of the phenomenological reduction is precisely to arrive at a firm understanding of the being of the world.

For Husserl, the necessity of this methodology is a consequence of the analysis of intentionality (although not something he discovered until after the publication of *Logical Investigations*). We saw above that there is a 'discrepancy' between how an object is given to experience and how we perceive, think of and experience it. We perceive an object, but given to us is only the side of the object facing us; we always see the object from a specific perspective but experience it as a complete, full object. Further, we cannot equate the intentional object with how it appears *as-perceived*; the intentional object has a value, a meaning; a belonging to something that transcends the object as it is given in experience. Consequently, it becomes necessary to make a distinction between the object (or, the world) as we obtain it experientially and the 'contribution' of consciousness intentionally, given that it is consciousness that 'connects' the particular object with its *eidos*, and accordingly, that it is through consciousness that the world *is* for us. What happened after his initial treatment of intentionality in *Logical Investigations* was that Husserl came to realize that it was only by investigating into pure consciousness that we would be able to understand the constitution of the intentional object. And this, he found, could only be undertaken through the phenomenological reduction.

However, this does not suggest that the phenomenological reduction primarily is an attempt to describe the structures of consciousness, in a quasi-Kantian manner. As mentioned, the main purpose is to clarify the constitution of the objective *world*. In intentional experience, we get to know the world as it is constituted for us, but the

moments in the constitutional process transcend what we have access to in the natural attitude.

> Reality is not in itself something absolute which becomes tied secondarily to something else; rather, in the absolute sense, it is nothing at all; it has no 'absolute essence' whatever; it has the essentiality of something which, of necessity, is *only* intentional, *only* an object of consciousness, something presented in the manner peculiar to consciousness, something apparent <as apparent>. (Husserl 1982:113/94)

Things just are; they do not have, or live in or through essences as such. Things in the world come to be and vanish without the question of essence occurring. The question of a thing's essence can only make sense for a consciousness, and consequently, the essence is only obtainable for a consciousness. (Husserl 1982:129/106f) The mere bracketing of the world is not sufficient in this regard, and to clarify the constitution of the world, that is, to access reality's 'absolute essence', we must turn away from the particularities of the transcendental attitude and lead our way back to the essences of the intentional objects. Eventually, it will be shown, for short, that all intentional objects belong to the same ontological region; they have the same basic being; the being of the transcendent. Consciousness, on the other hand, where this transcendence becomes manifested, therefore has a different kind of being. However, one cannot reach the primordial level of transcendent being without undergoing the reduction, the analysis of pure consciousness.

> [T]his most radical of all ontological distinctions – being *as consciousness* and being as something which becomes '*manifested*' in consciousness, 'transcendent' being… can be attained in its purity and appreciated only by the method of the phenomenological reduction. (Husserl 1982:171/141-2)

Heidegger does acknowledge that the exposition of being might be the *rationale* behind Husserl's methodology (Heidegger 1982:109), but remains doubtful about Husserl's conclusion. Is the phenomenological reduction really the proper methodological way to proceed to arrive at 'the most radical of all ontological distinctions' of being? Moreover, is this distinction valid? It is clear from the second basic problem he raises that Heidegger answers both these questions negatively. Husserl's exclusive focus on the *what* of the intentional object, that is, through his investigations into essence, he disregards the question of the existence of the intentional object, and it is because of this he ends up with what Heidegger regards as a misguided ontological distinction.

> When I determine the *essentia*, the essence of [for instance] color and sound, I disregard their *existentia*, their particular individuation, whether the color is the color of a thing, in this or that illumination. I look only at what pertains to every color as color, regardless of whether it exists or not. I disregard its existence, and so all the more the essence of its existence. (Heidegger 1992:110)

Through the phenomenological reduction one attains the essence of a thing's what, but fails to grasp the essence of a thing's being as an existing thing, in its how or why in the actual world. Aron Gurwitsch, who attended lectures by and was greatly influenced by Husserl, also mentions that the ontological question of existence is not taken up and discussed in the constitutive phenomenology that Husserl presents in *Ideas*. Gurwitsch points out that this is due to the inherent limitation in the focus of the methodology, namely on consciousness as constitutive of objects (or, more generally, objectivity).

> On its [constitutive phenomenology] grounds, no ontological inquiry is to be pursued directly, but only, so to speak, in an oblique manner. Whatever ontological results are attained, they are obtained as by-products, though much desired and searched for, of investigations bearing upon and concerned with conscious life. In fact, if consciousness is recognized as the universal and only medium of access to whatever exists, there is no longer the possibility of approaching being and existence directly and immediately. (Gurwitsch 1961:627)[1]

In this sense, we are faced with a paradox in Husserl's constitutive investigations: Despite the deliberate turning away from the question of existence throughout the entire phenomenological reduction, one somehow ends up with a radical distinction that posits two essential forms of existence, that is, two kinds of being. Disregarding existence implies that one assumes that a thing's 'what' is not affected by the thing in its concrete existence, which in turn presupposes that "the entity which is intentional must be originally given, that is, it must be originally experienced in its manner of being". (Heidegger 1992:110) Only if this is the case, can there be no problem in taking the thing's 'what' as the source of the phenomenological reduction. In other words, there should be no discrepancies concerning the intentional object's essence as it presents itself in the natural attitude and in consciousness after the *epoché*; only then is the bracketing legitimate.

It is evident that Husserl presupposes this; we miss nothing essential in bracketing assumptions of existence, quite on the contrary, only then can we approach the essential. The natural attitude, as Husserl describes it, is there when we are "conscious of a world endlessly spread out in space, endlessly becoming and having become in time". (Husserl 1982:51/48) It is there when we are among things and other subjects and 'know' these things and subjects – "a 'knowing of them' which involves no conceptual thinking". (Husserl 1982:52/49) The natural attitude is the basis for all sorts of conceptual thinking,

[1] It was only later, with the development of the genetic phenomenology from the late 1920's, that Husserl discussed existence more directly. (Gurwitsch 1961:629)

including scientific and philosophical thinking, and the phenomenological reduction. It is a pre-theoretical state; it is characterized by our relating to things in a non-theoretical way.

At least, that is how Husserl argues. Heidegger, on the other hand, finds the description of the natural attitude misleading. Although Husserl is right in calling our stance towards other things an *attitude*, in the sense that it clearly involves a stance towards other things, it is not natural, nor can it be said to be primary or authentic. Quite the opposite, the way Husserl describes the natural attitude is that of a theoretical stance, in the sense that

> it must first be derived from natural comportment, from the natural way of experience; one must so to speak 'place oneself into' this way of considering things (and so assume an attitude toward them) in order to experience in this manner. (Heidegger 1992:113)

The manner in which we experience things from the natural attitude as it is described by Husserl is that of putting ourselves opposite another thing, another entity as "a lawfully regulated flow of occurrences in the spatio-temporal exteriority of the world". (Heidegger 1992:113) Experiencing things in this manner implies a) an *a priori* assumption of a subject and an object standing opposite each other entering a relation, and b) that the object is *a priori* assumed to be, and is approached as, a well-defined object, an object in its *what*. In so doing, Husserl takes as his starting point a way of relating to entities that presupposes a more basic way of being. Consequently, he fails to notice that the so-called non-conceptual knowledge of the natural attitude involves a pre-understanding. Moreover, this pre-understanding, Heidegger argues, is of a kind where the question of an object's actual existence is anything but trivial.

Heidegger concludes that by performing the analysis of intentionality on the backdrop of the reductions, which itself is preceded by the perceptually founded account of the natural attitude, Husserl cuts himself off from grasping the being of the intentional. Looking away from existence at the outset results in a misconception of the true sense of being-as-such that is riddled with some quasi-Cartesian problems:

> How is it at all possible that this sphere of…pure consciousness, which is supposed to be separated from every transcendence by an absolute gulf, is at the same time united with reality in the unity as a real human being, who himself occurs as a real object in the world? How is it at all possible that lived experiences constitute an absolute and pure region of being and at the same time occur in the transcendence of the world? (Heidegger 1992:101)

Heidegger himself attempts to avoid this 'absolute gulf' in how he conceives Dasein's self-understanding. According to Heidegger, "we understand ourselves and our existence by way of the activities we pursue and the things we take care of. We understand ourselves by starting from them because the Dasein finds itself primarily in things."

(1988:159) We discover ourselves, not by turning back on ourselves and reflecting on our conscious experiences, but because our selves are *reflected back* to us from our daily dealings with the things that are surrounding us. Subjectivity (and, as I will discuss shortly, objectivity) emerges from this engagement with things. Because of this, intentionality as it is conceived by Husserl – the subjective holding of an object (in its what) – pre-supposes this way of being-alongside objects. A fuller criticism of the basis of Husserl's understanding of intentionality, therefore, involves the analysis of our being-in-the-world and of the being of the entities that we encounter in our surroundings.[1]

Readiness-to-hand

According to Heidegger, then, Husserl's phenomenological reduction presupposes that we in the natural attitude encounter things in their *what*. To encounter a thing in its *what* means that we grasp what it is that distinguishes it as the thing it is. Which, in turn, demands a kind of reflection where the thing is considered isolated in form from other things, things that it itself is not. However, as I mentioned in the previous chapter, this is not the primordial manner in which we encounter entities. Instead, we encounter them as they are linked up to other entities in an equipmental totality. More precisely, we meet them, in a non-reflective manner, as indistinguishable from this totality. This means that, as an integral part of this totality, entities appear in their *readiness-to-hand*, as items for certain kinds of use *within* the totality, for instance, the item we would call a nail is connected to (the item we would call) the hammer through its to-be-hammered-on. In general, readiness-to-hand alludes to certain characteristics of the entity, characteristics that belong to the entity in virtue of its in-order-to: "serviceability, conduciveness, usability, manipulability". (Heidegger 1962:97/68) Readiness-to-hand, Heidegger claims, precedes all our contemplations on what kind of entity it is. In fact, the kind of understanding of an entity we gain through encountering it in its readiness-to-hand is crucial for our understanding of the entity's *what*.[2]

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[1] Founding intentionality in existence and especially in the dealings with things meant for Husserl that Heidegger never stepped out of the natural attitude and because of this his account was limited by the prejudices inherent in that attitude. However, whether Husserl is right in this rebuttal, falls outside the scope and motive behind the discussion on intentionality in the present context.

[2] Readiness-to-hand is not necessarily prior in the sense of a time sequence where we first encounter readiness-to-hand, and then, after having become acquainted with an entity's presence-at-hand, only relate to it as presence-at-hand. Nor does it signify that we are only able to relate to a thing in its presence-at-hand when we master it in its readiness-to-hand. While doing his job, a carpenter, although being perfectly well acquainted with the hammer in its presence-at-hand is nevertheless caught up in the job at hand, and then, as long as the job is coming along fine without interruptions, relates to the hammer *as* readiness-to-hand. The question of primordiality concerns the *manner*

Considering the *what* of an entity means encountering the entity in its *presence-at-hand*. As mentioned in Chapter 2, readiness-to-hand and presence-at-hand are not properties belonging to entities, they are two different kinds of being in which entities exist. That is, they are two different ways we can approach an entity (because we, Dasein, are the only being for whom being is an issue). The question for Heidegger, then, is what kind of approach is the primordial, approaching an entity in its presence-at-hand or in its readiness-to-hand.[1] While readiness-to-hand is elaborately described in *Being and Time*, presence-at-hand is not, and the concept has been met with claims of being somewhat ill defined and ambiguously used. (Soffer 1999:382, Overgaard 2004:174) Heidegger principally presents presence-at-hand as the kind of being which shows itself when the totality in which the readiness-to-hand is in breaks down. (Heidegger 1962:103f/73f) An entity in its readiness-to-hand is fundamentally connected to other entities (in their readiness-to-hand), but also to Dasein's engagement and interest in what the entity can do in light of the contextual, or equipmental, totality. When I pick up a hammer in order to drive a nail into the living room wall with the purpose of hanging a painting on the wall, the use of the hammer is connected not only to the rest of the equipment but is also fundamentally connected to the overall project of mine. In our existence, we are constantly engaged in various projects; therefore our interest in various types of equipment is a concerned interest; we approach them for what they can do in whatever project we are involved in right now.

An entity in its presence-of-hand, on the other hand, is just there, as it occurs detached from other things and from the concerned interest of Dasein, for instance, the hammer as it appears in the toolbox or on the shelf of the hardware store. Presence-at-hand is the entity regarded in a purely objective way, as a thing in its own right. As such, it steps out of the equipmental totality, and acts as raw material for values, meaning, and theoretical relations and definitions. It is the entity understood as a purely material thing, a thing of nature, contemplated in its *thinghood* rather than in its connectedness in a practical totality; the result of an analysis of what makes it a thing capable of an autonomous existence,

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of being of presence-at-hand, which presupposes the manner of being of readiness-to-hand; readiness-to-hand is in this sense *ontological prior* to presence-at-hand, but as we will see below, the first encounter of an entity is of its readiness-to-hand.

[1] Saying that readiness-to-hand and presence-at-hand are two different approaches is a grave simplification on the verge of misrepresentation. It is doubtless that the concepts alludes to two kinds the being of the *things themselves*, but for the question of how we intentionally encounter objects, I believe it accentuates the difference between readiness-to-hand and presence-at-hand quite well. (Heidegger 1962:101/71)

detached from other equipmental things in *their* presence-at-hand. In other words, we encounter a thing in its presence-at-hand when we relate to the entity as a mere occurring phenomenon in front of us. It is also the thing seen in the present, in its present state, as it occurs temporarily *right now*. (Heidegger 1992:194f) Or perhaps just as correct, as it never exists. The temporal aspect is important, because things in their present is not how we principally encounter things – our projects are not only stretched out horizontally and spatially (the equipmental totality) but are in their nature also extended vertically and temporally. Given then, that the thing was approached principally as an indistinguishable part of an equipmental totality and as a part of an ongoing concerned project, the thing in its present-at-hand, as it is perceived in its thinghood, is *an abstraction*, in a double manner, from our original or primordial encounter with it.[1] To access the thing in its presence-at-hand, we must 'freeze' time and 'tear' the thing out of the context that made us aware of the thing in the first place.

Indeed, the perceiving of a thing in the natural attitude as Husserl describes it seems to be as presence-at-hand. He even speaks of perception as being of that which is "*simply there for me, 'on-hand'*". (Husserl 1982:51/48) This does not mean, of course, that Husserl does not recognize that things are connected to other things in practical relations or to us as things of value. In fact, he is quite explicit that when we perceive things in the natural attitude, we perceive them as having both value and practical characteristics.

> [The] world is there for me not only as a world of mere things, but also with the same immediacy as a *world of objects with values, a world of goods, a practical world*. I simply find the physical things in front of me furnished not only with merely material determinations but also with value-characteristics, as beautiful and ugly, pleasant and unpleasant, agreeable and disagreeable, and the like. Immediately, physical things stand there as Objects of use, the 'table' with its 'books', the 'drinking glass', 'the vase' the 'piano', etc. These value-characteristics and practical characteristics also belong *constitutively to the Objects 'on hand' as Objects*, regardless of whether or not I turn to such characteristics. (Husserl 1982:53/50)[2]

[1] Ultimately, both the intentional being and the intentional object require timeliness for both Husserl and Heidegger. However, these are different although kindred conceptions of temporality. (Dahlstrom 2001:149-160)

[2] Related, Husserl points out that we never perceive objects in total isolation from other objects, a book is perceived as lying on the table, which is perceived as being in a room, etc. His concept of *horizon* involves both the sides of an object that are out of view, and other entities. (Husserl 2001:104, 1982:51f/48ff) What these have in common, for Husserl, is that we understand the object on the background of the horizontal structure. However, Husserl's concept of horizon seems to indicate that an object is singled out as something other than the rest objects in its horizon, and for Heidegger this would mean that objects in a horizon are posited in their presence-at-hand. Consequently, the relation of object and its horizon in Husserl appears as that of a spatial relation rather than in Heidegger's sense of a totality of practical meanings. (Boedeker Jr. 2001:72) See Welton 2000 (Part III) and Overgaard 2004 (109-117) for a different and more nuanced interpretation of Husserl's concept of horizon.

The question is, how do we go from the object, as it is perceived 'on-hand' to the practical (and value-) characteristics? The explanation Husserl offers here is that these characteristics appear 'immediately' in the perception, that is, that they are co-perceived with the thing itself. However, for Heidegger, precisely this presents the problems with Husserl's approach. Recall the quote from the previous chapter: "No matter how sharply we just *look* at the 'outward appearance' of Things… we cannot discover anything ready-to-hand." (Heidegger 1962:98/69) We will not be able to grasp the specific 'hammering' characteristics of an entity such as a hammer if we only approach it as an occurring thing. Seeing an object, and recognizing it as something-to-be-hammered-with, presupposes familiarity of contexts in which it can be put to use, and in these the object is 'visible' in its readiness-to-hand. Let us, for the sake of the argument, imagine a person seeing a hammer for the first time, and having no previous knowledge of any 'hammering contexts'. This person would approach the entity as a mere object, and therefore have no understanding of what it is that makes this the thing it is, namely a hammer.[1] He will not be able to tell what it is that characterizes it as a hammering thing unless he becomes acquainted with a hammering context, in which it can show itself in its ready-to-hand. Explaining to the person what this thing we call a hammer *is* consists in showing or telling how the hammer is put to use in a hammering context (which also requires pointing out other entities' readiness-to-hand to explain their usefulness in the same context).

We can now pose a slightly rhetorical question: Is the hammer *in its what* dependent upon the hammer in practical use, in its readiness-to-hand? If one is compelled to answer yes to this question, one cannot accept that acquaintance with things is founded merely on how they are perceived as occurring objects. It then also becomes difficult, or quite simply impossible, to hold that the question of existence can be bracketed in the investigation of a thing's being. This argument is supported by recognizing that the context in which a piece of equipment belongs is not constituted by the sum total of the specific pieces of instruments (in their *what*) that are contained in it; what pieces of equipment that belongs to a context is constituted by the context itself. This is evident from examples regarding tools such as hammers and nails, of course, but we get the same idea from considering things that are not commonly seen as tools, for instance a wall:

[1] This way of saying it is not entirely precise from a Heideggerian point of view. The hammer-ignorant would probably recognize it as an item that could be used for something, i.e. as a piece of equipment, rather than a mere object (Heidegger 1988:304, cf. 2002:60f) Readiness-to-hand should not be understood to imply that we cannot perceive any entity without first being familiar with the entity's specific *function*.

> The *functionality contexture* is not a relational whole in the sense of a product that emerges only from the conjoint occurrence of a number of things. The functionality whole, narrower or broader – room, house, neighbourhood, town, city – is the prius, within which specific beings, as beings of this or that character are as they are and exhibit themselves correspondingly. If we are actually thinking the wall, what is given beforehand, even if not apprehended thematically, is living room, drawing room, house. A specific functionality whole is *pre*-understood. (Heidegger 1988:164, cf. 1962:97f/68f)

We cannot think of the equipmental whole as something that is the sum of its part, the totality of things *in their presence-at-hand.* (Heidegger 1988:166) Instead, to investigate the being of things, we need to take their equipmental character, the referring to, and from, other pieces of equipment as the starting point. 'Referring' should be read carefully here, though. The referring necessarily involved in things' usefulness cannot involve a relation between entities in their presence-at-hand, but appears from the entities' usefulness, their readiness-to-hand: "the references are precisely the *involvements* [*Wobei*] in which the concernful occupation dwells". (Heidegger 1992:187) Given that the totality is precisely what is toned down, or removed from the entity in its presence-at-hand, investigation into the being of a thing requires taking its actual existence as the basis for the investigation. Consequently, we can conclude that the '*whatness* of the beings confronting us every day is defined by their equipmental character". (Heidegger 1988:304) But how, exactly, does presence-at-hand emerge from the prior mode of readiness-to-hand? This is the question we now must turn to.

Intentionality in action

What we primarily intend when we are caught up in the handling of equipment is not the instruments themselves, but the overall task we are engulfed in. The task is primary in the sense that it is the reason why we pick up the specific tools, but it is also primary for the reason that the tools that are put to use are *concealed* in the task. This relates to the understanding of readiness-to-hand in an important way, because it makes the primacy of the totality to the particularities of each instrument (in their presence-at-hand) to emerge more intelligibly. As mentioned, it is through readiness-to-hand that instruments form part of a totality. In the process of hanging a painting on the wall, my principal focus is not on the hammer, or the nail. For one thing, it is not because I have a hammer and a nail that I suddenly find myself in the project of hanging a painting on the wall. In the sense that I *do* intend the hammer, it is because it is perfect for driving the nail into the wall, and as such, an entity that enables me to reach my goal. However, there is another

sense in which the employed equipment is not in focus. In the actual hammering of the nail, the hammer steps into the background. In Heidegger's expression, it "withdraws". (1962:99/69). Instead of focusing on the tool itself (the hammer), my attention is directed at the activity of hammering the nail. My focal point is the nail, while the hammer takes on a signification on par with my arm; it becomes as transparent as the arm itself. When this is the case, I am as comfortable swinging the hammer as I am with swinging my arm. Actually, this seems to be a prerequisite of performing well. If I instead had been thematically aware of the hammer, more occupied with the act of swinging it than of the nail, I would probably not have performed the task itself, the hammering of the nail, very well. In these cases, the tool does not disappear functionally, of course; the hammer still involves the referring, its in-order-to, to the context that makes it stand out as an object suitable for hammering (cf. Chapter 2).

In its normal use, then, the hammer itself is not thematized, the attention goes 'through' it. In this sense, there is no phenomenological difference in how our arm is attached to my body and the way the hammer is attached to the arm. If it had not been for the pain it could just as well have been my arm I used to hit the nail. Thematically, it is just as 'lost' as the arm itself. However, when the hammer is unable to function the way it is supposed to, for instance, if the handle comes loose or breaks, our attention turns to the hammer, and it is thematized as a thing of its own. The hammer no longer shows itself in its usability, but in its *conspicuousness*; it stands out and becomes visible as a thing in itself. Of course, the un-usability of the hammer is only comprehensible from the point of view of the equipmental totality; its un-usability is not a judgement made from its presence-at-hand, as an occurring thing. (Heidegger 1962:102/73) It is only by holding it up against a totality that we can say it is broken. Having lost its function presupposes that it had a function, a usability in the first place.

Furthermore, when the hammer is misplaced or missing, it also appears to us as visible and singular, something that should have been here, in this project, right now. At this moment, the whole project grinds to a halt, and turns into presence-at-hand, as just occurring: "When we notice what is un-ready-to-hand, that which is ready-to-hand enters the mode of *obtrusiveness*." (Heidegger 1962:103/73) It is therefore not just the equipment that breaks down; it is the totality of equipment (and the project, which also, in the act of being carried out, is in a mode of readiness-to-hand). Sometimes we may encounter a piece of equipment that is unsuited for the task, for instance, if I was about to hammer

the nail into the wall and suddenly realized that what I held between my fingers was a screw, not a nail. The screw, although being ready-to-hand in a different project, appears to us as *obstinate*. It is disturbing, it is a thing that stands in the way for our original project, and requires us to attend to something else before we can proceed with the project (to go and look for a nail, to put the screw back to where it belongs, etc). It therefore calls attention to itself, in its *thinghood*.

What happens in the cases of *conspicuousness*, *obtrusiveness*, and *obstinacy* is that we go from an involved practical handling of a *tool* to a 'disinterested' attitude towards the broken, misplaced or redundant *thing*; we need to find out what it is that prevents us from performing the task. While the practical handling presents us with the entity in its readiness-to-hand, the disinterested attitude takes as its source the entity in its presence-at-hand. The primordial context-of-use disappears, and the hammer itself as a thing in-itself comes into sight. We take on a *theoretical* attitude towards the equipment, the context and our project, and ask ourselves, what has broken down, what has to be done to get the project back up and running, and so on.

However, we soon realise that what announces itself when we turn from readiness-to-hand to presence-to-hand is not something new; it has been there all along. It is, of course, not the case that the entity changes from one thing to another when it goes from its presence-to-hand to its readiness-to-hand. Instead, we become aware of the thing in an explicit manner. "The context is lit up, not as something never seen before, but as a totality constantly sighted beforehand in circumspection." (Heidegger 1962:105/75) This makes sense, of course, because to say that something does not work or is unsuited, requires a certain kind of pre-understanding.

> When something within the world is encountered in the character of being 'obstructive,' 'in the way,' that is, lying in the way of concern, this '*it doesn't belong here*' is possible only on the basis of the specific presence of the world as a fixed, familiar totality of references. There can be something like a not-belonging-here only against the background of a primary familiarity, which itself is not conscious and intended but is rather present in this unprominent way. (Heidegger 1992:188-9)

In other words, the kind of knowledge of a thing in its presence-at-hand is a 'reworking' of the kind of understanding we have when we are caught up in some project or another. We should therefore not think of encounters of readiness-to-hand implying some sort of blind or mechanical behaviour. "Action", Heidegger says, "has *its own* kind of sight". (1962:99/69)

By way of a summary, we have now seen how the intentional holding of a thing in its *what* presupposes the primordial readiness-to-hand manner of being. Furthermore, the characteristics of the thing's *what* are, in the terminology introduced in the previous chapter, an *articulation* of the kind of understanding that manifests itself in the encounters of the thing in its readiness-to-hand. The criticism of Husserl's theory of intentionality (or more precisely, of the conviction of the later Husserl that intentionality must be investigated by bracketing assumptions of actual existence) amounts to an exposing of the pre-understanding of being that is manifested in our intentional states. Not only when we admire, or judge, or condemn a thing do we manifest this pre-understanding, but also in the mere perception of something *as-something* do we in a vital manner lean on a pre-existing relation to this thing, namely as part of the equipmental totality we primordially direct ourselves toward. What is 'lit up' by the turn to presence-at-hand, the entity in its objectivity, as a singular, autonomous object in-the-world, already presupposes the unconcealment of *a* world that is due to our encounter with readiness-to-hand.

Ultimately, all this, intentionality, presence-at-hand, and our orientation towards readiness-to-hand, leads back the specific kind of being-in-the-world that we live in, i.e. which belongs to Dasein. As mentioned in Chapter 2, according to Heidegger, we are in-the-world in a mode of *concern*. We do not discover ourselves before or outside our actual existence in-the-world in which case we could have entered the world 'at free will'. We are always already in-the-world, and as such find ourselves alongside other subjects and things; existence implies co-existence. However, we never are *per ce* in-the-world, in our existence we are always caught up in specific manners of being, characterized by certain ways of acting in our surroundings.

> Dasein's facticity is such that its Being-in-the-world has always dispersed itself or even split up into definitive ways of Being-in… having to do with something, producing something, attending to something and looking after it, making use of something, giving something up and letting it go, undertaking, accomplishing, evincing, interrogating, considering, discussing, determining… All these ways of Being-in have *concern* as their kind of being. (Heidegger 1962:83/56-7)

Because of the mode of concern, we are in-the-world with a basic assumption that entities in the world have to do with our ongoing occupations. In this sense, we display a pre-understanding of their being – *pre*-understanding because is it is indifferent to the specific usefulness of the entities. "Our understanding of being is indifferent but is at any time *differentiable*." (Heidegger 1988:176) Through this undifferentiated pre-understanding, a

world is revealed. This unconcealment, this *having a world*, in turn is the framework condition for differentiated structures of meanings within the world.[1]

The concernful constitution of Dasein, then, implies that we are fundamentally directed toward the world before the world is thematized (and differentiated) as objective in the intentional sense. It is in this sense that Heidegger holds that intentionality does not constitute the subject-object relation, but that intentionality is itself constituted by the co-existence of the concernful Dasein. However, as this is not an *intentional* relation, it is not yet a *subject-object* relation. To grasp this properly, it is necessary to rethink the concept of transcendence. As we saw, Husserl's ontological distinction posits the being of the transcendent as opposed to the being of the immanent, with consciousness and subjectivity as belonging to the latter. Heidegger's claim that we discover ourselves in dealings with things, on the other hand, implies that the radical ontological distinction is false because Dasein, subjectivity, is itself primordially transcendent, 'out there', in-the-world before it is an immanent conscious 'fact', before it is the characteristic of self-consciousness.

> When Dasein directs itself towards something and grasps it, it does not somehow first get out of an inner sphere in which it has been proximally encapsulated, but its primary kind of Being is such that it is always 'outside' alongside entities which it encounters and which belongs to a world already discovered… even in this 'Being-outside' alongside the object, Dasein is still 'inside', if we understand this in the correct sense; that is to say, it is itself 'inside' as a Being-in-the-world which knows. (1962:89/62, cf. 1988:162)

Contrary to Husserl, then, who held that the transcendent intentional object is constituted by a subject's intentional directedness towards it, the result of the existential investigation of Heidegger is that "*[t]ranscendence* is a *fundamental determination of the ontological structure of the Dasein*". (Heidegger 1988:162)

What does this mean for the concept of subjectivity? In its concernful constitution, Dasein is not in-the-world in an explicit self-conscious sense, as a *what*, disconnected from 'other' entities, but is tangled up, and with, them. Are we then 'blindly' in the world, groping our way through our surroundings? Is our primordial existence on a par with that of a rock (or a hammer)? No, there *is* a difference between a human existence and the being of other kinds of beings. As Heidegger often mentions, Dasein is the only being for whom being is a question; therefore, we do not attain the being of entities in our

[1] The concerned being-in, which belongs to the temporal-ontological structure of care, is the cornerstone of *Being and Time*, and should have been discussed and argued for much more thoroughly. However, for the task of this chapter, this brief presentation will have to do.

surroundings. In our concern we are attentive to readiness-to-hand, but are not ourselves ready-to-hand.[1] Dasein *has* a world, we have a pre-understanding of the being of other beings; other beings are not capable of such a pre-understanding, and do for that reason not have a world.

However, this does not imply that Dasein pre-exists as a subjectivity outside or beyond the world, and then directs itself towards readiness-to-hand. "Dasein… knows about itself without explicit reflection in the sense of an inner perception bent back on itself but in the manner of finding itself in things." (Heidegger 1988:171) We do not discover ourselves prior to our concernful being-in-the-world, we discover ourselves because of, and through, our concernful being-in-the-world. Dasein, *as a self*, only emerges within the world, from engaging with the things of the world. Dasein understands itself in terms of its possibilities related to the things that surround it, in terms of what it can do with them. Explicating the Dasein-self, therefore, involves taking it out of its ordinary entanglement, explicating it out of its realm of action, yet the nature of the explicit Dasein-self is dependent upon this entanglement.[2]

To emphasize it once again, *existence* cannot be bracketed when subjectivity and self-consciousness are investigated. As Heidegger sums up his own investigations:

> We cannot define the Dasein's ontological constitution with the aid of self-consciousness, but, to the contrary, we have to clarify the diverse possibilities of self-understanding by way of an adequately clarified structure of existence. (Heidegger 1988:174)

Notions of the 'external' dependence and constitution of the self are common not just in phenomenological literature (which, contrary to what one might think from the previous paragraphs, includes Husserl, see Zahavi 1999, Overgaard 2004), but from other approaches to the self as well. I shall not pursue the question of the constitution of self and subjectivity any further here, but shall return to it in Part 2. The discussion on intentionality has explicated how objects and objectivity emerge from our (technological) actions as beings-in-the-world. As Dasein, we reveal the world in a certain way, through

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[1] Another very important analysis in this connection, but which can only be mentioned briefly here, is that of Dasein in its everyday existence among other Dasein's (not among other Dasein's seen *as* subjects, of course). Ontological prior to Dasein's explication of itself as a subject, is its existence as indistinguishable from *das Man* (the *they*). "The Self of everyday Dasein is the *they-self*… As they-self the particular Dasein has been *dispersed* into the 'they', and must find itself. This dispersal characterizes the 'subject' of that kind of Being which we know as concernful absorption in the world we encounter as closest to us." (Heidegger 1962:167/129) More on the *They* below, in Chapter 6.

[2] A question that naturally follows is, What is the nature of this explicated self? Is it object-like, discovered in a form of reflection? Alternatively, is it a form of *selfhood* that accompanies intentional acts? (Zahavi 2006:83f) This thematic will be pursued in Chapters 6 and 7.

our dealings with the things in our (and their) surroundings. The unconcealed world is then lit up and made explicit by the turn to presence-at-hand. The intentional relation between a subject and an object is for this reason constituted by Dasein's transcendence, Dasein's being-in-the-world, and Dasein's technological actions in-the-world.[1]

In closing

In what way has the co-constitution of subject and object been enlightened throughout this chapter? And how does this relate to the question of technological actions, the main topic in this chapter? First, the primacy of both subject and object has been rejected. We would not be able to pose the question 'Is there a world of objects outside ourselves (our mind)' had we not already in some sense presupposed that there is. Asking about objects is asking about something possessing the property of objectivity, that is, about something that we ourselves are not. However, had we not had such a conception 'always already' everything would only be 'me' – we would not be able to differentiate between others and myself. Moreover, I would then not be able to conceptualize a *me* either, because a me presupposes something that me is not.

Without the foundation of a theory of intentionality, conceptualizing subject and object as co-dependent rapidly dissolves into a subject-relativism that is at odds with the phenomenology of being a self: I experience myself as being the same person when I am holding a shotgun having just fired three shots at a passing car and when I am holding my fork eating my dinner. The analysis of intentionality has therefore been necessary to explicate what it means for a *subject* to be constituted differently from one technological action to another; why are *we* able to take on a different meaning when meeting different objects? Without a subject at 'the bottom', so to speak, there can be no co-dependence. What we think of as the subject of a technological action exceeds that of a mere result of the preceding object-encounter of the actor. Although we are coloured by, learn from, our object-encounters, and as such assimilate aspects of our object-experiences into our

[1] Heidegger does not discuss the concept of technology in the period around the publication of *Being and Time*, but, as we have seen, equipment, items as they afford usability and manipulability. Although the concepts of equipment and technology are more different than one should think from the words alone, I regard the congruent points between the 'early' and the 'late' Heidegger, most notably the *revealing* that belongs to both equipment and technology, as more important. However, there is one significant difference worth mentioning: While the technological action analysed in *Being and Time* makes the object appear as the object it is, the introduction of *Gestell* as the 'governor' of technological action has the consequence that the object disappears as the object it is; the object is reduced to *Bestand*. As I asserted in Chapter 1, it is possible to accept Heidegger's analysis of revealing, and still reject the analysis of the *nature* of technology's concealment. In the following chapter, an investigation into revealing, it will be clear what that statement really means.

selves, we are not wholly absorbed by the situational constituted subject-object constellation. The dynamics in the relation between actor(s), materiality and context presupposed in the concept of articulation requires a *kernel of selfhood* to substantiate the actor's contribution to the articulation. However, this does not imply the primacy of subjectivity, as the investigation into the action-oriented concept of intentionality has exposed. The non-primacy of the self is explored further in Chapters 5 and 6.

Through the co-constitution of subject and object, the basic sense of technological actions is displayed. Without much talk about technology as such (this will be done in the following chapter), we have seen that our basic being in the world is that of concernful action; action that is more often than not augmented by equipment, and always oriented towards one's surroundings *as* equipment. I have explored the fundamentals in the how's and the why's of our outlook at the world. How we intend the world is fundamentally not in terms of being a subject standing opposed to scattered objects; subjectivity against objectivity. Because of our concernful being-in-the-world, we become visible to ourselves as subjects, and things in the world become visible as objects. In this sense, technologically mediated actions become essential in the understanding we have not only of the world – how we perceive and understand the world, so to speak, but also for the understanding of ourselves; *what we are is inextricably tangled up in what we do*. Moreover, and this will be explored in depth in Chapter 6, since our self-understanding is connected to what we do, what we are capable of doing, our self-understanding consequently expand when our practical space expand.

In the following chapter, the *materiality of technologies* will be in focus: *How* does the world open up for us, *how does our practical space, our possible space of action, expand* because of our involvement of technologies? As we have seen in this chapter, concernful action is always an opening of the world, but it is also an opening of the world *in specific ways*, a thought that was introduced in Chapter 2. Investigating the specific technological world-revealing more fully follows up on, but require a step beyond, the 'mere' opening of the world elaborated in the present chapter. The overall aim of this study is to expose technology's role in the expansion of our practical space, and now we are prepared to tackle that question more explicitly.

chapter four

THE REVEALING-CONCEALING STRUCTURE

Technology and action

Through Heidegger's treatment of readiness-to-hand (cf. Chapter 3), we saw how technological actions reveal a world – a world that is originally (in the ontological sense) met as a totality, but that subsequently can be differentiated into occurring *things* (entities in their presence-at-hand), and thematized as things in-themselves. As clearly demarcated things, these entities figure in various theoretical settings (for instance, hypotheses about causal connections between *things*), in explicit knowledge and understanding. But, as we saw, this knowledge is of the world as it already is unconcealed by readiness-to-hand. It is the entities in their readiness-to-hand that 'carve out' the world in such a way that entities are connected through their functions. Readiness-to-hand, then, is the presupposition for a thing to gain its meaning as a singular thing. The argument was that we would not be able to say *what* a thing is unless we know something about a) what it is useful for, and b) how it is related to (and therefore differs in function within a totality from) other things.

Revealing a world in this manner is the basic sense of 'technological action,' since the way we see the world is to a large degree reliant on the equipment we use in this world (and increasingly so, on our growing dependence on various forms of technologies). However, the investigations of the previous chapter are better regarded as explicating the meaning

of *action* rather than the meaning of technology. For one thing, readiness-to-hand *as the being of beings that are not Dasein* is ontologically linked to our own conduct; the concernfulness we display in our being-in-the-world. The tool-analysis of Heidegger is primarily about *being*, and not about things. Second, to define the meaning of technology, we need to approach technological items in their *what*. Having discovered the foundation of things' 'what' is not yet an *explication* of their 'what,' their meaning. Thirdly, we need to move beyond the preferred examples of Heidegger, hand-tools like hammers and such, and see if we can approach modern technologies like machines, assembly lines and modern digital communication technologies in the same manner.

Heidegger's own attempt at going from equipment to more complex technologies ended in the dystopian essentialism we encountered in Chapter 1, where he described our relation to (modern) technological items as subordinate because they expose us to the *Gestell* and technological thinking. Technology and technological actions, in 'the later' Heidegger's view, meant not just *a* revealing of the world, but also an all-encompassing unconcealment in the sense that we become blind to other possible unconcealments, other possible ways of being-in-the-world, because of it. This, in turn, meant that technology represents a negative take-over of truth and meaning. Dismissing this view only means dismissing a particular assumption about the human-technology relationship in the unconcealed world ('we are subordinate to technology"); it does not require us to dismiss the basic sense of technological actions as revealing. In other words, accepting that technological actions involve a specific revealing of the world does not commit us to the Heideggerian brand of technological essentialism. In arguing how technology reveals the world, the present chapter will deal with technology in a more direct manner than the previous. Against this backdrop, exploring technology's meaning means asking questions like, what does it mean that technologies enable us to expand our practical space, and what is it about the technologies themselves that enable us to do this, or more specifically, in what sense do technologies co-constitute articulations.

The body extension thesis

As we saw in the previous chapter, in its primordial state, in its readiness-to-hand, the hammer becomes transparent. When we use a hammer skilfully we focus on the task, we 'see through' the hammer in much the same way we 'see through' our arm when we pick something up to scrutinize it. In such situations, we do not need to think explicitly how to

operate our arm and neither does the skilful hammerer when operating the hammer; the hammer is thematically and reflectively as transparent as the arm itself. Furthermore, the energy gained by swinging our arm is transmitted from the arm and gets its release in the blow of the hammer. This suggests that the hammer, *when in use as a technological artefact*, can be conceptualized as an extension of our arm.[1] Is this the sense – as an extension – that the tool, the hammer, makes it possible for us to extend our bodily range of actions, and through it, our entire practical space? Totally different objects like an axe, a pen, a cup, a microscope and a bicycle seem to fit this description straightforwardly – these are all artefacts that makes it possible for us to do chores that would be harder or even impossible with normal bodily abilities as sight, hearing, strength etc. Moreover, although the use of such artefacts as the sewing machine, the stone crusher, the mill, and the car is not as close to our bodily characteristics as the hammer or the axe, they still embody the aspect of extending our bodily range, and thereby our space of possible actions.

We can regard technological objects as extending practical space in several ways. (Mitcham 1994:176f) The hammer, for instance, enlarges the 'natural' power of our body. The use of it depends on us initiating a certain force that is channelled and augmented through the use of the hammer. Binoculars and the optical telescope provide an enlarged image of a distant phenomenon. The use of these items is dependent on our vision, but enhances our 'seeing power', and effectively brings the phenomenon itself closer to us so it can be seen as plainly as if we had been in the close vicinities of it ourselves. Both the hammer and the telescope, and also the car and the sewing machine can be seen as enlarging already existing abilities of a single person. Technologies and humans can in these instances, be said to compose what James K. Feibleman calls 'an organ-artifact circuit'. This circuit is not restricted to hand-tools.

> The stove is an external stomach, and cooking is a form of pre-digestion, reducing intractable foods to assimilable form and making possible the consumption of hard fibers which could not otherwise be eaten. Libraries are external memory banks; they contain more information than any single human brain could manage. Computers are external minds; they calculate faster than mathematicians and manipulate abstract thought with great skill and accuracy. Motor cars and airplanes are external muscles; they provide external movement more efficiently than legs. (Feibleman 1979:39)

[1] Another famous example of the transparency of tools is found in Maurice Merleau-Ponty's writings on how a blind man is not so much conscious of his cane as of the world encountered through the tip of the cane. For Merleau-Ponty, our body image is not a representation, but presents itself to us through our moving around in-the-world – it is, so to speak, thrown back at us from the world as it is revealed in our movements. Consequently, since the cane is critical in revealing the world, it is comprehended as a part of our body. It is 'a bodily auxiliary'. (Merleau-Ponty 1962:152, cf. 143)

Feibleman's expression is in accordance with other conceptualizations of tools and technology as extensions of the body, or of something that normally is seen as being inside or part of the body itself. Ernst Kapp (1877), for instance, regarded tools as *Organ-Projektions* both in a direct manner (as the hammer to the hand) and in an analogous way (as the camera lens to the eye, the railroad to the body's circulatory system, or a machine to the interworkings of the body). (Mitcham 1994:24,176, Krogh 1998:20f) Kapp also found morphological similarities between technological artefacts and bodily aspects, although such similarities will usually be discovered after the fact, and is not necessarily designed.

> The bent finger becomes a hook, the hollow of the hand a bowl; in the sword, spear, oar, shovel, rake, plow and spade one observes sundry positions of arm, hand, and fingers, the adaptation of which to hunting, fishing, gardening and field tools is readily available. (Kapp 1877, quoted in and translated by Mitcham 1994:24)

From Kapp and Feibleman we can formulate a body extension thesis as regards the human-technology relation: *Body extension is the primordial relation to technology*. That is, body extension is the *original meaning* of technological items, which means that this relation is retained in other forms of technology that do not function as conspicuously extensions as hammers or binoculars do. If that is the case, body extension, in some way or another, must be an essential element of the meaning of technology. However, in what follows, I shall argue that this thesis has some serious shortcomings that necessitate a different conceptualization of the primordial relation we have to technology. The crux of this argumentation is that *extension* is not a proper description of how technologies expand our practical space.

It seems to me that the body extension thesis fits well with a common sense conception of tool use (which is why I want to explore its usefulness in investigating the meaning of technology). It also lies behind the design of many new technologies, especially of new electronic gadgets (Clark 2003), although factors like 'better', 'faster', 'cheaper', and 'more powerful' are also important in this regard. (Norman 1998) Similar views of the basic relation between humans and technology are often encountered in discussions of technology. Arnold Gehlen (1980), for instance, thought the human body to be so frail and vulnerable, and so limited in natural instincts and abilities that we (as opposed to animals) need tools not only to strengthen us, but also as *organ substitutions* to survive in nature. Alfred J. Lotka (1956) coined the term *exosomatic organs* to describe tools that are

external to the body but connect to and augment our *endosomatic organs*, his term for arms, eyes, ears, and so on.[1]

The digital revolution and research in Artificial Intelligence have raised hopes for the perfect merging of man and technology (man-machine), both in terms of a physical merging (cyborgs), and as extensions of the body, primarily of the brain. Bertram C. Brookes expresses this when he adopts Lotka's term for the claim that computers can function as exosomatic brains "whose 'memory' and processing capacities can be increased indefinitely". (Brookes 1975:47) Gregory Newby claims that ideally, an exosomatic memory system should function as a transparent extension of our inherent mnemonic capacities, "so that finding information would seem the same as remembering it to the human user". (Newby 2001:1029) The only difference, of course, is that as extended with this kind of technology our memory would be immensely larger, just like our arm becomes immensely stronger with a hammer in hand. Brookes (and Newby) has a certain affinity to a tradition in Artificial Intelligence that thinks computers and artificial processing of information should be designed and developed as extensions and augmentations of natural human intelligence, rather than as a foreign (to brain and mind) kind of intelligence. (Ashby 1952, Engelbart 1962) This tradition, working within what has been called *the augmentationist framework* (Skagestad 1993), led to, among other things, the development of the personal computer, the PC.[2]

Brookes and Newby might also have been inspired by Marshall McLuhan, who claimed that while our bodies became extended in the mechanical age, and our central nervous system in the electric technologies from the late 19th century and onwards, we are now about to "approach the final phase of the extensions of man – the technological simulation of consciousness, when the creative process of knowing will be collectively and corporately extended to the whole of human society". (McLuhan 2001:3) Through our technologies, man has become, "an organism that now wears its brain outside his

[1] Karl R. Popper has also employed this term. He considered myths, ideas and theories as being "[l]ike tools… organs evolving outside our skins. They are exosomatic artifacts." (Popper 1972:286) However, Popper's application of 'exosomatic' is not as an extension of the human body; the concept of organ is primarily employed as an analogy. The exosomatic artefacts are the content of a World 3, with the physical world, i.e. the world of causal interactions, as World 1 and subjective experiences belong to a World 2. (Popper 1972:74) In claiming there is separate exosomatic evolution in World 3, Popper's theory is comparable to Richard Dawkins' idea about the evolution of *memes*, the social counterpart to genes, which is similar to but disconnected from the evolution in the natural world. (Dawkins 1989)

[2] The digital revolution and AI have, perhaps more than any technological innovation preceding them, led to a tremendous blooming of research into various kinds of man-machine couplings, many of which could be conceptualized as body-extending technologies. (Clark 2003)

skull and its nerves outside its hide". (McLuhan 2001:63, cf. 384f, cf. McLuhan 1962:32) Both our body and our mind are 'out there', in the world, through the technologies with which we have colonized it. Through media technologies, which are what occupies McLuhan, the human kind can connect and perform collectively to reach new levels of competence and enlightenment that would be impossible if we had stayed isolated subjects, i.e. without technology.

McLuhan's notion of the 'final phase', combined with his celebrated concept of 'the Global Village', which alludes to the new social organization that comes about as a result of the distribution of various media technologies,[1] (McLuhan 1962) have also inspired some Web-enthusiasts who hope that the Internet will permit us to 'leave our bodies' behind and conduct our lives entirely in cyberspace. The idea is that the cyber-technology enables us to transcend the limits of our embodied existence, so that we can live, as pure consciousnesses, in a hitherto not seen freedom. Often we also can find musings about the possibility of equality and equal distribution of rights and opportunities that seem impossible to gain in the physical world. As one enthusiast says, "virtual bullets cannot kill". (Barlow 1998)[2] This semi-Platonic perspective; existence as *conscious* existence, might seem to invert the original thesis about *body*-extension, but, in fact, the fulfilment of this utopian dream is dependent on body-extending technologies to take care of all the unpleasant tasks that are required for us to survive, in the bodily sense. We need to be hooked up to the physical world in a way that our body can take care of itself, while we (whatever we can be said to be without bodies) live our lives in cyberspace. According to Barlow, attending to the needs of our body is the reason why our mind has not realized the freedom it has an inherent possibility to attain.

Extending the body of single persons, however, is not the only way to conceptualize technologies as extending human bodily abilities. A contraption such as the pile driver, for instance, collects and focuses the power and abilities of several humans, enabling them to perform actions that they would not be able to perform collectively without the pile driver. The pile driver places "at human disposal energies that human beings do not otherwise possess". (Mitcham 1994:177) This is the case with many technologies that are

[1] Perhaps it would be better to label it an 'old' social organization, as McLuhan thinks that media technologies make people relate to each other globally in a manner that resembles how people related to each other in the village structure of the world before the rise of national states and economies. More on this in Chapter 7.

[2] For a critical review of this kind of web enthusiasm, see Dreyfus 2001.

based on classical mechanics. Other technologies translate data. For instance, the electron telescope translates sub-light wave data into visible information as if it was an optical telescope picking up this information. Technologies for visualizing and translation, also found in medicine, for instance, are quite different in form from the hammer and the axe, but can still be regarded as extending our bodily abilities as they enable our eyes to see things that otherwise would remain unseen from the 'normal' human perspective. Technologies like these, in their conceptualization, depend on human abilities, on the human way of life, the human way of operating in our surroundings, and can for that reason be seen as extensions of our body; they are their function by being adapted to how humans apprehend and comprehend their surroundings. This is basic enough; all kinds of technology must be adapted to a sphere of human usefulness to enter a realm of praxis, a car must be designed so that people are able to fit into it, and a printer must print readable types, etc. However, as mentioned, there are some problems connected to our understanding of technology if we are to take the body extension thesis as foundational in our relation to technology.

The closeness of body and technology

The common thought about the extension of the body (or, at least, of human abilities) is that this manner of relating to tools, artefacts, or natural objects such as rocks and sticks, is the original relation we have to tools. Complex systems of tools and modern technology are in turn regarded as a prolongation of the original relation; different in form, but not in kind, as in Edward T. Hall's telling statement, "[t]he evolution of weapons begins with the teeth and the fist and ends with the atom bomb". (1959:79) Although it historically is likely to be the case that our first relations to tools were of this *close* kind, the extension-approach does not have the power to illuminate and conceptualize the role technology plays in our experience of technology and, more generally, in our existence. We shall have to look beyond historical precedence to find a more fundamental aspect of technology and technology-use.

As we saw in Chapter 1, most writers on technology acknowledge that something more than mere development was involved in the transition from earlier kinds of technology to modern technology, exemplified by Ellul's 'Machine'. However, the body extension thesis cuts across this division, as many modern and hypermodern technologies can be categorized as body extensions, as we have just seen. But what about the 'Machine' itself,

the sheer symbol of the possible alienation by technology, can it be conceptualized as an extension of the body? And if so, in what sense? To explore this, we need to take a look at the evolution in the relation we have towards technologies, from pre-modern to modern technologies. Is there a common thread to be found?

Arnold Gehlen claims that there are two aspects to the development in the human-technology relation, a) the replacement of organic materials with artificial ones, and b) the replacement of organic energy with non-organic energy. (1980:5f) While the former is a basic feature of tool-use as is reflected in the classifications of human cultural development (Stone Age, Iron Age, Bronze Age), the latter is, for Gehlen, the characteristic of modern technological artefacts.[1]

> As long as wood remained the most significant fuel material, and the work of domestic animals the most important source of energy, the advance of material culture, and thus ultimately population growth, met a *limit* of a nontechnical kind that rested upon the slow tempo of organic growth and reproduction. By building hydroelectric power stations and by gaining control over nuclear energy, man has freed his energy supplies from the limitations of the renewal of organic substances. (Gehlen 1980:6)

Carl Mitcham also points to two lines that can be traced in the evolution of human-technology relations, a) like Gehlen, the immediate source of energy, and b) the immediate source of guidance. While hand tools are controlled by, and have as their prime source of energy, individuals, there is a gradual shift via groups of people to a situation where modern devices are guided by mechanical or electrical controls – in Gehlen's terms this is the stage of automation – and where the sources of energy are artificially generated in an abstracted form.

> Tools are first of all hand tools, then machines that require energy input from groups of laborers (as with galley slaves rowing a ship) or animals (a team of oxen pulling a mouldboard plow) or the readily accessible motions of nature (wind caught by the sail). External input undergoes further transmutation with the development of, first, the heat engine (steam engine, internal combustion engine), then electricity, to drive a mechanical prime mover. The power of the steam engine exponentially exceeds any previous energy source; electricity takes such powers into realms of scientific and conceptual abstraction. (Mitcham 1994:185)

There seems, then, to have been a gradual development away from a functional closeness of man and technology, to a situation where technology has attained a certain degree of functional autonomy. This was discussed in Chapter 1, as well, where it was questioned whether this indicates that technology comes with, or has developed, an essence of its

[1] Are we now entering a Bio Age? Biotechnology marks a technological development where body extensions can be non-organic. Artificially produced may still be organic, however, as seen in the cultivation of replacement ears.

own that is at odds with the human way of life. What I am interested in looking at now, on the other hand, is what this degree of autonomy means for the thesis of body extension.

For Gehlen at least (Mitcham does not touch on this), modern technologies still comply with the body extension thesis. In tools, we *objectify* bodily characteristics and actions. Man, he says, "'objectifies' his own labor. Hence the tool. The stone is a representation of the fist." (1980:18) Objectification requires a third aspect (besides strengthening and substitution) in Gehlen's version of the body extension thesis, called *facilitation techniques*, which are actions dealing with a technology so that it relieves the burden upon our body. (Gehlen 1980:3) Because of the shift from organic to non-organic sources of energy, there is a gradual development where (some of) the objects of our objectifications become automated. This happens when "the system does not vary in its operation according to commands imparted from outside, but rather under the influence of the results of those operations themselves". (Gehlen 1980:21) The main drive behind objectification is that "'objectification of human labor into the tool makes it evident that a lesser effort can achieve greater results". (Gehlen 1980:18)

The crucial question for Gehlen concerning the relation between the body and technology is, then: Is technology there to facilitate bodily human existence? If it is, then technology is still a form of body extension, an objectification of a bodily action. Although quite different in build and in its function as energy supplier compared to pre-modern technological artefacts (cf. Chapter 1),[1] modern artefacts are nonetheless related to our requirements. Gehlen finds the transition into a *new kind of thinking* more definitive for the step into modern technology than the material artefacts themselves. More precisely, he sees this transition in connection with the growth of modern experimental science and "the contemporary emergence of the capitalist mode of production". (Gehlen 1980:9) Contrary to Jacques Ellul, Gehlen sees the modern technological system as being caused by politico-economic factors, and not the other way around, as Ellul wants it (cf. Chapter 1). Dealing with modern technology, therefore, means dealing with how we associate with and interact, scientifically and politico-economically, with technology.

Although they do not correspond as well with the body extension thesis as hand tools and modern mind extending information technologies, it is possible to regard machines as

[1] And in the phenomenology of use, both concerning their *feel* and in our control over them. (Mitcham 1994:178f)

extensions in the sense that they are substitutions for work that could have been performed by individuals or groups of persons. However, there are technologies that in my opinion do not sit with the thesis *at all*. For instance, is there a sense in which duvets and blankets extend our body? These are technologies that have been developed from sheep furs etc that humans have used to stay warm, and which can be seen as strengthening and supporting our own bodily shortcoming in keeping warm. What about the pillow - is it an extension of our arm? Maybe. But what about the alarm clock, or clocks in general, or even the hourglass – do such contraptions extend or strengthen any shortcomings with the human body? A lamp helps us read, but would it not be better to regard it as an extension of the sun than of our eyes; is there any bodily aspect that can be said to be extended (or substituted) through artificial sources of light? And what about the football, the basketball or ice hockey puck?

Langdon Winner (Chapter 1) pointed out that around technologies socio-political systems emerge to keep the technological artefacts going, and as such, these systems should be regarded as belonging to the technologies. For instance, an important part of the improvement of the Norwegian road system in recent years has been the construction of tunnels. In what sense is a tunnel an extension of our body? Even if we see the car itself as an extension of our legs (which is possible only in an abstracted manner), what about the car factory, of what is that an extension? Or should we, as opposed to Winner, regard the factory as a mere assembly of machines (each of which, as Kapp would say, is analogous to the workings of the whole body)? Furthermore, what about web-based communication technologies like Instant Messaging? Even if the Internet itself can be characterized as an extension of our mind, appearing as a collective mind, in McLuhan's words, what about computer programs? Is Instant Messaging an extension of our mouth, or of our arms? Some of these technologies are based on technologies that more easily fit the description of being extensions of the body. For instance, MSN can be seen as both the continuance of the telephone (extension of the ear), and of the pen (extension of the hand).

Experientially speaking, a transparent technology is more easily considered an extension of the body than an opaque technology. As we saw above, transparent technologies allow us to focus through it and directly on the task. The use of the piece of technology is as effortless as using the body itself, and in such cases, there is virtually no phenomenological difference between the body and the technology. However, Gehlen

and others also include other manners of relating to the ways of the body in their conceptualization of the extension thesis. An opaque technology is a technology that cannot be effortlessly employed, regardless how well we learn to handle it. Heavy-duty equipment, old computers running on MS-DOS and shoes that are too tight will never attain the degree of transparency that inspired the body extension thesis. But, as we saw, opaque technologies can still be regarded as retaining an augmenting or substituting relation to the body and its workings. However, we must ask, how far removed from the workings and functions of the actual body should we allow a technology to be and still be described as an extension? 'Smart' bombs have evolved from axes and spears (or even from teeth and fists, if we follow Hall), but should they for that reason still be conceptualized as extending our bodily capacities?

The main problem with the body extension thesis

Possibly, one can develop arguments both for and against the application of the body extension thesis for any given technological item. In the end, though, this kind of argumentation is irrelevant when discussing how fundamentally the thesis grasps the human-technology relation;[1] the most serious problem with the thesis is that the concept of body extension is *compatible with both instrumentalism and essentialism* (cf. Chapter 1). It is compatible with instrumentalism because it is presumed that we 'see' through the technology: We are focused on a task and therefore pick up any instrument that suits our needs in the task. As transparent prolongations of the body, we attach ourselves to instruments that make no fundamental difference to *how* we are in-the-world; the relation is one of strengthening and/or substitution. If this is the primordial manner in which we relate to technological items, in what sense can a technological item be said to co-constitute the technological action?

What I have been arguing, and will substantiate below, is that using technologies means that we are in (being-in) our surroundings differently. Using technologies for sight means that we see our surroundings differently. Using a hearing aid means that we hear things differently. The hammer and the axe, and the bulldozer for that matter, mean that we act in our environment differently. Our total organizational activity is different because our world is different, *not because we act differently in an already perceived world, but because we perceive the world itself differently*. Founding the meaning of technology on its contribution as an

[1] Put differently, how *true* it is.

extension, on the other hand, implies that we use technologies to reach already defined goals. However, it is through technologies that make us perceive our surroundings in new ways that we even can catch a glimpse of these goals. Therefore, we cannot employ a technology as an extension of our body to obtain a foreseen goal unless this goal already was unconcealed by the technology. The conclusion must be that extension is not a constitutive aspect.

However, the body extension thesis is also compatible with the essentialism of Heidegger, who himself points out that the instrumental definition is correct, but not true about technology; it is correct because we do use technology as we want to, but it is not true because in doing so we are really under its spell. Similarly, it is compatible with the determinism of Ellul (who points out that our techniques, our way of handling technology, are in fact due to the technology itself). If we couple the extension thesis to Heideggerian essentialism and technological determinism, we gain the aspect we found missing in the transparency reading of the body extension thesis, but the shaping through technology is overwhelming. It then comes to mean that we not only perceive our world differently; extending our abilities through technologies means that we are handed over to the world as it is defined by, mind you, not the technology itself, but the *Gestell* (Heidegger) or the ideals (Ellul) of technology. *Technology as it is described in the body extension thesis does not prevent this implication, just as it does not prevent the instrumentalist implication*. We can conclude, extension is not *co*-constitutive.

For reasons that we have seen in the preceding chapters, the meaning of technology, as *something that extends our practical space*, must be conceptualized in a way that is both foreign to us, yet still not as a mere object, that is, as standing opposite to us. The item is approached as being able to do something, not something that we ourselves would have been able to do had we had harder hands, stronger vision etc., but something that enables us to go into spheres not hitherto seen. The tool, as opposed to a mere object, is not taken as a prolongation of our body, but as something that aids our intentionality, our manner of being in the world; as a part of ourselves, but not as a *body part*. When we see through the technology, we discover the world in a way that we would not have discovered without the technology. Because of the technology, we are able to relate intentionally to further aspects of the world. The tool, or the entity taken as a tool, is taken as a tool not just because it affords us to do something we ourselves are not able to do, but because it affords us to perceive the world in a different manner.

The magnification-reduction structure

The body extension thesis seems convincing because of the transparency of certain kinds of tools, which often are tools that are regarded as being historically primary, as for instance, hand-tools used for the manipulation of our immediate surroundings. However, transparency even for such technologies is hard to sustain; focusing through what specific technologies afford, does not mean that we ourselves, bodily or mentally, are prolonged. Even instruments that are closest to the body extension thesis are not truly extensions in the sense that they retain the full experiential depth of our being-in. As Don Ihde points out, any piece of technology that augments and strengthens our capabilities will simultaneously reduce or weaken other aspect of our experiential presence. (1979:9) In the terms from the previous chapter, being intentionally directed at aspects of the world *through* a technology transforms the intentional experiences in accordance with the technology itself. Had the directedness been performed unmediated, or mediated with a different kind of technology, the experience would have been different. Scratching the surface of a blackboard with a dentist's probe produces a tactile experience of the blackboard, but is quite different from the one we would have if we had touched it with our finger directly. Through the probe, we can feel scratches and marks in the surface that we cannot feel with the bare finger. The finger, on the other hand, would have given us experiences of a certain temperature and of the old chalk dust that usually covers the surface of blackboards, while the small irregularities would be overlooked. "A microscopic presence is amplified through the probe thus extending my experience of the board to a level of discernment previously unnoted." (Ihde 1979:9) Our experience of the blackboard using the probe, therefore, is augmented in some aspects, but weakened in others.

This is the sense in which transparent technologies must be regarded as foreign to our body and us, even if they extend and augment certain bodily capacities. Ihde calls this a '*magnification-reduction structure*". (Ihde 1990:76[1]) Through a technology the world appears differently, as clearer, more detailed, frailer (with a sledgehammer in hand, a small rock has the hardness of a pile of dirt), etc. At the same time, it appears to be less detailed in other aspects, or out of sight (things that are close and to the side disappears when we look at a distant phenomenon through binoculars), and so on. Most people gesticulate when they speak on the phone – why? Clearly, the phone enables us to speak to persons

[1] Ihde 1979 employs the less agreeable phrase *sensory-extension-reduction*, cf. Ihde 1983.

not present, but it is unable to communicate the bodily gestures we often depend on in face-to-face conversation.

The telephone does retain intonation, though. This, however, is lost in other forms of communication technologies, such as the written letter and in e-mails, which affords communicating in a different way from the phone or face-to-face, but have their own reductions. Combining several technologies, as in the videophone, involves smaller 'loss', allowing several sense modalities to be enhanced. Is it at all possible to develop augmenting technologies that retains a 'full' experience, while enhancing some aspects of the world? In a future version of Virtual Reality technology, we might.[1] However, for the time being, I think most people are content with losing side vision for a moment while one glances through a pair of binocular, or that we cannot feel the temperature of the blackboard when we use a chalk to draw on it, etc.

The magnification-reduction structure is a revealing/concealing structure, retaining the ontological point from the previous chapter, where technological actions were seen as revealing a world. From what we have discussed so far, it follows that any technological revealing implies a concealing of a (possible) world, as well; revealing some aspects of the world in accordance with a technology implies concealing others. However, in Chapter 1 we saw that 'the later' Heidegger drew a rather dystopian conclusion from this, claiming that the *Gestell* that reveals itself through modern technology not only co-constitute the world, but dictates how the world appears to us. The task for the following, then, is to avoid such *dystopia* from the fact that technologies influence our intentional relatedness to the world. Therefore, we need to catalogue our relation to technology in a manner that embraces precisely the co-constitutive magnification-reduction structure.

Don Ihde's typology of human-technology relations

– Embodiment relation –

For Ihde, the quasi-transparent relation to technology is characteristic of an embodiment relation to technology. In such a relation, we deal with technology, but the 'terminus' of our intentional directedness is beyond the mediating technology. The prime example of

[1] VR technology, still to a large degree dependent on head-mounted displays and therefore strongly biased towards the visual, is not so much used for augmenting and strengthening in the hammer/axe kind of extension, but supplements the body extension group of relations with *simulation*, enabling us to try out, learn, and perhaps automate actions prior to real world commitments.

this kind of relation is the one between a pair of glasses and their possessor. If the prescription is right, and the glasses are clean and not broken; the glasses will not make themselves present in the relation between the carrier and what is perceived. Many of the examples we saw in connection with the body extension thesis are of this kind, only with *the important twist* that Ihde does not accept that perceiving or acting through the technology implies 'true' transparency (although, this particular example probably gets us as close as we can come). In the embodiment relation, the technologies become "'means' of experience". (Ihde 1979:8, cf. Ihde 1990:73)

Although there is a sense of extension in the embodiment relation – in the sense that what is experienced is at the end of the mediating technology, and not at the end of our skin (the blackboard is felt through the probe, the nail through the hammer), the quasi-transparent directedness brings out the specific properties of the technologies. A telephone, for instance, is not an extension of our hearing in the same manner as the hearing aid. A hearing aid amplifies all nearby sounds (within certain frequencies). The telephone, on the other hand, connects us to a person located distantly (next-door, in another town, or in Australia), but does not, of course, pass on all the sounds that exist between us, as if we had giant ears that enable us to hear our conversation partner. For this reason, the telephone does not extend our ears, or hearing; it brings the other person nearer to us. Experientially, embodied technologies do not so much transform *our capabilities* as they transform the *appearance of the world*.[1] This transformation is the *reduction* of the world; it accentuates aspects of the world that are relevant given the kind of technology we interact with, how it is interacted with, and in what connection.

If we simplify the relation between the world, the technology and us into three components: human – technology – world, Ihde symbolizes the embodiment relation in the following way:

$$(\text{Human-technology}) \rightarrow \text{world}$$

The coupling between humans and technology creates an entity (much like Latour's man-gun) which operates and experiences in-the-world. This simple figure does not do full justice to the implications of Ihde's own magnification-reduction structure, though. The 'world' as perceived and acted in in the embodiment relation is a specific world belonging

[1] More precisely, for this example, it brings the other person's *mouth* nearer to us, given that we do not see his facial gestures, his gesticulations, etc.

to this relation; since it is perceived in compliance with the aspects that the technology accentuates. Consequently, the 'world' in different relations appears differently, or in accordance with the terminology from Chapter 2, is articulated differently.

Note that, given what was discussed in Chapters 2 and 3, the coupling human-technology within the parenthesis is no mere 'human + technology'; both factors accentuate each other. Two persons might see separate pairs of glasses, one of the people recognizes them as something that can augment his vision because they have the correct prescription, and consequently puts them on for the sake of reading. The other person, on the other hand, recognizes the glasses as something that can collect the rays of the sun, and can be utilized to set fire to a piece of paper. The two couplings accentuate different aspect of the world, a book, for instance, in the first coupling, and some flammable material in the latter (or even, respectively, a book as 'reading material', and a book as 'flammable'). How the human appears, how the technology appears, and how the world appears are, in the terms introduced in Chapter 2, *articulations*, whose specifics are co-dependent on technology, technology-user(s), and the world. In the embodiment relation, the prime coupling is (human-technology) since the technology is not thematized. It is quasi-transparent, but even so, still effective in the articulating process.

The way Ihde sees it, the embodiment relation is merely one of several relations we have to technology. Like Heidegger, Ihde acknowledges that something happens to our comprehension of a piece of technology once it does not function as intended. For Heidegger, this means a change in the *being* of the item, from readiness-to-hand to presence-at-hand (Chapter 3), for Ihde it involves a change in our relation to it. The technology itself becomes focus, and we experience it directly. The technology itself is then the object of our intentional directedness, and no longer a means for the intentional directedness.[1] This kind of relation, however, is not only for cases where the readiness-to-hand (or the embodiment relation) breaks down; many interactions with technology have this intentional structure, and Ihde distinguishes two kinds of such relations, hermeneutic and alterity relations.

– Hermeneutic relation –

Moving from an embodiment relation to a hermeneutic relation, means that we are moving from "experiencing *through* machines to experiences *of* machines". (Ihde 1979:11,

[1] Although, as we shall see, it can still be means for something beyond itself.

my emphasis) For instance, to crank up the thermostat to heat a room, the terminus of my interaction is the technology, the thermostat, itself. The scientific knowledge of sub-atomic particles generated at CERN, is a result of the reading and interpretation of events that are traced, plotted and charted by computers, and the artificial (but still real) circumstances that are necessary to measure particle collisions are generated by technological equipment. We have no perceptual access to the level of these happenings, but we can control and perceive it by technological mediation. In a hermeneutic relation, the technology is still a means for a real world change (warming a room, crashing protons), but the use of it is not transparent in the same sense of embodied technologies, we are very much aware of the thermostat or the particle accelerator in using it. We manipulate the world through manipulating the technology; I feel something is lacking, a room is too cold, and address myself to a technology to rectify this. Intentionally, then, the world and the technology is apprehended as a unity. There is an element of interpretation, *hermeneutics*, in this – interpreting the relation between technology and the world; to understand how we can manipulate the world, we must understand how to manipulate the technology. Ihde expresses the hermeneutic relation in the following way:

$$\text{Human} \rightarrow (\text{technology-world})$$

Technology and world here functions as the experiential unity. As described above, world is marked to denote that what acts as 'world' in the particular technological action is the world as pointed out by the specific technology – acting with a thermostat means that the 'world' is the room which temperature is controlled by the thermostat. Consequently, because we act towards the elements in the parenthesis as a unity, we can speak of a transparency between technology and world comparable to the perceptual quasi-transparency between human and technology in the embodiment relation (where the human and the technology was the experimental unity).

There are several kinds of transparency in the hermeneutic relation. If the technology we interact with represents (aspects of) the world, there is a representational transparency. (Ihde 1990:81) For instance, a temperature gauge can be said to represent the temperature in a room; if the temperature goes up, the mercury in the gauge rises, and if the temperature drops, the mercury does too. A map, likewise, is a representational technology, in this case representing a specific area. Using a map means moving around in an area engaged in two perspectives simultaneously, one from our own bodily presence and one from a bird's eye view. Or, of course, a map can be examined before entering an

area, in the planning of one's movement in the area. Maps are often a much-reduced form of representation, focusing on shapes and phenomena in the area that are deemed relevant for what kind of map it is. In a street map, for instance, most houses are depicted identically (some important buildings can be represented from the street perspective); they are merely there to indicate that the space between the streets are buildings rather than parks, or lakes.

In a representational transparency there is a form of isomorphism between the (aspects of the) world and the technology. Often, however, this is not the case, and then there is instead a referential transparency. (Ihde 1990:82) In such cases, we still assume that the technology is connected in the proper manner to the world, but we do not lean on any perceptual similarities between technology and world in our manipulation of (technology-world). Using a thermostat properly requires that we are aware of the connection between the numbers on the thermostat and the temperature in the room, that we know that the numbers refer to possible temperatures, and that the indicator on the thermostat refers to the actual or the preferred temperature. Another example, discussed at length by Ihde himself, is the relation between spoken and written language. The letters of the alphabet refer to the phonetic sounds we utter, but they do not resemble the sounds. Ihde says, "[w]riting is a technologically embedded form of language" (1990:81), but the technological relation between the uttered sounds and the written letters is not isomorphic; there is no isomorphism between the letter 'A' and the sound I utter when reading it. Letters still indicate the sounds, so there is a form of transparency, but that of a referential one, not representational.

In representational transparency, the technology *refers* to a world beyond itself. Equally, the consulting or the manipulation of a referential technology has real world consequences, and as such, the technology *represents* the world. The difference between a representational and a referential transparency is therefore that "the representational isomorphism disappears". (Ihde 1990:82) As such, there is a sliding transition from representational to referential transparency. X-rays and ultrasound images are here in a dual position. On the one hand, they are generated by using non-visual techniques, but the product is an image. These images are generated because there has been a process of translation between the signals the technologies are built to acquire, referring to shapes

within our bodies, into images that represent these shapes in an isomorphic manner.[1] The same applies to scientific knowledge that utilizes re-constructive techniques; deep space photography, the depiction of dinosaurs having certain colours, or as having feathers, based on the combination of fossils and knowledge of presently existing species, etc.

Ihde talks of varying degrees of opacity between technology and the world. (1979:12) Sometimes, as when we adjust the thermostat in a room we ourselves are in, or when we are manoeuvring ourselves through a city by using a street map, we are in an experiential loop with the technology and the world, and are able to deem directly the degree of transparency between the technology and the world. At other times, as in cases of images of long-extinct dinosaurs or sub-atomic particle collisions, there is no manner in which we can experience the transparency; we have to trust the anticipated fact that the technology works the way it should. In such cases, the technology is not only the terminus of our intentional directedness; it is also the terminus of our technological action.[2]

Both hermeneutic and embodiment relations bear strong similarities to pre- or non-technological behaviour. Embodiment relations are found in how we can utilize natural occurring things as tools, as when a rock or a stick is picked up (and not manipulated) for a specific purpose. In the hermeneutic relation to technology we can recognize how we interpret causal connections between natural events, as in the cases when we say that the gathering of dark clouds in the sky indicates that rain will fall, or in the idiom 'no smoke without fire'.

– Alterity relation –

In a hermeneutic relation, we treat the technology as referring/representing a world beyond itself. In the case of alterity relations, the technology is also the terminus of both the intentional directedness and of the technological action, but we do not treat the technology as pointing beyond itself.[3] While the hermeneutic relation is an interaction with a technology with the intention of making a real world change (an aspect it has in common with the embodiment relation), interaction with a technology in the alterity

[1] Visualization in the hermeneutical relation between science and its instruments is explored in Ihde 1998.
[2] Ihde 1990 also discusses a linguistic transparency, which I will not address here, partly because it is presented in a vague manner, and partly because, in my mind, it is closer to an alterity relation. See below.
[3] Ihde in 1979 regarded alterity relations as a kind of hermeneutic relation. However, I follow Ihde 1990 where these are distinguished as two different kinds of relations.

relation lacks this dimension. However, that is not to say that there are no real world consequences of such an interaction. For instance, buying a soda from a vending machine is an interaction with a machine that does not represent or refer to anything beyond itself. Neither is the interaction perceptually transparent as in the embodiment relation (although steps of it might be, for instance dropping coins while locating the code for the soda of choice). Nevertheless, the transaction has an evident real world consequence. If all goes well, you will have an ice-cold soda in your hand within seconds.

Other alterity relations do not necessarily have real world consequences. Online banking, for instance, has enabled us to move money between our accounts ourselves. If my cash card account is empty, I can transfer money from my savings account, and withdraw money. In this sense, there are real world consequences. However, I am able to move money around without this aspect, perhaps I on an earlier stage moved money the other way, in which case the money transaction was mere virtual. Reading books will often invoke imagery, ideas and *virtual worlds* in the reader; we construct imagined persons, settings and happenings based on what we read. In the case of fiction, these worlds will be entirely imaginary (although evidently connected to the written words), and our interaction with the technological item, the book, has no real world consequence as such. In the case of biographies and other kinds of non-fictional literature, the situation is slightly different. Reading about an historical character still invokes a virtual world, but this world will be informed by previous factual knowledge of the character and/or the historical period in which this character lived. Furthermore, at the other end of the reading experience, what we read will most likely enter our historical consciousness, and become part of what we know about the world, the history of our, or a, culture in general.[1]

The case of 'the virtual' is in my mind the paradigm example of an alterity relation. Cyberspace 'worlds" like the ones we can find in Second Life or in World of Warcraft are virtual worlds in which we can act. These worlds exist technologically, and our interaction with them is entirely in their own right. In an alterity relation, we interact with the technology as if it is not a technology. The vending machine is like the owner of a kiosk that gives us soda when we ask for one, and acting in World of Warcraft is like acting in

[1] Ihde regards our relation to non-fiction as hermeneutic. (1990:84) I am not convinced; although there is a sense of interpretation (*hermeneutics*), I think that there is also too little transparency also in reading non-fiction. All kinds of literature have interesting implications for the concept of the virtual, as I will discuss below. However, this might be one of many examples where the relation we have to the technology is not a clear-cut either/or situation. See below.

our real world surroundings (well, if we had the ability to transform ourselves into our avatars). The people/creatures we, that is, our characters, interact with in the game are controlled by, but *are* not the people controlling them.[1] An alterity relation is defined by us relating to the technology as if it was an *other*, what Ihde call a quasi-other (embodiment relations indicates that the technology is a quasi-*me*). (Ihde 1990:98)

Ihde chooses to formalize the alterity relation in the following way:

$$\text{Human} \rightarrow \text{technology-(-world)}$$

In a sense, it is the 'bracketing' of the world (not to be confused with Husserl's methodological bracketing, cf. Chapter 3), that enables activities such as sport, art and play (Ihde 1990:107), but to me, this formalization seems to be a bit deceptive. It indicates a sort of non-realism, when in fact the alterity relation is a prime example of technological realism (Chapter 2), where the technology enables the world to be articulated in a certain way: We can have vending machines instead of kiosks, online banking instead of queuing up in an actual bank. That is, the alterity relation implies that the world is *organized* meaningfully through technologies. This does not indicate a less-real world, only a different real world, and in some cases not an alternative world, but a form of real world that if it were not for the technology would have been impossible to articulate. In so doing, the alterity relation accentuates what is in fact an aspect of both the embodiment and the hermeneutic relations to technology, but remains hidden because of the real world link.

Note that technological actions do not imply *either* this *or* that kind of relation, or that an assembly of technologies acts as a unified totality in the relation. Both hermeneutic and alterity relations can be combined with embodiment relations. For instance, when I perform an online bank transaction, the computer-screen is perceptually transparent, to a certain degree also my use of the computer mouse. Driving in a traffic queue, while listening to the radio involves some technologies of an embodied kind (we have a certain feeling for where the car body ends and trust this embodiment when we steer the car as close as possible to other cars, the car radio is not attended to but what is said on it is), of a hermeneutic relation (driving in a queue involves a different attention to clutching,

[1] It is a simplification to say that cyberspace dealings have no real-world consequences. For players, there can be significant social consequences of both the positive and negative kind. Positively, players can form communities, meet for conventions, etc., while negatively, it is to a certain degree addictive, players might drop our of school to play, etc.

braking and accelerating than plain driving). Furthermore, the road we are driving upon is taken for granted in a different kind of relation, called background relation (see below). In fact, most technological actions will involve several technologies, with different degrees and kinds of transparencies.

– Background relations –

There are numerous technologies that are around us, and affect us in various ways, but with which we do not interact. There is no intentional directedness towards the technological items themselves, or of the world through the technological items. Ihde calls the relation to such technologies background relation, and distinguishes two types. What is common between them is that the technologies in question shape the context or condition for other experiences, and in some cases, we can even say that they are necessary for our survival even though we do not interact directly with them. The first type concerns automatic (and semi-automatic) machines and devices. For instance, the earlier mentioned thermostat, once calibrated and programmed will proceed to keep the temperature in the room constant; it will turn on the heating when the temperature has dropped slightly below the preferred temperature, and it will turn the heating off once it has reached said temperature. The 'daily' workings of the thermostat do not bother us, only when we need to set a different temperature does it enter our intentional directedness (in what was defined above as a hermeneutic relation). A refrigerator, or a deep freezer, maintains the temperature automatically, and in these cases, the owner rarely intervenes in the control of the temperature. Semi-automatic appliances, such as washing machines (soaking, soaping, rinsing, centrifuging), tumble dryers (drying, checking dryness, another drying cycle), coffeemakers (heating water, moving water, mixing water and coffee), are similar during most of the processes, only that we interact more directly at the start or the end of the processes. What is typical of these kinds of technological processes is that they do not display any degree or kind of transparency. Instead, their functioning is characterized by an *absence*. (Ihde 1990:109)

The other kind of background relation concerns technologies like our clothes, houses and other shelter technologies. Such technologies, especially clothes, might first seem to be embodiment technologies, extensions of our skin or enhancements of our small amount of body hair (Ihde admits that they are borderline cases), but although the using of such technologies should, optimally, be as non-intruding as possible, absence is a better characterization of their functions than transparency. (Ihde 1990:110) For houses, the

same thing holds; bar the odd maintenance, the house does its function, to keep us sheltered from bad weather and curious neighbours, without us attending to it. It is there, but intentionally it is absent.[1]

Expansion, not extension

The concept of background relations indicates that our lifeworld is permeated by technology also in cases we are not aware of it as technologically textured. Think of the silence when the refrigerator or the air conditioning turns off; suddenly we become aware of a sound that we heard without noticing the moment before. Still, I think there is an aspect to *technological presence* that Ihde fails to discuss adequately. To me it seems that technologies whose function and availability we take for granted are in the background as a technological framework to our lifeworld/technosphere. As such, we have a background relation to such technologies as well, even when they are not in current use. Ihde is of course aware of this aspect to our technological lifeworld, calling it, in a nod to Husserl, the horizon of technology. "Horizons belong to the boundaries of the experienced environmental field. Like the 'edges' of the visual field, *they situate* what is explicitly present, while as phenomenon itself, horizons recede." (Ihde 1990:114, my emphasis) In my mind, Ihde does not stress the importance of horizons sufficiently, discussing primarily such phenomena as the anxiety children might experience due to the possibility of nuclear war.

The technological horizon, however, is more tangible and more involved in shaping our present concerns than that, and as such directly involved in the meanings we find around us even if the actual technological items themselves remain in the background. Some such technologies, though, are occasionally taken into the foreground and interacted with in a direct manner, but what is important here is that their *potential actuality* is taken for granted as background for both technological and general activities; their potentiality also remains on the fringes of our current activities when they are not in use. This taken-for-granted status is of course made visible once they break down (in a movement similar to the

[1] Some embodiment technologies approximate an absent relation rather than a (quasi-)transparent one. Examples are a crowned tooth, an artificial knee and other kinds of implants, and the birth-control pill. (Ihde 1990:113f) Bio- and gene-technologies are intriguing in this respect. These artificialities will have consequences that in many cases are so closely associated with one's biological equipment that they do not readily fit into the transparency–opacity axis. However, although potentially interesting for the notion of technology, there is a sense in which we do not interact directly (the first three relations), nor indirectly (background relations) with such technologies. Rather than challenging the borderline between technology and the self, biotechnologies challenge the borderline between artificiality and life.

movement from readiness-to-hand to presence-at-hand, or from being an embodiment relation to a hermeneutical one). When the thermostat or the refrigerator are broken we notice (the lack of) their background activity when it is starting to become colder in the living room, or the milk has turned sour. Think of a washing machine whose centrifugal function suddenly breaks down: Finding the clothes clean but soaking wet reminds us that we take all its sub-processes for granted. In our daily activities we trust that such functionalities are working properly; we organize the parts of our lives not in touch directly with technologies *in accordance with* the surrounding technological system. For interactive technologies (hermeneutic and alterity relations) the same applies, the ready availability of the telephone is a background relation although the actual use is not. Knowing that we can call, or be called upon, is also a background relation to the technology. (The mobile phone, though, has these days become more of an embodiment technology than the old house phone ever was (cf. Clark 2003:27)) The availability (and its contextual functions, cf. Chapter 2) is presupposed in the very act of wanting to use them.

However, many technologies remain in the background. They profoundly influence the social environment we move around in, but are not thematized as technologies that shape the way we live in or perceive our own lifeworld and the possibilities we regard ourselves as having. For instance, a car driver takes roads and tunnels for granted and may never ever think of them as being part of his technological lifeworld. Behind the taken-for-granted possibility (in Norway at least) of optaining drinkable water from our kitchen tap, there is a huge technological system, from the pipes to the cleaning plant to the production of the chemicals used to cleanse the water. The mobile user presupposes a sufficiently strong service area, although most mobile users will experience frequent dropouts. These days, in what is increasingly the fashion for many of us, the sheer possibility of getting online is taken for granted. Perhaps one day, access will be as taken for granted as roads are today. Yet another aspect of the technological horizon is the socio-political consequences discussed in Chapter 1; we construct political and economic frameworks around material technologies to ensure that these technologies run as smoothly as possible. Although not technological artefacts themselves, they are part of the technological system, and in our technological understanding, can be considered horizon phenomena.

Often, the literature on technology focuses on actual technological activity and the characterization of our relation to technologies in actual use. The contextualization implied in the (expanded) concept of background relations illustrates that there is also a technological presence (not quite *activity*) when technological items are not in use. That is, technologies are a part of our lifeworld in both technological actions and as a potential for such actions. In this sense, the question of the meaning of technology must point beyond the actual use, and concern itself with the relation between technology and lifeworld. Lifeworld, as mentioned earlier, is the world seen as permeated with meaning; it is the world as given to us, with 'always-already' structures of meaning, meanings we need to consider, partake in and abide in our lives. Technological presence characterizes our lifeworld, in actual use, as a background, and as shaping the lifeworld we move around in.

This far in the chapter, an image of technologies as co-constituting *the structure of our lifeworld* is about to emerge. This is a structure we might not actively use, but that we *always depend on indirectly*, both in the sense of being a *context* for technological actions and as being a *potential* when we move around in the lifeworld. The technologically structured lifeworld forms the framework for our understanding of how to organize our daily lives and surroundings. In this sense, technologies are also part of how we understand ourselves and our possibilities.[1] This, then, rather than any variety of the body extension thesis, is the real sense in which technologies expand our practical space. The question I now must turn to is: How should technologies be conceptualized so that this sense of expansion is maintained? I need to illustrate the potentiality that technologies embody, and I need to illustrate this is in a manner that explains *how* they embody this potential.

Virtuality

In discussing the organizational potential of technologies, we need to focus on aspects other than transparency and extension seeing as these concepts fail to embrace the accurate meaning of the expansion of our practical space due to the technological presence. Depending on technology, directly or as a background phenomenon, is no mere extension of our practical space, it transforms radically what we ourselves are. Speaking about cognitively related information technologies, Andy Clark points out that,

> Such technologies, once up and running in the various appliances and institutions that surround us, do far more than merely allow for the external storage and transmission of

[1] Explored in Part 2.

> ideas. They constitute, I want to say, a cascade of 'mindware upgrades": cognitive upheavals in which the effective architecture of the human mind is altered and transformed. (Clark 2003:4)

The same point can be made for the shovel, the car and the remote control as well; there is an expansion that should be seen as more of an 'upgrade' of our range of actions than a mere extension of the 'existing' range of action. What is extraordinary about technology is not what we want to do with it (from a design or praxis perspective), but what it enables us to *become*. The man and the gun is not a mere man-gun, it is something else. Coupled with a piece of the technology, we are constituted as an entirely new entity (cf. Chapter 3). However, in regard to the extended concept of background relations, where we in the sheer being-in-the-world are technologically aware, this constitution does not merely concern the active use of technology, the technological action *per se*, but even technologies that are 'idle' and 'invisible'. How should we conceptualize the potentiality of a technologically co-constituted action into the concept of technology? I want to do this in two steps. First, I will use French philosopher Pierre Lévy's concept *virtualization* to denote the potential in technologies, and then I want to expand on the aforementioned concept of *affordance* to explain *how*, or why, technologies 'have", or embody, this potential.

Lévy claims that technologies should be thought of as virtualizations of actions, while specific uses of technologies are *actualizations* of these actions. (Lévy 1998) Above, I asked where to draw the line between a genuine body extension and a technology that has a similar function, but that does not as easily fits the body extension thesis. Even if we accept that a cave or a small cottage is an extension of our body's shortcomings in staying warm and safe, would we be as willing to say that the 90-storey skyscraper is such an extension? The bicycle might fit our conception of an extension of our feet, as might the car, although to a lesser degree, but what about the plane? Many technologies, some of which were discussed above, are quite remote from the workings of individual or collective bodies. Rather than regarding, awkwardly, the wheel as an extension of the feet, Lévy proposes to regard the bicycle as a virtualization of moving around. (Lévy 1998:95) In this sense, the hammer, although giving the illusion of being an extension of my arm, is better regarded as a virtualization of the action of hitting. Instead of asking whether MSN is an extension of our mouth in talking, or of our arm in writing, we should regard it as a virtualization of communicating, as one potential way of actualizing this kind of action.

According to Lévy, we approach technologies as enabling us to do certain actions, rather than as enabling our body to become stronger, longer, more powerful, etc.

In ordinary usage, 'the virtual" tends towards that which does not exist, as something that is made up, or created without being materially realized (for example, cyberspace). For Lévy, however, the virtual is not the non-existing, it is, in fact, an aspect of everything that is existing. Taking his cue from scholastic philosophy, Lévy defines the virtual as that which has a *potential actuality*, "virtuality and actuality are merely two different ways of being". (Lévy 1998:23) The virtual is always present as the potential inherent in any actuality. "[T]he virtual is a kind of problematic complex, the knot of tendencies or forces that accompanies a situation, event, object, or entity." (Lévy 1998:24)

For technologies, it follows that any material object presents us with several routes of action; there is one or several inherent virtualities in the object as it presents itself to us. The virtual encompasses not only functions defined by an item's role in a social praxis, but also unconventional uses. For instance, while the hammer is a virtualization of hammering or pulling nails, it is also a virtualization of being a paperweight, and rather more dramatic, a virtualization of killing. Almost any technological item can be employed for many kinds of technological actions, some designed and some not, but only a few becomes the conventional use. A single piece of technology can virtualize several actions.[1] Conversely, one kind of action can be actualized by several technologies. A city bike affords one way of actualizing movement, a mountain bike another, while the car affords yet another way of actualizing moving from point A to B.

> [A] bicycle doesn't exactly replace my legs when I'm walking or the horse in the stable. It stands for a general function of transportation, an abstract function, which is detached a priori from any specific referent and refers to an indeterminate number of situations or concrete devices of movement. (Lévy 1998:107)

The virtual, then, is that which is present, although not in use. It is present in the sense of being formative, both in the sense of being a potential for actions and, as I will return to below, in the sense of proposing actions. In Ihde's (and Husserl's) words, the virtual is part of the horizon of the actual. *The actual and the virtual constitute our practical space.* However, if we are to avoid instrumentalism, actualizations of the virtuality of technologies (technological actualizations) must be conceptualized in a manner that

[1] Usually a technology, in its conventional use, is employed for only one task. Some technologies, however, are designed to do many things, today's mobile phones and computers, for example. The 'double-headed' hammer is also multifunctional, as it has both hammering and pulling nails as conventional uses.

substantiates what was said above, namely that technological presence is an 'upgrade' of this practical space, not a mere extension of it.

Technological actualization

Nothing in the concept of the virtual necessitates that it be thought of as immaterial, or somewhat unreal, as in the virtual world that is evoked when we are reading a book of fiction, or the cyberspace world of Second Life. As we saw, in any actuality there is an element of the virtual, and vice versa: the virtual and the actual go together. This implies that the virtual is the potentiality of the actual, and if it were not for its potential actuality, it would not be a virtuality. This excludes our regarding the virtual as 'just anything', and implies that in a piece of technology, there is the potential for several technological actions (for the hammer; hammering, paperweight), but not just any kind of action. For instance, to use a hammer for fine-grained brain surgery is not part of its virtuality, a fork is not a virtual cutting device, MSN does not have speaking as its virtuality, and you cannot hit someone at the other end of a phone conversation using the mobile phone, and so on.

The concept of the virtual should therefore not be seen as an expression of arbitrariness. Quite the opposite, virtuality in technology is not primarily a question of a user's interpretative imagination – how a person interprets ingenious uses of an object in front of him. The virtual, in technology, is about the constraints the technological item itself puts on technological actions (and by implication, how it constrains ingeniously interpreted forms of use). While the virtual in a cyberworld such as World of Warcraft is constrained by the computer programme, the virtuality of technological devices is constrained by their materiality. However, how are we to understand the transition from the virtual to the actual, how should we conceptualize *technological actualization*?

There are two obvious candidates for this; a) the technology is designed for the particular actualization, and b) the technology belongs to a social praxis that defines its actualization. However, none of these (instrumentalist) candidates will do, and for an apparent reason: In light of the social praxes that any technology belongs to, we might say that there are *right* ways of actualizing virtuality, and that there are *wrong* ways of actualizing it. *Claiming that a particular actualization is wrong can clearly not be due to the material item itself.* A hammer used for the killing of a person is, unfortunately, a virtuality of said item. Claiming that this kind of use is wrong is to hold it up against its conventional uses, what it was

designed for and/or its function in a social praxis. Technological actualization must be conceptualized in a way that involves so-called wrong uses, and for this reason the design and praxis perspectives fail as explanations; one simply cannot say that a technological item is designed for the wrong purpose, or that there is a social praxis for the wrong kind of use.[1]

Why is the wrong way of actualizing a technological virtuality important? In Chapter 1, we looked at what Langdon Winner called the inherent politics of technology. The actual impact a piece (or complex) of technology has on the society might transcend what the technology specifically is designed for (the overpasses on the Long Island parkways), or the actualization that is taken up as the function in a social praxis might be different from the actualization the technology was designed for. Using a mobile phone for sending text messages was a part of the virtuality of the phone, but from the design perspective, the intention behind this virtuality was to enable the mobile user to *receive* short messages from the mobile company, for instance about incoming voice mails.[2] In some cases, the virtuality will be the dominant is designed (the fork, for instance is designed as a specific kind of cutlery and is for most part only used as such), at other times a virtuality that was not initially seen as the main way of using a piece of technology becomes dominant (sending text messages to other mobile user).

What is required for the conceptualization of technological actualization is to shed light on why the use of technologies sometimes does not comply with their designed use, and as such shed a light on evolving social praxes that deviate from the designed function, and yet, at the same time, tell us something important about uses which from the design perspective count as correct ones. In other words, what I turn to now is to explain how a piece of technology can embody a virtual action. Again, this shed light on the relation we have to technology, in that it displays how technology itself brings something into the relationship. In this sense, the following section is also about *the direct meaning of technology*. That is, not its meaning understood as an interpretation, but how it in itself enables us to go together with a piece of technology to perform an action containing contributions

[1] Of course, if we think of 'wrong' as an ethical value, many technologies are designed for the wrong purposes from certain perspectives, weapons, pollutive industrial technologies, genetic manipulation technologies, etc. In addition, what function a technological item attains within a social praxis can be wrong from the design perspective. More on that below.

[2] Earlier mobile phones, hardly mobile at all, were not virtual text senders or receivers, and of course, today mobile phones come equipped with many virtualities.

from 'both parties'. If technology is to be seen as co-constituting a technological action, we need to see *how* it contributes to the constitutional process. *Affordance*, the concept I shall use for this, is therefore the link between the virtuality and actuality of an action.

Affordances

In Chapter 2, I mentioned that the hammer *affords* rock-hard hits and pulling, and that this connects it to things like nails and spikes, things that *afford* being hit or pulled. A thing's affordance is how the thing presents itself as usable to a user. In being material, any technology affords certain uses, and for this reason, technological actualizations are constrained by the affordances of a technology. If a technology does not afford a specific use in an action, this piece of technology is not a virtualization of this action, regardless of how imaginative the technology-user is. Conceptually, affordance is an aspect of materiality that connects a thing's actuality ('as it is, right here, right now') with, on the one hand, its virtualities, and on the other, the user. Affording, or the concept of affordance, is in this respect a key notion in the relation between virtualizations and actualizations in that it induces both 'right' and 'wrong' uses, but precludes interpretative arbitrariness. Actualizations of a technological virtuality, conventional or not, are always in accordance with the material affordances.[1]

The concept of affordance is primarily associated with psychologist James J. Gibson, who coined the term to denote the value or meaning a phenomenon in our surroundings has to us. Not speaking specifically about tools and technologies, Gibson claims that we primarily know objects, events, places, other animals and artefacts from what they afford us. (Gibson 1982:404) Rather than giving a clear-cut definition of affordances, Gibson presents numerous examples of the affordances of various phenomena in the environment. A handle, for instance, affords grasping, a sufficiently small stone affords throwing, and a sharp object affords piercing, Viscous substances afford being smeared while liquids afford pouring, and in certain cases drinking. Nutritional *and* poisonous substances afford eating, and so on. (Gibson 1982:405) A social phenomenon like a mailbox affords letter-mailing, a social meaning, but materialized in the very design of the mailboxes. (Gibson 1986:139) The value and meaning that an object, event and so on

[1] Gibson, for most part, discusses what 'affordance' means for a *visual* psychology. My use is in a more action-based sense, and includes how an item affords to be handled. This is in line with the more general sense of what it means to afford. A similar expanded utilization of the expression can be found in Norman 1999, Hutchby 2001, Brey 2006 and Graves 2007.

have are not something we infer cognitively on the basis of the perceived objective properties of the objects we encounter, they are how the objects present themselves to us: "The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill." (Gibson 1986:127)

For this reason, affordances should not be taken for merely being the social praxis the objects functions in. A physical mailbox might be discarded and thrown in the backyard, but it still affords putting mail into (although, if one wants the letter to arrive to the addressee, one is best advised not to do it). Affordances are not bestowed upon the physical item, not by a social praxis, nor by a personal interpretation. Affordances are a *real* characteristic of the phenomenon.

> The observer may or may not perceive or attend to the affordance, according to his needs, but the affordance, being invariant, is always there to be perceived… The object offers what it does because it is what it is. To be sure, we define *what it is* in terms of ecological physics instead of physical physics, and it therefore possesses meaning and value to begin with. (Gibson 1986:139)

Affordances, then, are how we meet our environment.[1] The affordances of things in our environment shape how we handle them. More precisely, they shape technological and non-technological strategies (techniques) to meet them. However, it is also necessary for us to have the capabilities to perceive or use the affordances. A watery surface for some insects affords locomotion, but for humans it does not. Affordances, for this reason, "have to be measured *relative to the animal*". (Gibson 1986:127) Because of this, we cannot regard affordances as the objective phenomenon itself. That would be too strong a claim, and would imply that the relation of humans and technology is not interdependent, but dependent upon the technology itself, a determinist claim.

The concept of affordance emphasizes the intertwinement (and interdependence) of humans and technology in social and technological development. The role of society, or intersubjective meaning, should neither be overlooked. The 'postability' of mailboxes, for

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[1] Gibson presents his *ecological* theory as a radical alternative to 'the orthodox view' in perceptual psychology that holds that what we perceive when we move around in the world, "is not the world itself, but the pattern of light on the retina, and *that* pattern does not supply enough information to determine how things are in the environment. For example, from the retinal image of a table alone, it may not be possible to tell whether it is large and far away, or small and nearby." (Noë & Thompson 2002:2) The result of the orthodox view is that the world as we know it (both in terms of value and meaning and in terms of three-dimensional extension and physical properties) is a mental construction. Gibson tries to avoid this implication by showing that the world presents itself to us directly, and the concept of affordance has a key role in this. Gibson's theory remains controversial in psychology, with an article by Fodor and Pylyshyn as the best-known counter-attack from the orthodox camp, arguing that Gibson's view to a large degree is in agreement with it. (1981:141) In more recent years, theories of vision, perception and action that are similar to Gibson in their critique of the orthodox view have become common. See Varela, Thompson & Rosch 1991, Hutchins 1995, Port and van Gelder 1995, Clark 1997, Noë 2004, and Wheeler 2005.

instance, are primarily detected because the box is a part of a social postal-praxis. Without knowing this, it would probably never occur to us to put a letter to a dear one into those red boxes. (Rappert 2003:576) In another example, forks and knives might at first glance seem superior to the chopsticks as eating equipment for the Westerner. But although that might be true for the eating of potatoes and steak, anyone who has eaten sushi or maki rolls can testify that chopsticks are far better eating equipment for the latter dishes. Using a fork will make the Sushi pieces fall apart and render the eating of them nearly impossible. However, chopsticks were not developed to handle pieces of sushi, the design of Sushi pieces was adapted to the affordances of the chopsticks, as these were around long before the Sushi dish.[1] Furthermore, various rituals have been developed around the eating of Sushi concerning the way the fish is cut, how the pieces of fish and the rice are aligned, how it is served, and what to drink alongside it. There are even traditions for how to earn your standing as a Sushi chef.[2] The development of dishes, and this applies to potatoes and steak as well, is partly shaped by the available eating technologies (the original function of combining fish and seasoned rice was to preserve and ferment the fish, and once the fish was ready for consumption, the rice was thrown away).[3]

To the best of my knowledge, there is nothing in Gibson's writings that indicates a familiarity with Heidegger's concept of readiness-to-hand. Nevertheless, there is an obvious similarity between the two in their claims that we approach items in our environment in a primordial way, through the kind of value or meaning the items has for us. We do not determine an item in its objective specifications (presence-at-hand), and then decide to what extent this item can be put to use. Any objective specification grows out of the acquaintance we have with the thing through its value to us (cf. Chapter 3).

However, one major difference is that the concept of affordance applies to the relation all animals have to their environment. For Heidegger, on the other hand, readiness-to-hand is the being of the items that we are in-the-world alongside, and as such, it is an aspect of items that only concerns Dasein 'the only being for whom being is an issue').

[1] Chopsticks date back more than 3000 years (http://search.eb.com/eb/article-9082341 [02.01.2009]), while sushi developed fairly recently (http://en.wa-shoi.com/?page=100299 [02.01.2009]), and although its pre-history dates back another 1000 years (http://www.sushifaq.com/history-of-sushi.htm [02.01.2009]) it is still considerably younger than the eating equipment.

[2] http://www.bigburrito.com/umi/umihist.shtml [02.01.2009]

[3] This example makes explicit the necessary aspect of techniques, the mastery of a piece of technology, in this case the chopstick. Edward Tenner claims that evolving techniques rebound onto the technological development. It is not the case that an affordance is presented as usable, or usable in the optimal way instantaneously. The best technique to handle a technology can take years to evolve. (Tenner 2003)

Consequently, for affordances, what an object, event, place etc afford is species-specific. As we saw above, one and the same object might afford different actions for different species. A tree, for instance, affords being cut down, being building material, or being fire wood for a human being, while it affords living in, a means for transport, and a source of food for a squirrel. Therefore, the value and meaning of phenomena in the environment are determined neither by the phenomena themselves, nor by the interpretational process of the animals themselves. Instead, the concept of affordance "implies the complementarity of the animal and environment". (Gibson 1986:127) Even though a human and a squirrel perceive the same physical object, it is simply impossible for a squirrel to perceive and handle an object the way a human being perceives and handles it, and vice versa; the impossibility of transcending the species-specific perspective constrains the meaning of a phenomenon.[1]

An implication of this difference is that affordances do not directly concern the appearance of items in their *toolness*; that is, as having specific *functions* in an equipmental totality. Although the concept of affordance expresses our being in an environment as practical and action-based, phenomena afford more than tool-like aspects of the environment. For example, in perceiving various surfaces, we might find that:

> A solid horizontal surface affords *support*. A water surface does not. A surface of support affords *resting* (coming to rest)… An extended surface of support affords *locomotion*, for a terrestrial animal… A *vertical* solid surface stops locomotion and affords *mechanical contact*. It is a *barrier*. A rigid barrier affords injury by abrupt contacts, i.e., collision. It is an *obstacle*… A vertical *double surface*, that is, a wall or screen, affords *hiding behind*, that is, being out of sight of observers on the other side. This is true if the double surface is *opaque*. (Gibson 1982:413)

For Heidegger, such phenomena are part of an equipmental totality. In this totality, items are connected through the functions (readiness-to-hand) that refer each item to each other, forming a "functionality whole". (Heidegger 1988:164) Heidegger points out that equipment not only points out a context, it involves a reference to other Daseins as well. In the hammer, in the nails, in the work being produced by such tools, there is a reference to others. In fact, in any *produced* item there is such a reference.

> [A]long with the equipment to be found when one is at work [in Arbeit], those Others for whom the 'work' ['Werk"] is destined are 'encountered too'… [W]hen material is put to

[1] In addition, bodily differences within a species matter, infants and grown-ups have different capabilities in dealing with the environment. Past individual experiences will also be relevant: "we must, of course, *learn* to see what things really are – for example, that the innocent-looking leaf is really a nettle or that helpful-sounding politician is really a demagogue." (Gibson 1986:142) Affordances, then, should not be seen as being what an object affords us instantaneously and naïvely. As mentioned, techniques evolve in interaction with the technology.

> use, we encounter its producer or 'supplier' as one who 'serves' well or badly. When, for example, we walk along the edge of a field but 'outside it', the field shows itself as belonging to such-and-such a person, and decently kept up by him; the book we have used was bought at So-and-so's shop and given by such-and-such a person, and so forth. (Heidegger 1962:153-4/117-8) [1]

The relation of equipment and the others is especially palpable when we encounter an item that we can tell is a tool, but whose function we do not know. We recognize it, not as a mere thing (in its presence-at-hand), but in its readiness-to-hand, as a tool that for *another Dasein* has a specific function. The Other is an inevitable aspect of readiness-to-hand, the way Heidegger sees it. Readiness-to-hand indicates a social world of functions and praxes (cf. Chapter 6).

As we saw above, with functions the notions of rightness and wrongness of use manifest themselves. To say that a function is proper implies that deviating functions are non-proper, or wrong. Given that the material item affords the non-proper use, wrongness must be a consequence of either the item's design or the adaptation of an item into a social praxis. Although some, and perhaps most, non-functional uses are uninteresting, subjective and situational, as when a person uses a hammer to keep a window open, some lead to new conventional uses and social praxes. The medical use of X-rays, for instance, was discovered as Wilhelm Röntgen was testing the ability of the then recently discovered X-rays to penetrate various materials, including his wife's hand. Although X-rays at this time had no conventional use, what a phenomenon affords in terms of organizational potential will sometimes have to be due to the phenomenon itself. Focusing merely on conventional use will not grasp this important aspect.

In putting the emphasis on materiality, affordances are less specific than readiness-to-hand for specific functions. Any material object affords certain ways of being handled, but this does not mean that this handling has a conventional function. Donald Norman points out that "[a]lthough all screens within reaching distance afford touching, only some can detect the touch and respond to it. Thus, if the display does not have a touch-sensitive screen, the screen still affords touching." (1999:39)[2] Although the social aspect

[1] The other is apprehended as *Dasein* and not just any object. (Heidegger 1962, §26). I return to this in Chapter 6.

[2] Norman, writing from a designer's context, points out that the concept of affordance is ill understood within the design profession, especially with Internet designers. Sometimes it is used to denote any graphical item on the computer screen. For instance, a folder is said to afford being clicked, but this is clearly wrong as "you can click on the object, but you can click anywhere." (Norman 1999:40) The clickable object is a visual convention that guides the user in finding out what the computer system affords. Norman would say that pieces of sushi afford eating, while the actual design of them is conventional, rather than affording specific ways of being handled.

(including design) is essential in the distinction between things and tools, and between tools and technology, affordances, in granting 'wrong' uses, brings a different perspective to the use of technology than either the design or praxis perspectives.[1]

The importance of this perspective should now be familiar; around us, we have a world of material objects that expand our potential practical space beyond what our bodily capacities afford. This expansion would have been of marginal theoretical interest if the organizational potential of technologies was just a matter of preserving and materializing already existing and designed/envisioned social praxes. Some of the earliest kinds of typewriters, for instance, were initially devices to assist those who had trouble writing for physical reasons, such as the blind. (Tenner 2003:193) Needless to add, typewriters soon took on a rather different role in society. Organizing our lifeworld through material items signifies an unpredictable 'upgrade' of our potential practical space. Therefore, in this sense, affordances are a supplement to investigations of technology through readiness-to-hand, and to the design and social praxis perspectives of technological development.

Nevertheless, it is strikingly clear that in discussing technology as a phenomenon, the concept of affordance is in itself not sufficient. To investigate designed functions, or conventional uses, we need a broader view, and to look at the intertwinement of humans, technology and society in the development of technological conventions. Without the social aspect, technologies would conceptually be on par with found items. Affordances would still be *real* aspects of technological items, but their utility would be determined on a case-by-case basis, and the referential totality would be lost. As Don Ihde puts it: "Just as there is no such thing as 'an' equipment, neither is there an equipment without its belonging to some set of culturally constituted values and processes." (1990:126)

Summing up this section, we can see that affordances are a way of conceptualizing the actualization of the virtual actions that material phenomena constitute. The concept of affordance substantiates the interdependence of technological item and user, namely that while the item affords certain ways of being handled that constrains its possible uses, an affordance is dependent on the user's competence, intentions, motives, short- and long-

[1] I am not implying that affordances are non- or pre-social, or that affordances are primordial to intersubjectivity. It is very likely that the unearthing of an item's affordances is connected to a social problem, such as a pertinent scientific one like the X-ray example above, or as those concerning the Ordinary bicycle's reception (cf. Chapter 2). As Bijker et al. observe, "a problem is only a problem when there is a social group for which it has the meaning of a problem". (1984:93) Explorations of possible affordances of an object, for whatever reasons, are not something I will discuss, but that such affordances transcend conventional uses should be evident.

term goals, etc.[1] The most important contribution of the concept of affordance is that by using it as a fundamental conception for understanding technology, neither instrumentalism nor essentialism makes sense. We do not control technology; technology does not control us. As Ihde points out, the question of who controls whom, technology or us, is a question asked on the wrong basis: "It either assumes that technologies are 'merely' instrumental and thus implicitly neutral, or it assumes that technologies are fully determinative and thus uncontrollable." (1990:140) By understanding technologies as affording virtual actions we can clearly see that such assumptions are unsupported. Consequently, the two concepts of virtuality and affordance are the foundation we need to regard technologies as expanding our practical space rather than extending our bodies. Through these concepts, we are able to support Ihde's typology of human-technology relation in a manner that demonstrates the non-transparency in these relations, while, at the same time, refuting the submissive view drawn by the later Heidegger.

The concept of affordance, however, primarily clarifies the interdependent relation between a technology user and a piece of technology. To conceptualize how technologies gain an impact on society in their stabilized form, I shall now turn to Don Ihde's concepts *multistability* and *trajectory*. The way I see it, these two concepts need affordance and virtuality as their foundation, as a way of displaying the basic sense of the interdependence between user and technology. Multistability and virtuality, however, are required for the argument that technologies constitute a social structure that we ('always already') are within and always depend on (see above, on the various relations we have to technology), while at the same time showing why this structure is not existentially overwhelming.

Multistability

Affordances indicate that what a phenomenon *is* is related to several factors. The materiality of the phenomenon itself is of course important, but so are the abilities, competence, techniques and perspective of those perceiving and interacting with the phenomenon as well. Extending this into the social sphere, it is clear that the role, function and meaning a piece of technology takes on in a society is to a large part dependent on the perspective and role it is perceived as having within this society, that is, on a social level. That a piece of technology has a specific function within a social praxis,

[1] And all this is framed by a social setting, as I discuss in Chapter 6.

however, does not prevent it from having a slightly or even vastly different function within another social praxis (in a different culture, or attaining a revised function as time goes). "In both structure and history", Ihde says, "technologies simply can't be reduced to *designed functions*". (2002:106) Instead, technologies are *multistable*; a technology can take on different functions and meanings within different praxes.

The concept, a nod to Bijker et al. (1984), implies some similarities to affordances; technologies have potentials that exceed designed or present conventional functions within a social praxis, but *retain the interdependence of users and technology in a social context*. As mentioned, the main difference between multistability and affordance is that the latter is primarily about our relation to the technological item itself (although still relative to the perspective of those perceiving it), while the former is about the item when it has been stabilized with a socially defined function within a social praxis.

With multistability, Ihde has formulated a concept that avoids the instrumentalist conception of the relation of technology and the social that threatens the concept of interpretive flexibility (cf. Chapter 2). Multistability captures the social dynamics that transform the stabilized meaning of a technology into another, stabilized, form. For example, the overpasses on the Long Island Parkways are no longer a means of keeping poor and underprivileged people off the beaches of the southern shoreline of the island, as the possession of cars is no longer exclusively for the privileged like it was in the 1920s when Robert Moses planned the Long Island Parkway system. (Verbeek 2005:117) Sometimes the kind of impact a technology has on a society changes completely because of a social development. Technological stabilization is not necessarily a one-way street. If it had been, we would have been influenced deterministically.[1]

Ihde offers a handful of examples of technology transfer, that is, when a technology is introduced to a culture that was previously unaware of the technology. This can happen by accident, as when Australian gold miners in the 1930s left behind cans of sardines in New Guinea. The cans of sardines were promptly adapted into the culture of the natives, but as "centrepieces of the elaborate headwear they wore for special occasions". (Ihde

[1] Multistability should not be confused with *revenge effects*, which Edward Tenner notes are a common problem with introducing new technologies: "whenever we try to take advantage of some new technology, we may discover that it induces behaviour which appears to cancel out the very reason for using it". (1997:7) Burglar, fire and car alarms are frequently ignored because they start too many false alarms. Networking has made installing home offices easier, but means that working home is as easily interrupted as working at the office, etc.

1990:125) Without transfer of the surrounding socio-technological system, a piece of technology is left with its affordances as a thing, even if it is recognized as an artefact rather than a naturally occurring item. The affordance that will be stabilized as a function is in some cases anyone's guess. Technology transfers can also be planned, of course, as in the activities of the humanitarian organization Fair Allocation of InfoTech Resources, which works with the distribution of ICTs in developing countries, often in terms of collecting and distributing recycled computers that are deemed unusable in Norway and other ICT-rich countries.[1] A related example, closer to home, is the use of ICT-related pedagogical tools in Norwegian primary and secondary schools. Studies have shown that although there is a certain correlation between the presence of computers and the use of them, of course (without any tools present, no use is possible), mere presence is not enough to ensure an extensive use of ICT in class. Even if both teachers and pupils use ICT outside the classroom, this is not reflected in the use of ICT in schools. (Søby et al 2005:126f, Krumsvik 2007:20) The low level of ICT use can partly be related to a low level of competence of (aging) teachers, but a more serious issue is it that ICT is not properly integrated into the pedagogical programme for the teacher education. (Krumsvik 2007:18) Presence or access in itself is not sufficient to ensure use of technologies. As we saw in Chapter 1, the use of a technology involves an entire socio-technological system comprised of competence, praxes, other technologies, and economic and political factors. In itself, a piece of technology affords certain uses, but it does not afford the entire surrounding system.[2]

Trajectories

That technologies are multistable, that is, able to perform different afforded functions within different social contexts, implies that the socio-technological development will differ in various contexts. This suggests that stabilizing/constituting a technology as a function triggers (or, more likely, is already a part of) socio-technological development in a specific direction. Had the technology been stabilized as a different function, the developmental direction might then have been different. Potentially, prior to constitution, the socio-technological development can go in several directions. "Within multistability there lie *trajectories*, not just any trajectory, but partially determined trajectories." (Ihde 2002:106) Once a technology is constituted (or re-constituted, as it may be), the direction

[1] http://www.fairinternational.org/ [02.01.2009]

[2] In Chapter 7, I will return to the theme of sheer technological presence.

for further development is partially laid down, in the sense that the potential in the material properties of the technologies opens us up to specific ways of developing these technologies further. Galileo Galilei's first telescope had a magnification of 3x, while his last magnified 32x; having established the utility of the first, further development of the subsequent ones was motivated. This is not to be taken as a technological determinism where we suddenly find ourselves as obliged in any way to follow this trajectory. Whether, and to what extent, a technology is further developed depends on social, economic, political and scientific processes. (Bijker et al 1984) Instead, we should regard trajectories as *inclinations*. "Such inclinations are related to the capacities opened up by the instruments, capacities of a technological possibility leading to the productive capacities of experimental science" (Ihde 1991:137), or the productive capacities in some other area of technological mediation, such as the possibilities for mass production allowed by the invention of the moving assembly line.

Once a technology is constituted in a socio-technological system, what is regarded as its strengths and weaknesses are tinkered with.[1] How should we make the piece of technology better? How should we eliminate those aspects of the item that distract us from its primary function? Tinkering can be done 'positively', where we try to make the technology better, such as faster computers, increasing RAM, digital cameras with higher resolution.[2] The same trend can be found early and throughout in humankind's tool-use: better stone-hammers, better spears and cutters. Galilei's use of the telescope created a need for better and stronger telescopes, eventually ending in modern radio and gamma ray telescopes. The early optical microscopes dating back to the 1600s have evolved into electron and helium atom microscopes[3], enabling us to 'see' non-visual data. Being able to see things we cannot see with the bare eyes sent science on a trajectory towards enabling us to see phenomena that is not visually available at all. (Ihde 1991:137f) Although the radio telescope in itself is not in the trajectory of the optical telescope, as it involves a very different kind of visualization, this calls attention to visualization as a 'value' trajectory of

[1] Or 'thinkered'; the Institute of Design at the Illinois Institute of Technology calls the exploration and innovation of technologies meant to help and augment thinking skills 'thinkering'. http://www.id.iit.edu/ThinkeringSpaces/ [02.01.2009]

[2] Trajectories can be broken. The better/stronger trajectory of audio-visual equipment has the recent years experienced a set back by the introduction of *digital* AV equipment. We now seem to be happy with lousier picture quality on our LCD and plasma TV's, with poorer sound on MP3 files, with digital cameras not yet able to match the quality of old cameras. The 'digital revolution' has, of course, a similar trajectory to older AV equipment (better/stronger), but given the quality and the price of the new technologies, it is somewhat surprising that so many are willing to go digital before the quality is comparable to the old technologies.

[3] Koch et al 2007.

its own within modern science. The preoccupation with the visual and the subsequent translation of the non-visual into images by means of instruments shows that vision is the paradigm perceptual sense within modern science. (Ihde 1998:151-169) The discussion of intentionality in the previous chapter showed that, according to Heidegger, Husserl had not been able to shake this preoccupation with visual perception either. Because of this, his analysis of intentionality became misguided (cf. Chapter 2).[1]

Another type of trajectory is set off when we react to the unhappy consequences of a technological development. This is different from the trajectory of an artefact, and is more related to the development of the socio-technological systems that are constructed *around* technologies that Winner was concerned with (cf. Chapter 1). Palpable today are pollution effects of industrial and travelling technologies. Addressing these problems will involve many socio-political and juridical actions, and of course, new kinds of technologies, developed precisely to meet these unhappy consequences: decontamination units, biofuels, catalytic incinerations, and so on. Trajectories are an integral aspect of any constitution of a technology; once we are capable of saying what something is *for* and what it is able to do (positively and negatively), we are also able to analyse the parameters that should make it better and more powerful (or less harmful). Regardless of whether it is an enhancement or a reaction, socio-technological development has taken a certain path relative to how the technology was constituted.[2]

An important aspect of trajectories is that their potential path can be very hard to predict. For instance, these days we know that nanotechnology and nanoengineering will potentially bring sweeping changes to a variety of aspects of our society (medicine, foods, environmental issues, etc.), but this field of research is still embryonic so we do not know the full potential – positively or negatively – of the 'nanotrajectory', not technologically, nor in terms of the social consequences. Of course, such insecurity makes it imperative to chart possible motives behind and goals for the present research, and ask with Langdon Winner whether it is "wise to experiment with technological applications likely to produce irreversible effects?" (Winner 2003)

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[1] Perhaps it would be more accurate to say that Husserl mistook, if indeed that was what he did, *how* we perceived visually. "Perception is not something that happens to us, or in us. It is something we do… *What we perceive* is determined by *what we do* (or what we know how to do); it is determined by what we are *ready* to do." Noë 2004:1)

[2] As noted by Tenner, the introduction of technologies requires and set off developments and refinements in techniques as well, and these techniques will play a part in what direction the further development of the piece of technology takes. (2003:13f) I will regard techniques in Tenner's sense as part of the social process that constitutes the function a technology attains.

In closing

In this (long and complex) Chapter, I have discussed the long and complex pathway that lies behind the constitution of a thing as a technology embedded within a social praxis. The intuitive notion of technology as some sort of body extension was dismissed in preference to Ihde's more exhaustive typology because the body extension thesis does not illuminate the magnification-reduction structure implied in technologies. However, to warrant this structure and to display the interdependence of technology and us (which is argued for in the preceding chapters), I presented the concepts of virtuality, affordance, multistability and trajectory. The dual concepts of affordance and virtuality form the basic meaning of technology, telling us how technological items both depend on us, but still transcend our motives and intentions, or in other words, how technology itself, through the potential and actual actions it affords us, *reveals our practical space*, the horizon of possible actions. Technologies not only augment our actions in the world, they co-constitute the very world those actions are performed in. The dual concepts of multistability and trajectory build upon this perspective, showing us how interdependence work in the context of socially governed functions, that is, when the technology is stabilized (cf. Chapter 2).

To stabilize a technology *implies a revealing-concealing structure*. Revealing, because a technology discloses a world (cf. Chapters 3 and 4): It makes us see and approach the world in a certain way in accordance with its magnification-reduction structure. This technological revealing, then, has an inherent tendency that is augmented by the subsequent socio-technological development, trajectory, bringing us further into the *hows* of the technological world-revealing. Concealing, because any elevation of an affordance into a stabilized social praxis conceals other potential stabilizations that would have made us see and approach the world differently. Concealing can be read in two ways. First, a trajectory might create social and technological conditions that make it hard to catch a glimpse of alternative ways of life. Concealing in this sense reads like a paradigm. The other way of concealing is the kind that Winner is afraid might be unleashed by the nanotrajectory if we do not excise sufficient political and social control and assessment of its development. (Winner 2003) Once a trajectory of this kind is initiated, it can be quite hard to reverse it, sometimes even impossible.

Although all constitutions of technologies involve the revealing-concealing structure, they differ vastly in their degree of concealment. Some trajectories are 'soft', only suggestive in

a relatively small role within a socio-technological network. Such trajectories only partly conceal other possible trajectories, leaving the developmental directions mostly in the hands of users and society. How the bike has developed from the Ordinary bike was to a large degree dependent on the specific needs and preferences of various social groups. (Bijker et al. 1984) The bike, of course, still *afforded* several developmental trajectories, but the trajectories themselves did very little in terms of concealing alternative trajectories (mainly because each trajectory had its own problems in relation to specific groups, which were not solved until the air tyre was invented). Small electronic gadgets aimed at leisure activities rarely have much impact beyond their brief period of hype. The Tamagotchi is still around[1] but has never been close to concealing alternative ways of spending one's leisure time (although for individual users, for a period, it probably was).

Other trajectories are stronger, overshadowing other possible trajectories. The microprocessor, for instance, is now in use in a wide variety of appliances, from spacecraft to personal computers to refrigerators to shoes.[2] Can we even imagine how our society would look without it? To a certain degree, we can say how life was *prior* to its introduction, due to historical records and comparatives studies of other cultures, but it is hard to imagine how recent socio-technological development would have turned out without it. Probably the singular most powerful technological trajectory in this sense has been the one leading up to the development of the atom bomb. Its mere presence has made existence without it a sheer impossibility. And yet, the same trajectory has led to developments that some deem useful; nuclear power plants are now thought to be environmentally sound sources of energy, despite their risks, and thus as something worth considering as an alternative source of energy also in Norway.

Heidegger regarded modern technology as a whole to constitute a very powerful trajectory. By implementing the *Gestell*, the modern technological system became the only way of being, and thus, concealed other possible ways of being in the world (Chapter 1). This dystopian conclusion neither is a necessary consequence of his own earlier thinking about the revealing of a world due to our technological actions, nor is it a plausible one, bearing in mind the interrelatedness of user, society and technology that we have been discussing. For many of the same reasons, instrumentalism seems doubtful. Technologies come with their own impact, to varying degrees, but the constitution of this impact is

[1] http://www.tamagotchi.com/ [02.01.2009]
[2] http://www.newscientist.com/article/dn4969-smart-sports-shoe-adapts-for-optimal-cushioning.html [02.01.2009]

interdependent on other factors as well. The revealing-concealing structure is a consequence of the interdependence, the dynamics in the socio-technological development.

CONCLUDING REMARKS | PART 1

As mentioned in the introduction, this dissertation is a formulation of a theory about human-technology relations. This has been undertaken in two main steps: the first, which I have completed in this part, is an investigation into the relation of technology and us, followed by an investigation into the relation of self and society, which I shall turn to shortly. In Chapter 1, we saw that two candidates for the description of the relation between technology and us, instrumentalism and the determinism of Heideggerian essentialism, failed at illuminating this relation because we have good reason to believe that technologies really do have an impact on society, and possibly also on us. Although easily seen as opposites, both –ism's, in fact, share the same basic view of technological items: They do not matter; they are *transparent*. Transparency, in turn, was refuted by *technological* determinism, but here the relation is that of a submissive one; we are controlled by technology and technological ideals. This is equally untenable in the transparency view, although Ellul is right in pointing out that technology has an impact on society.

The three chapters constituting Part 1 has been devoted to a) a substantiation of the fact that we do actually have an influence over technology, that is, a more solid (albeit implicit) dismissal of technological determinism than I could offer in Chapter 1, and b) an elaboration of *how* technologies influence society and us. Both arguments, the first rather

implicitly through the argumentation for the latter, were dealt with through the constitutional-articulative perspective introduced in Chapter 2. I argued that we should not view technological actions as a mere modification of an already existing world/society, but as being essential in articulating this world/society, essential in creating, *articulating*, reality. To avoid both technological determinism and Heideggerian essentialism, I argued that the action leading the articulation of reality must be regarded as constituted by technology, user(s) *and* the task at hand. The constituents' relation in a technological action is *interdependent* rather than interactive; how each contributor appears (which properties and competencies are accentuated) in the technological action is a result of the specific situation and how other constituents appear in it. Neither constituent enters a technological action predefined. This way no single contributor has primacy in the causal chain leading to the articulation that results from the technological action. Consequently, it is the *technological action as a whole* that has causality; not the technology employed in it, and not the user(s) (nor the social interpretation of the articulation).

What does that imply? How can, for instance, a technology influence ('co-determine') the task it is to be utilized in? This was explored in the last two chapters of Part 1, and the argument, again, was put forward in two steps. First, as discussed in Chapter 3, we discover the world through our concerned action in it; our dealings, more often than not, are technologically augmented and the world as unconcealed gives evidence of this. Therefore, it is possible to say that the lifeworld – the world as it appears to us, with social and material structures of meaning, various relations, and *with problems and solutions concerning these*, is co-constituted by us and our available technology. A technology co-constitute its own task because we discover a problem in light of the available problem-solving strategies we have (also when we do not have any readily available strategies for dealing with a specific problem), *without having any problem-solving strategies we would have no problems*.

The first step, then, was about *constitution*. However, to gain an insight into just *how* 'the available' technology does partake in the revealing, a second step had to be performed. In Chapter 4, I fleshed out in more detail exactly how the process of revealing (and the necessary concealing that goes along with it) is performed, *in terms of technologically related input*. In other words, Chapter 4 was mostly concerned with how we should conceptualize the contribution from technology in the revealing of the world. Because such a revealing is no mere uncovering of something that is already there, pre-defined, I called what is

unconcealed an *articulation*, thereby displaying the productive effort by the constituted technological action. Consequently, how we perceive and know the world is an articulation, related to the possibilities we have of acting in it, that is, our actual and potential practical space.

Concluding Part 1, the main feat of technology as a phenomenon is the upgrading of our practical space that it represents. This, I claim, is an aspect that belongs to all technologies, 'big' and 'small', 'near-transparent' and 'near-opaque', 'habitually used' or 'hardly used'. It is, in other words, the meaning of *technology*. Just how each piece, or type, of technologies actually does this, of course, is due to the specifics of each piece or type. The goal of my investigation into the meaning of technology has been precisely this, to display the manner in which technology *as such* influences the world we live in and at the same time provides an opening in the formulated meaning that does not cancel out specific effects and influences. In this sense, the general meaning of technology *contextualizes* the specific social praxes that surround any technology. By using the general meaning as the backdrop for empirical studies of technologies' effects we are better equipped to understand the changes that come in the wake of a single type, or a cluster of technologies. Specific trajectories themselves, for instance how mobile phones incite a developmental trajectory, are a task for historians and sociologists et al, but *that* mobile phones afford a trajectory is the philosophical contribution to technology studies that Part 1 has clarified.

However, as we have seen, a technological action is co-constituted by the technology involved, the user(s) and social aspects, such as praxes, conventions, etc., in which the action is performed. The personal and social dimensions also contribute to those aspects that we have discussed so far, but these dimensions have not yet been discussed. To understand the meaning of technology involves understanding those aspects that work in tandem with technology as well. Moreover, what concepts of self and intersubjectivity are required for the theory of technology developed in Part 1? The meaning of technology as it was developed in Part 1 has profound effects on the notion of the self: If technologies were mere instruments, technologies would contribute nothing interesting to the constitution of the self. However, if technological actions are genuine upgrades of our practical space rather than extensions of our bodies, the self is transformed radically in technological presence; *technologies co-constitute our future selves*.

The relation between the self and its practical space is investigated through two lines of inquiry. First, we need to see the self as something that indeed *has an opening* towards intersubjective influences such as those coming from others and from technology. If we see the self as shaped by its surroundings, what notion of the self underlies such a view? And does that imply that the self is a mere result of its influences? Second, and most important, if we are to avoid the social determinism that threatens the first line of inquiry we need to develop a concept of the self that sees it as something that projects itself forward into its own possibilities. Self-theories, as we will see in Chapter 5, often concern the re-construction of the self from past experiences. However, my claim is that the self should (also) be understood in terms of the future.

The first leg of the investigation might be seen as a *requirement for the second leg to be performed at all*. Only in attaching us to others and to things in our surroundings can we project ourselves forward in terms of having *possibilities* in our own lives. *The main claim of Part 2 is that without a material and social embedment, we would not have the means through which we can project ourselves*. This, then, is the most fundamental notion in which technologies co-constitute the self: through creating the actual and potential practical space in which the self finds its own possibilities. By this, technologies scaffold our self-understanding.

part 2

SELF AND SOCIETY

chapter five

THE ELUSIVE SELF

The self

When Hume turned his gaze inwards he made a non-discovery philosophically almost as significant as Descartes' discovery of the *cogito*. John Searle, upon discussing the self, even says that "[m]any contemporary philosophers… think that Hume had more or less the last word on this issue [the self]". (2004:279) Famously, all Hume could find were occurrences of perceptions "which succeed each other with an inconceivable rapidity, and are in a perpetual flux and movement". (1978:252) Hume's refutation of the possibility to perceive the *cogito* was a consistent application of Descartes' own naturalistically inclined investigation of nature and humans. Descartes, somewhat of a fierce naturalist himself through the absolute mechanization of *res extensa*, had left the *cogito* outside of his naturalization. Hume, on the other hand, included it, found it to be lacking the proper foundation (in impressions), and then eliminated it.

More precisely, Hume compares the perception of the self to the perception of external objects, which, he claims, are of bundles of properties rather than things in themselves. If so, the self can be conceived as a bundle of perceptions. This implies that the self in some sense does exist, but can be compared to "a republic or commonwealth, in which the several members are united by the reciprocal ties of government and subordination, and

give rise to other persons, who propagate the same republic in the incessant changes of its parts" (Hume 1978:261) rather than to a body, a substance, or any persistent self-sustaining *thing*. One way to think about the self after Hume is in terms of personality, or character, as something that has developed through one's experiences, social class, friends, work, interests, and so on. Nobody *has* a self, in Descartes' sense, but we *are* selves, nonetheless.

Because of the varied influences on our personality, this kind of self can be approached and enlightened in a number of ways, and as such, it is investigated in many empirical disciplines, from religious studies via anthropology and psychology to neuroscience. My focus, however, will be on philosophical topics, but even here, the possible approaches are many and diverged in scope. Bermúdez et al. categorized the philosophical writings on the self into four: *ontological* (the nature of the self), *phenomenological* (the nature of our experiences of ourselves), *epistemological* (how to gain self-knowledge), and *semantical* (the reference of the first-person pronoun 'I'). (Eilan, Marcel, Bermúdez 1995:1) In addition, there is the question of personal identity: What are the criteria for saying that this person, observed at time A, is the same person observed at time B? Or even, what criteria do we ourselves employ when we perceive ourselves as being the same person at the two different times? The Cartesian *cogito* aside, the two main candidates for an answer to this question is psychological continuity and bodily continuity. John Locke's theory emphasizes memory's crucial role in creating the phenomenological feeling of personal identity, but psychological aspects also include our *personality*: values, interests, preferences, beliefs, etc. In line with a materialistic ontology, psychological continuity has recently been argued to be reducible to bodily, especially brain, continuity. (Shoemaker 1963, Williams 1973) Since we normally do change gradually psychologically and physiologically, changes where the causal properties are well known do not pose any problems to the continuity-theory. But what would happen in case of sudden and drastic changes?

Think of the French artist Orlan, who numerous times have undergone plastic surgery to alter radically her appearance for the sake of performance art. Orlan herself says she does this to "decry the social pressure placed on the human body, especially women's bodies".[1] Through all these operations, we would still say that she is the same person; it still is

[1] http://www.orlan.net/ [02.01.2009]

Orlan even if her physical appearance at certain times can be quite far from how she normally looks (and now her normal looks are quite different from how she looked before starting these performances as well). But what if something went awfully wrong during one of her plastic surgeries, and after recovery, she decides that her body alterations has only been foolishness, and that she wants to stop doing performances, enter a convent, and dedicate herself to religious matters? Would she then be the same person, or would we say that Orlan has changed so much that we do not recognize her anymore? She is not Orlan as we know Orlan. If this is so, why? Similar and more science fiction-like examples emphasize the importance of psychological continuity when we ascribe identity to a person.[1] We perceive not just a body, but also a body with a personality, and if this personality changes abruptly, it does not matter if the body is the same, we would not be willing to say that it is the same person. However, is it that simple? Would we not say that *she* is not the same? 'She' here evidently refers to the same person before and after the change. Rather than saying that Orlan-the-nun *is* a different person than Orlan-the-performance-artist, we would say that it is *as if* she is a different person. Disruptions and abrupt changes in a person's psychology do not automatically make a person into a new person.

In this chapter, I am going to discuss the self in a manner that will not respect the boundaries between, say, the epistemological and the ontological approaches. Further, I am going to discuss personal identity without an *a priori* definition of a proposed distinction between the self and the person. It is my contention that investigating the self within one of these distinctions, although enlightening in certain aspects, will ultimately obscure other, just as important aspects of the self. The self, in my mind, is not reducible to one specific phenomenon, disclosed either through bodily or psychological continuity, but is a many-faceted expression of various aspects, some that are expressed at some times, and others at other times. The self is an active and engaged participant in the world, that is, as a user of, a communicator in, and a constituter of the lifeworld, and more interestingly, is itself constituted through this activity. The approaches mentioned above are normally centred on *intrinsic* aspects; how is the self's own perception of its continuity established. My approach is to think in *extrinsic* aspects; "what determines whether a person at one time and at another is the same person is not just how the two

[1] Thought experiments that envision body transfer, body dis-/reintegration, and all kinds of abnormal situations are commonly employed to single out *the* criterion for personal identity. As I am mainly interested in the normal sense of self and personal identity, I will not discuss many of those.

are physically and/or psychologically related to each other [the intrinsic view], but how they are related to everything else – especially *everybody* else". (Martin & Barresi 2003:1) Extrinsic aspects are given a co-constituting role. However, to shun social and cultural determinist views of the self, intrinsic aspects are not eliminated. What interests me is the *interdependent relation* of the intrinsic and extrinsic aspects. In this sense, the intrinsic aspects are complemented with extrinsic ones, not replaced. So, what are the intrinsic aspects? In this chapter, I shall search for the defining characteristic of the self. What is the self, how can we know ourselves as selves, and, at a more fundamental level, do we *know*? In Chapter 6, I will proceed and explore more directly the interdependence of the intrinsic and extrinsic aspects. In the end, the self appears in its two-sidedness, the mineness of the conscious being, and the embedded self that is engaged in the world.

The empirical self

Hume's empiricist predecessor, John Locke, came to a slightly different conclusion from Hume. While Descartes' cogito was an *immanent* self, a remnant of the immaterial and immortal religious self of earlier times, Locke's analysis, the "first ever, fully-fledged empirical account of self-constitution" (Martin & Barresi 2000:8), led him to postulate an *empirical* self. Locke identifies the self or *person*, as he prefers to speak of,[1] with consciousness, or more precisely reflexive consciousness. To be a person, then, is to be a:

> [T]hinking intelligent being, that has reason and reflection, and can consider itself as itself, the same thinking thing, in different times and places; which it does only by that consciousness which is inseparable from thinking, and, as it seems to me, essential to it: it being impossible for any one to perceive without perceiving that he does perceive. When we see, hear, smell, taste, feel, meditate, or will anything, we know that we do so. Thus it is always as to our present sensations and perceptions: and by this every one is to himself that which he calls self. (Locke 1975:335)

It is clear from what Locke says here that consciousness in itself is not sufficient for personal *identity*, that is, for an enduring self that transcends a mere conscious moment. Personal identity requires 'sameness' of consciousness over time. Therefore, in addition to self-reflexive consciousness, memory plays a pivotal role in the establishing of the identity of the person: "as far as this consciousness can be extended backwards to any past action or thought, so far reaches the identity of that person". (Locke 1975:335)

[1] Locke does not always equate these two expressions. According to Martin and Barresi "Locke's definition of person highlights that persons are thinkers and, as such, have reason, reflection, intelligence, and whatever else may be required for trans-temporal self-reference. His definition of self, on the other hand, highlights that selves are sensors and as such feel pleasure and pain, and are capable of happiness, misery and self-concern." (Martin & Barresi 2000:20)

Locke's memory-founded view of personal identity has been met with a lot of criticism,[1] primarily because the theory is circular. It is hard to see what memory is if there is no personal identity there already: How else would we be able to tell that what is remembered 'belongs' to the same person that is having the present experience? Martin and Barresi argues that this is not a problem for Locke *per se* as it is not clear that he sets out to formulate a non-circular theory of personal identity anyway. Instead, they argue, the circularity of memory is implicated in the double reflexivity of consciousness.

> [W]hen you remember having had an experience or having performed an action, a reflexivity is involved which is similar to that which is involved when you are merely aware that, in the present, you are having an experience or performing an action. (Martin & Barresi 2000:17)

If we are having, right now, an experience, we, through self-reflexivity, appropriate the experience, that is, we claim ownership of it; we are aware not only of an occurring experience, but also that it is we who are having the experience. By extension, when we remember an experience, we also remember our appropriation of that experience, not just that an experience has occurred. Hume, however, being just as consistent an empiricist as he was a naturalist, argued that the empiricist approach to consciousness (that Locke himself employed), rather discloses the self as a fiction, neither immaterial nor empirical; Hume simply could not find any entity called the self in his own fleeting perceptions. Therefore, such an appropriation is nothing but a fictional event. Locke, although naturalizing Descartes' self, did not go far enough for Hume.[2]

Hume is unimpressed by Locke's application of the self-reflexivity of consciousness and memory to explain personal identity. Remembering an experience is, for Hume, not much different from having an experience. To compare two experiences, now-experiences or remembered ones, and claim an identity relation between them is mistaken because "identity is nothing really belonging to these different perceptions, and uniting them together; but is merely a quality, which we attribute to them, because of the union of their ideas in the imagination, when we reflect upon them". (Hume 1878:260)

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[1] See Perry 1975:135ff for a review of weaknesses and strengths of memory-founded self-theories. This is not, for me, the most interesting aspect of Locke's theory, so I will not concern myself further with it.

[2] Martin & Barresi mentions that Locke, as he was a deeply religious man, had *practical* concerns in his theory of personal identity; he needed a self that was responsible for its actions, and therefore "accountable for their thoughts and deeds, and, hence, appropriate subjects for the distribution of rewards and punishments". (2000:18f) Gilbert Ryle, in discussing the early modern concept of the self, in effect says the same thing, describing both the Cartesian and the Lockean selves as "transformed application[s] of the Protestant notion of conscience". (1949:159) Indeed, it can be argued that practical concerns permeate Locke's entire epistemology considering how engaged he was in political and educational matters.

For Hume, memory of past experiences and the uniting of these into an identity-relation, can no more disclose a self than what was present in the original experiences. The subsequent appropriation of an experience that was so important for Locke would be problematic for similar reasons. Appropriation presupposes an objectification of the original experience. Considering the problem of circularity; "awareness that the presented object was φ would not tell one that one was oneself φ, unless one had [already] identified the object as oneself" (Shoemaker 1984:105), this will merely shift the level of the investigation; we will have to 'look for' the self at a higher level. Hume's reply would probably be something along these lines: "I never can catch myself at any time without a perception, and never can observe any thing but the perception." (Hume 1978:252) To introduce a level of self-reflexivity would only be begging the question. I shall return later to the problems of the objectification of experiences as an explanation of the self.

Me, myself and I

Despite what Searle indicates in the quote above, Hume's denial of Descartes' and Locke's selves has not been the end of the discourse of the self, and any theory proclaiming the disappearance of the self has several concerns to address. For one thing, the concept is still importantly present. Even if we do not acknowledge the self as something other and above the body, we still cannot talk about an experience without positing a subject of that experience, a 'you' or a 'she', or an 'I', because it is, as Gilbert Ryle puts it, "improper to speak of my eyes seeing this, or my nose smelling that; we would say, rather, that I see this, or I smell that". (1949:168) However, this particular use of language should not lead us to think that the subject of the sentence denotes a self, a 'ghost in the machine' as Ryle dubs the Cartesian *cogito*. (1949:15f) To understand words about the states of mind of a person – beliefs, motives, intentions and so on – to mean that these words signify an independent mental realm where the states are located is a category mistake, Ryle says, a misunderstanding of the logics involved. Ryle's famous example in this respect is a first-time visiting professor to Oxford or Cambridge who is given the tour, sees the colleges, the libraries, museums and the administration, etc., and then asks, 'But, where is the University?' The mistake is to think that 'the University' is a concept that belongs to the same logical category as the other words (College, libraries, etc.) when it in fact is an abstraction, used to describe the workings of the other units. Logically, 'the University' is of a higher order than the other words. If one, however, thinks that the University is of the same logical category, but is not to be found, one

might, as John Heil puts it, "come to imagine that the entity in question is 'non-material". (1998:60)

Hume had already suggested that "the nice and subtile questions concerning personal identity…are to be regarded rather as grammatical than as philosophical difficulties". (Hume 1978:262)[1] Ryle continues, and reformulates the problem of the self into a fully-fledged problem about language. He claims there are several peculiarities in language that creates the category mistake. All people, philosophers and nonprofessionals alike, according to Ryle, think of 'I' as a proper name, and hence ask what or whom it is a name of. In reality it is an index word, contextually bound, pointing to the bodily being that utters it (and likewise with 'you' and 'he'). This is somewhat common sense, of course, and frankly presupposes what Ryle sets out to do, namely, the disappearance of the ghost in the machine. If 'I' is an index that points to what is only a bodily being it must be because this bodily being is conceived as *not* 'containing' a ghost in the machine. Nevertheless, Ryle's aim is to show that this way of talking confuses us: 'I' is mysterious because of the way we talk. The mystification of 'I', and why we tend to think of 'I' as being more than a mere index, is due to a dissymmetry between different occurrences of 'I' and related words:

> In the sentence 'I am warming myself before the fire', the word 'myself' could be replaced by 'my body' without spoiling the sense; but the pronoun 'I' could not be replaced by 'my body' without making nonsense… It makes perfect sense to say that I caught myself just beginning to dream, but not that I caught my body beginning to dream, or that my body caught me doing so. (Ryle 1949:189f)

Therefore, we tend to think of 'I' as being something else, and somehow something extra to our body, as denoting something we ourselves do not easily grab. Even small children notice this linguistic peculiarity, which generates a feeling of the 'I' as something elusive, something mystifying. As such, we can

> catch only its coat-tails. Like the shadow of one's head, it will not wait to be jumped on. And yet it is never far ahead; indeed, sometimes it seems not to be ahead of the pursuer at all. It evades capture by lodging itself inside the very muscles of the pursuer. It is too near even to be within arm's reach. (Ryle 1949:186)

'I' displays in this sense the same kind of elusiveness that contextually bound indexical expressions like 'here' and 'now' does. The moment you say 'now,' it is, in a sense, already

[1] Barry Stroud claims that Hume later was dissatisfied with his own account of the self. (1977:127f) Exactly why, according to Stroud, is hard to say, but he seemed to hold his principles (of resemblance and causation) as not being sufficient. The quote concerning the role of grammar indicates that Hume perhaps wanted to look at extrinsic mechanisms for the full story of personal identity.

'later' (remember Heraclitus). We cannot grab the now-state as an experienced now-state, but only through making it a topic for attention, and thereby objectifying it. This is how the 'I' functions as well. Instead of it naming a cogito, Ryle explains the elusiveness of 'I' with a difference in logical force of the occurrences of the index. Sometimes 'I' is used simply to refer, as in, 'I am sitting in my office writing on my computer'. Other times the index is a comment on the simple reference, as in 'I suddenly found myself sitting in my office just staring at the wall'. Logically the last occurrence is equal to remembering that 'I was in my office yesterday', or critically assessing what I did there, 'today I couldn't get any work done in my office', or any other reflecting commentary on my own activity. In other words, 'I' is often used in a higher order sense, as a meta-occurrence: "To try, for example, to describe what one has just done, or is now doing, is to comment upon a step which is not itself… one of commenting." (Ryle 1949:195) It is necessary to see that certain occurrences of 'I' are due to a higher-level activity. To attain this level, we need to step out of the lower, immediate, level, objectify it, and thereby making it a topic for this higher order act of description, the comment, in Ryle's words. This, then, is the grammatical reason for the confusion.

Had Ryle acknowledged consciousness, he might have had a Lockean theory of the self, using consciousness' inherent reflective character as the explanation. Ryle's account for the reflexivity, however, goes in a different direction, employing familiar behaviouristic themes of observing and learning (and language). The development of the self, then, requires the ability to objectify not just others but also oneself (in an analogue fashion to how Locke's reflexive self-consciousness objectifies the primary experience by appropriating it). Further, and a much stronger criterion, objectifying oneself is dependent on objectifying others. According to Ryle, in adolescence we prime our higher order acts by learning the connection between, on the one hand, the behaviour of others and oneself, and on the other hand, observing how this behaviour generates various sorts of response. The development of the higher order standpoints against others are, however, a complex process, as can be gathered from some of the examples Ryle gives:

> Higher order actions… can be done efficiently or inefficiently, appropriately or inappropriately, intelligently or stupidly. Children have to learn how to perform them. They have to learn how to resist, parry and retaliate, how to forestall, give way and co-operate, how to exchange and haggle, reward and punish. They have to learn to make jokes against others and to see some jokes against themselves, to obey orders and give them, make requests and grant them, receive marks and award them. They have to learn to compose and follow reports, descriptions and commentaries; to understand and to give criticism, to accept, reject, correct and compose verdicts, catechise and be catechised. Not least (and

> also not soonest) they have to learn to keep to themselves things which they are inclined to divulge. Reticence is of a higher order than unreticence. (1949:193)

Learning how to direct higher order acts towards others turns at a certain stage into the trick of directing the higher order acts onto oneself. We apply the language we have acquired for commenting others onto ourselves; we discover, as Ryle puts it, "how to play both roles at once". (Ryle 1949:193) We become, at the same time, both the doer and the critic. Furthermore, says Ryle, there are no higher-order acts that cannot themselves be attended to by other higher-order acts, the critic can himself be criticised.

Retrospection

The self as a critic, and the role of critic made possible through being a language-user, is that Ryle's theory made short?[1] A critic, however, can be wrong in his assessments, and he can judge another person out of the wrong reasons all together. Surely, this cannot be the case for the 'criticism' of 'I'. Nevertheless, it does seem to be the implication of the theory. Ryle confirms this, "[m]y reports on myself are subject to the same kinds of defects as are my reports on you, and the admonitions, corrections and injunctions which I impose on myself may show me to be as ineffectual or ill-advised as does my disciplining of others." (1949:194) For Ryle, it is a mistake to think of self-consciousness (or simply, consciousness) as being wholly transparent, something we know either subjectively and privileged through introspection, or immediately through the 'inner light' of consciousness.[2] This kind of theory, which Ryle calls the 'theory of Privileged Access', implies a dichotomy between the first- and the third-person perspective that creates a dissymmetry between our knowledge of others and that of ourselves; about our thoughts and our experiences we cannot be mistaken, while about others… well, it is fairly obvious that we can be wrong about the mental life of other people.

However, can we be wrong about our own mental life, our own thoughts and experiences? Ryle thinks so:

> [T]here is no contradiction in asserting that someone might fail to recognise his frame of mind for what it is; indeed, it is notorious that people constantly do so. They mistakenly suppose themselves to know things which are actually false; they deceive themselves about

[1] Although, the way Ryle presents this, it seems to me that language is not necessary. Non-linguistic meta-behaviour towards one's peers is frequent in other species. What is the addendum that makes it possible to turn this into a meta-behaviour towards *oneself*? Is this aspect inherent in language itself? I can find no clear account of this in Ryle.

[2] These two different methods of knowing the content of one's consciousness are given a parallel treatment in *The Concept of Mind*, see subdivisions (2) and (3) in Chapter 6. Here I will focus on Ryle's arguments against introspection, but later I will argue for a sort of immediacy, and then touch upon arguments similar to Ryle's.

> their own motives; they are surprised to notice the clock stopping ticking, without their having, as they think, been aware that it had been ticking; they do not know that they are dreaming, when they are dreaming, and sometimes they are not sure that they are dreaming, when they are awake; and they deny, in good faith, that they are irritated or excited, when they are flustered in one or other of those ways. (1949:162)

Furthermore, we think we know ourselves pretty well, but often fail to predict our own reactions to something even when we know that something will happen and are prepared for it. If Ryle is right about this, we can be introspectively wrong. Examples of this is not hard to come by, for instance, we might be unable to predict our actual reactions to the death of a loved one after a period of sickbed. Or, less dramatic, when we are watching a horror movie we can predict correctly what will happen if a person goes into an abandoned house, but are frightened anyway. Neither do we have full introspective access to our mental life; if we go into a state of panic, or raging fury (or a temporary state of insanity), we do not have introspective access to the mental state we are in unless we interrupt the state itself. The objectification of a state of this kind involved in introspection runs counter to being in it.

However, we can examine these kinds of states *after* the fact. In fact, Ryle claims that introspection in general is more like retrospection. Not only for special cases like those mentioned, but in general. On the privileged access based definition of introspection (as some sort of synchronic or simultaneous inner perception[1]) we would have to attend to two states at the same time; the state I introspectively attend to, and that which this state intentionally is directed at. For instance, if I think that I really like *this* particular sound of the guitar, I must attend, at the same time, to the sound, and to my liking of it. Now, this is not a problem in itself, as Ryle mentions, many people can drive a car and keep a conversation going at the same time. However, I should also be able to find out, introspectively, that I introspect my liking of the guitar-sound, i.e. a triple holding. In fact, this is necessary in order to find out whether I like the sound in the first place; the first state representing the sound, the second state represents my liking it, and the third making me introspectively aware of my liking of it, and so on. However, to avoid an infinite regress – and also pragmatically if we are going to act on the introspective knowledge – there must be a limited number of simultaneously attended states. If this is so, there must be some mental states that are not open to introspection, namely the last introspective state that introspects all the other states. Now, if it is possible that this last

[1] D.M. Armstrong (1993) holds a theory of self-knowledge that requires perception-like introspection.

introspective state occurs without 'anyone' introspectively attending it, "it would follow that a person's knowledge of his own mental processes could not always be based on introspection", which suggests, "if this knowledge does not always rest on introspection, it is open to question whether it ever does". (Ryle 1949:165) A further complication is that the original 'fact' attended to, namely the guitar sound, would have to be featured in all these introspective states, which means that it is first doubled, then tripled, and so on. The same goes for all the content in all the states, it would have to be represented in every state introspecting another.

According to Ryle, to think of self-knowledge as an act of retrospection will have several advantages over introspection. For one, it seems to fit well with certain expressions; 'I caught myself thinking about…' is now conceived as an act on par with suddenly realising that I've been picking my nose in public, and the expression will have the same truth criteria as 'I caught myself picking my nose while standing in the grocery line'. Moreover, phenomenologically, this seems to be in accordance with some mental events, we often fail to notice states and events of which we nevertheless can say or know about ourselves in hindsight. I can for instance suddenly realize that I am feeling very hot, and have been for quite a while, when somebody opens up the door making a draft in the room. If self-consciousness were based upon monitoring mental events through introspection, unattended mental events would be lost.[1]

Further, the retrospective approach brings what we refer to as the mind out of its private subjective realm. I know my mind through the same kind of clues that I know somebody else's. This does not entail that everything is out in the open: that we cannot but disclose everything that goes on in our mind, or that a feigned mental state has to be granted genuineness. It is no more mysterious that a person cannot overhear another person's thought (Ryle conceives thought primarily as silent monologue) than his difficulty in reading his locked diary (or if it is written in cipher). The quietness of thinking must not lead us to believe that it is exercised in an inaccessible subjective realm. Instead, "keeping our thoughts to ourselves is a sophisticated accomplishment". (Ryle 1949:27) A case in point for Ryle, reading without reading aloud was not practised until the Middle Ages.[2]

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[1] But it does not rule out that I, at some level, was aware of feeling hot, even though I was not self-conscious about it the way introspection requires. Now, just what this level is, I do not think Ryle can, or want to, answer. However, *mineness* is a suggestion, as we shall see below.

[2] Ryle cites no reference for this assertion, but he might have had St. Augustine in mind, who, in his *Confessions*, tells of his wonderment upon seeing Bishop Ambrose refreshing his mind by reading, "[b]ut when he was reading, his eye

We can, on Ryle's theory, still hide our thoughts, and still exaggerate, or fake, our pain, to gain sympathy from on-lookers, or some desired extra comfort from a loved one. The methods and, foremost, the perspective from which we observe our own mind, is, however, basically the same whether it is ourselves, or somebody else's mind we are concerned about. The differences between knowledge of my mind and that of any other are "differences of degree, not of kind". (Ryle 1949:179) The reason we are less surprised by the workings of our own mind than we do by another person's is not due to our subjectivistic knowledge of ourselves, but to the degree of intimacy that we know ourselves. The better we know a person, the less surprised we become by this person's actions and thoughts and opinions, and we do get to know ourselves pretty well after some time (but, as mentioned, not perfectly). Our friends and lovers surprise us less by time than at the beginning of our relationships. The cleverness of the famous joke about the two behaviourists just having engaged in sexual intercourse, whereupon one of them says, 'that was good for you – how was it for me', somehow falls short of Ryle's case.[1]

Substituting introspection with retrospection is a neat move, but what exactly is gained by it? Both the introspective and the retrospective approach, and Locke's reflexive theory of the self, are higher-order approaches to the self; they presuppose an objectification of the primary conscious state to be able to say anything at all about it. It is higher-order in the sense that they require a higher, or more advanced, cognitive ability than being conscious requires. On a higher-order approach, we must take ourselves as objects, either synchronically (through introspection) or diachronically (through retrospection), if we are to know anything about ourselves. However, by taking ourselves as objects, we create a subject-object relation to the state under investigation, which means that we will not be aware of ourselves as an 'I', but as a 'him' or 'it'. How are we ever to become acquainted with the 'I' through a higher-order kind of relation?

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glided over the pages, and his heart searched out the sense, but his voice and tongue were at rest". (Augustine 1999:98) St. Augustine was not sure why the Bishop read silently, but pondered whether it was to avoid interruption from listeners who wanted him to elaborate on something he read and thereby losing valuable refreshing time, or if it was of the more practical matter of sparing his voice.

[1] Without holding the logical behaviourism of Ryle, it can still be argued for the usefulness of making thoughts public in order to improve our own cognizing. For example, and almost trivial, how we explicate and externalize the mathematical problem of, say 243x341, to gain both accuracy and speed to the calculation; even if it *could* have been done 'in the head'. Other times we can ourselves become aware of both strengths and weaknesses of an argument by articulating our thoughts, written or orally, on a matter. Both these examples are of an *externalization of an internal process*, but it is quite possible that we, at an earlier stage depended on an *internalization of an external process* to be able to do these in the head at all.

Furthermore, in the process, we also lose sight of the subject, or to use a slightly more impartial word, the agent doing the objectification. The agent's focus will be directed towards the objectified state, and if we are to be aware of ourselves as this agent, the objectifier must itself become the object in a new act of objectification. In the case of introspection, and this applies to self-reflexivity as well, we saw that this leads either into an infinite regress or to the non-introspectivity/non-self-reflexivity of the final state. In the case of retrospection, we are faced with a similar problem. If we only are retrospectively aware of ourselves, how do we know this? The answer is, of course, through retrospection. We can only become aware of our retrospective awareness of ourselves through a further act of retrospection. To avoid this kind of infinite regress, the objectification has to stop somewhere, and then we would be left with an objectification that itself is not objectified, in this case a retrospection that itself is not retrospected but still is conscious, which makes me want to ask Ryle if it is not then 'open to question whether it ever does'.

The subject-use of 'I'

Ryle's remarks about the self's non-solipsistic nature are interesting, and as I will explore in the following chapter, this is a central aspect in embedded theories of the self. What we think of as the self is not an elusive, hidden, innate entity, but is dependent on its surroundings. This includes our fellow humans, but also humankind's evolutionary history, our culture and social life, our theories and sciences of ourselves, and of course, as has already been suggested in Part 1, technology. Whatever the self is, or who it is, it is an embedded self. However, the main problem with Ryle's theory, what leads him into the higher-order 'trap', is his unwillingness to analyse the 'I' in terms of the first person perspective. Instead, he opts for an elimination of this perspective, saying that we know ourselves through the same perceptual means as he takes our knowledge of other subjects to be, that is, through a third-person perspective. Ryle's approach will then inevitably overlook the subjectivity of any conscious experience. This makes his approach, in my mind, run contrary to the phenomenology of being a subject, an agent, an 'I'.

Primarily, this is due to his conception of how the 'I' refers; 'I' refers to a retrospectively objectified mental state. As we saw, the referring, that is the talk about oneself, can be erroneous. But Ryle overlooks, or cannot accept given his largely behaviouristic approach, that there are two different uses of 'I'. Ludwig Wittgenstein claims that 'I' can be both as

an object, and as a subject.[1] (1960:66f) Examples of the first case are 'I am riding a wheelchair', 'I clearly remember my reaction when Vegard Heggem scored Rosenborg's winning goal against Milan in 1996', 'I am the King of the Universe', or Wittgenstein's own example: 'My arm is broken'. In all these examples, it is obvious that I can be wrong. I might hallucinate that I am in a wheelchair, when in fact I am lying in bed with a grave attack of the flu. I might remember mistakenly about the game, perhaps I did not even see it, but having been told so many stories about this goal and having it described vividly how it felt for others I have started to believe that I saw it myself.[2] Further, I might have gone into one of those rare psychological disorders described by Oliver Sachs (1997), and live under the illusion that I am King of the Universe, when in fact I am not. Wittgenstein's example is the man who has been in an accident, feels a pain in his arm, sees a broken arm at his side, and mistakes it for his own, when in fact it is his neighbour's arm – his own being only slightly injured. In this case, my observations about myself are structurally similar to those observations and judgements others make of me, and will likewise be based on limited and therefore fallible evidence. Wittgenstein says that in such cases, it is a question of making a statement, passing a judgement, about a particular person; it could be he, or she, but as it is, this time it is about me. There is no guarantee of truth in this kind of judgment. Sydney Shoemaker refers to this as 'reference with identification,' which is fallible because it involves assigning a property to someone or something. (Shoemaker 1994:82) Assigning, in this sense, is a process that is based on observations and assumptions, and consequently on imperfect evidence. Therefore, it will only be reasonable to ask me, if I said any of the things above, whether I am really sure about them; 'are you sure you are the King of the Universe, or could this be misunderstanding?', 'are you sure about the game…, weren't you on holiday in the Alps then', and so on.

In cases of subject-use of 'I', such follow-up questions would only sound strange. The subject-use are displayed in sentences like 'I am in pain', 'I see red', 'I feel happy', and so on. In such cases, the way Wittgenstein sees it; there are no possibilities of an identification error, because the use of 'I' is not the outcome of a process of identification, but is equal to spontaneous outbursts:

> To ask 'are you sure it's *you* who have pains?' would be non-sensical… it is as impossible that in making the statement 'I have a toothache' I should have mistaken another person

[1] It might be more correct to say that Ryle eliminates the subject-use, by claiming that it is in fact an object-use.
[2] However, I *did* see the game, and I *do* remember my reaction!

> for myself, as it is to moan with pain by mistake, having mistaken someone else with me. To say, 'I have pain' is no more a statement *about* a particular person than moaning is. (Wittgenstein 1960:67)

Wittgenstein agrees with Ryle that the thought of a *cogito* arises due to linguistic peculiarities, and consequently is a fallacy. However, due to the distinction between these two uses of 'I', he does not share Ryle's exclusive referential theory. Like Ryle, he points out that 'I' (in subject-uses) cannot be replaced with body, and therefore seems to refer to "something bodiless, which, however, has its seat in our body". (Wittgenstein 1960:69) Rather than blaming this on a category mistake made in the act of referring, subject-use does not refer at all, but, as already mentioned, is akin to a non-referring, non-fallible outburst.[1]

Shoemaker stresses that one should not understand Wittgenstein's distinction to imply that subject-uses of 'I' are incorrigible in *content*. Rather, "they are immune to a certain sort of error: they are immune to error due to a misrecognition of a person". (Shoemaker 1994:81) It is, however, not clear why this immunity should be restricted to subject-use. Even on the object-use of 'I', as in the instance I mistake my neighbour's broken arm for mine, I do not mistake *myself* for someone else, but I mistake an object, an arm, for being my arm, my 'object' (Glock and Hacker 1996:100, cf. Bakhurst 2001:232). Nevertheless, this suggests the presence of an unmistakeable 'me' even in object-uses of 'I'. This 'me', as will be clear as this chapter proceeds, can be said to be an unmediated, implicit, self-awareness that follows every use of 'I'.

The main problem with basing self-awareness on object-uses of 'I', which then, as we will see below, extends to all higher-order theories of the self, is its reliance on a kind of perception. As mentioned, the self, or awareness of oneself as a self, will then be dependent on an identification process, which we saw earlier leads to the possibility of an infinite regress. Even if one accepted this regress *in principle*, or develops a counterargument, one critical question will remain; how is identification in this case at all possible? As Shoemaker points out, if we are to recognize something as something, we must know this something to include properties that are true of *it*, but not of anything

[1] In the *The Blue Book*, Wittgenstein seems to accept that object-use refers, but in *Philosophical Investigations*, due to his *praxis*-based theory of meaning, no use of 'I' is said to refer. I will not go into that here, but it could be argued that the dilemma between 'referring-therefore-fallible' and 'not fallible-therefore-not referring' is a consequence of accepting a Fregean theory of meaning, where the reference of a statement is its truth-value. Critics of Wittgenstein have argued for the fallibility of 'I'-utterances, and thereby claimed that 'I' after all do refer. (Glock and Hacker 1996:95) If one does not accept the Fregean theory, however, as the case with the later Wittgenstein is, one is not committed to the dilemma.

else. Normally an identification process based on this criterion should not pose a problem. If for instance I should search for my coffee cup in my office, I search for something that has the properties that I know is true of my coffee cup; something I know about it that makes it conspicuous in my otherwise untidy office. When it comes to identifying me-as-objectified, however, the process is not as straightforward. "Identifying something as oneself would have to involve… finding something to be true of it that one independently knows to be true of oneself, i.e. something that identifies it as oneself". (Shoemaker 1994:86) That is, if I am to know that the objectified 'I' is me, I must know something about myself before I can confirm positively that the observed 'I' is indeed me! For instance, if my realization that I am in pain is dependent on me observing myself being in pain, I must know beforehand that I am in pain. How can I know that without somehow already being acquainted with myself? Objectification of the self, it seems, does not suffice to explain self-awareness. Note that this does not imply that knowledge of oneself as an object is not possible, or is weak or false knowledge of any kind, but rather that "perceptual [objectifying] self-knowledge presupposes non-perceptual self-knowledge, so not all self-knowledge can be perceptual". (Shoemaker 1984:105) In other words, I can recognize my body as *my* body, only because I already possess self-awareness:

> [I]f asked what it means to call a body 'my body', I could say something like this: 'My body is the body from whose eyes I see, the body whose mouth emits sounds when I speak, the body whose arm goes up when I raise my arm, the body that has something pressing against it when I feel pressure, and so on.' All the uses of 'I' that occur in this explanation of the meaning of the phrase 'my body', which in turn can be used to explicate the use 'as object' of the first-person pronouns…, are themselves uses 'as subject'. (Shoemaker 1994:92)

The essence of this argument is that basing self-awareness on an objectifying process leads to the same problem of circularity that I mentioned in connection with Locke's theory of the appropriation of the conscious experience. For something to be *mine*, I have to possess an awareness of a *me*, and as should now be clear, an earlier instance of a higher order observation, that is, an objectifying process, cannot act as the source of this awareness. This is quite straightforward. If one explains self-awareness not by 'looking for' it at the level of conscious experience (whatever such a level is, see below), but by introducing another level saying that in order to become self-conscious the conscious experience must be taken as an object, what exactly *is* the self-awareness on the second level, from 'where' does it come? Introducing a second level would only shift the level of explanation. Further, what exactly is an experience if it is not a *conscious* experience?

Moreover, can we be conscious without being aware that we are conscious, that is, can we be conscious without some sort of self-consciousness? To avoid the question begging circularity, Wittgenstein/Shoemaker introduces something we, in accordance with Zahavi (2006:8), could call a notion of a minimal self. Whatever the minimal self is,[1] it is regarded as a necessary foundation for higher-order functions of the mind, such as introspection.

Higher-order theories of (self-) consciousness

We have seen several reasons for being sceptical to theories about the self that requires a kind of reflection or monitoring of one's conscious state. Ryle rejected introspection, while we saw reasons for claiming that his own solution, retrospection, in a similar manner objectifies consciousness. Both theories regard self-consciousness in terms of reflection, and to be self-aware is to be aware of *what* we are aware, either immediately (Locke) or in retrospect (Ryle). Consequently, in order to become self-conscious, we must enter into a relation to our own conscious states. Self-consciousness is, in this sense, *extrinsic* to consciousness. As we saw, this leads to number of objections relating to the risk of infinite regress, the difference between objective and subjective kinds of self-acquaintance, and the criteria for saying that anything monitored or reflected on is indeed *me*.

We can find a variant of the extrinsic approach in the recent higher order theories of consciousness (HOTC).[2] For short, these claim, "what makes a mental state *M* conscious is not some difference in *M*'s intrinsic properties but the relational fact that *M* is accompanied by a higher-order state whose intentional content is that one is in *M*". (Van Gulick 2006:12) In other words, to become conscious, we not only have to be *in* a state (for instance, having 'thirst'), we need to have an *awareness* of being in that state ('I am thirsty'). This awareness is a higher-order mental state directed at the lower level state (sometimes called first-order state). This might sound an awful lot like Locke and Ryle's theories, but instead of claiming that consciousness is because the higher-order state is conscious, it is held that it is the mental state *M* itself that becomes conscious when it is taken as an object by the higher-order state; the awareness relation makes the first-order

[1] Shoemaker and Zahavi disagree on this. While Shoemaker holds a functionalist theory (see 1984), Zahavi holds a phenomenological approach. (1999, 2005)

[2] As will become clear soon, extrinsic in this kind of approach does not mean extrinsic to the organism but extrinsic to the mental state that is held to be conscious.

state conscious.[1] Thus, one avoids the danger of infinite regress that threatens both Locke and Ryle; since the higher-order state itself is not conscious there is no need to postulate yet another state being conscious of that one, and so on. The first-order state becomes *intransitively* conscious by being taken as an object for the higher-order awareness. The higher-order state is transitive and we are therefore not usually conscious of this state. However, the higher-order state itself becomes conscious when it is taken as object by a 'third-order' state directing its awareness to it. This happens when we, for instance, reflect on our own consciousness ('I am unusually thirsty today'). Because one is conscious only if one is aware of being in a certain state, consciousness and self-consciousness go together in the higher-order theories. (Rosenthal 1997:744f, 2005a:34) Consciousness and self-consciousness is due to the relation between the two mental states.

The strength of HOTC is that it supports the widely held notion that while our mind consists of many mental states, only a few of them are conscious. (Rosenthal 2005a:21) Furthermore, a mental state need not be conscious all the time, in the sense of being attended to. For instance, a friend of mine, A, ask me if I remember the phone number to our mutual friend B. I reply that I do, and give B's phone number to A. A couple of minutes later, A again approaches me, excuses himself for having forgotten the phone number before he came around to dial it, and asks me for it once again. I recollect it, and give it to A. Now, it seems likely that even though I was not conscious of the number in the meantime, it was still represented as a mental state, albeit as an unconscious one.[2] If consciousness had been intrinsic to the mental state representing the phone number, I could not have helped being conscious of it in the meantime. In fact, if consciousness was intrinsic to the mental states that have the potential for being conscious, I should be, at all times, conscious of those mental states that have this intrinsic consciousness-ingredient. With HOTC, there is no necessary link between a mental state and us being conscious of it. In explaining consciousness in terms of (the relation of) non-conscious mental states, HOTC has the same attraction as functionalistic theories of the mind, which explain intelligent behaviour in terms of (the relation of) non-intelligent processes.[3]

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[1] Roughly, there are two different views about the nature of the awareness relation, either the higher-order state *monitors* the lower level one, perceptual-like, or it is a *thought* about it, conceptual-like. (Van Gulick 2006:12) In either case, the higher-order state represents the lower level state.

[2] For several examples of non-conscious mental states, see Rosenthal 1997:731f)

[3] HOTC implies that a state's being conscious, rather than unconscious, makes no causal difference on behaviour and cognition. According to Hardcastle, however, this runs counter to what is empirically known about these two kinds of mental states. (2004:283f)

In HOTC, self-consciousness is not a matter of finding the proper relation between consciousness and self-consciousness, but it is still a matter of a relation, namely between two mental states. The higher-order theory, then, still postulates the reason for the first-order state to become conscious as being extrinsic to the state itself. This means that a higher-order theory, although it can shrug off objections of infinite regress, still struggles with some other problems. For instance, there are many unconscious phenomena that we are aware of, for instance, such objects as rocks, chairs, books, paper clips, and so on, but these objects do not become conscious only because we are conscious of them, so "why should having such a thought or perception of a mental object transform it into a conscious one?" (Van Gulick 2004:72) This is a very basic question, of course, as it touches upon the issue of the conscious versus the non-conscious, and how physical objects or systems at all can be conscious.

An obvious reply would be to hold that there is a difference between the physical 'outer' object that I perceive, and the mental state that becomes conscious when being taken as an object of higher-order awareness. However, the proponents of HOTC are excluded from saying that there is something special about the first-order mental state that makes it, but not the chair, conscious. To say something along these lines would be to re-enter intrinsic properties into the mental state in question, and the main achievement of HOTC is precisely that it renders intrinsic properties superfluous, as Rosenthal has argued extensively. (1997, 2005a, 2005b) Nevertheless, it seems that this is exactly what Rosenthal does when he claims that the objection results from a presumption that consciousness is intrinsic to mental states:

> Being transitively conscious of a mental state does in a sense make it intransitively conscious. But that is not because being conscious of a mental state causes that state to have the property of being intransitively conscious; rather, it is because a mental state's being intransitively conscious simply consists in one's being transitively conscious of it. The mistake here is to suppose that a state's being intransitively conscious is an intrinsic property of that state. If it were, then being intransitively conscious could not consist in one's being transitively conscious of being in that state unless being thus conscious induced a change in that state's intrinsic properties. (Rosenthal 1997:738-9)

In other words, Rosenthal maintains that the objection is raised because one is committed to the view that mental states have an intrinsic conscious-making property, which the rock and the chair and so on lack. Alex Byrne, on the other hand, claims that Rosenthal grabs hold of the wrong end of the stick, and fails to see that the objection is a *consequence* of denying the relational view.

> The objection is that if what makes a state conscious is the fact that it is the object of another mental state, then there is no explanation of why only *mental* states are conscious. For other non-mental states can be object of mental states and they are not conscious. (Byrne 1997:110)

Therefore, the objection is merely trying to deduct an absurdity from the presupposition of the relational view. The objection is, more precisely, that HOTC lacks a proper explanation of why higher-order states infer intransitive consciousness on only some mental states, when there are, presumably, many other mental states that are not made conscious.[1] What Rosenthal is forced to hold, then, is that there is something special about the mental states that becomes intransitively conscious compared to other mental states that are not.[2] (See also Gennaro 2004:6f, Hardcastle 2004:285f)

Being conscious involves subjectivity, so another, related, question is why a mental state should become a state that exhibits subjectivity by being taken as an object by another state? Rosenthal discusses this much in the same way as he discusses consciousness in general. Mental states can have intentional properties, representing what they are about, or they can have phenomenal properties that represent qualitative sensory input, or both. (Rosenthal 2005a:23) Rosenthal follows up on this by associating the 'what it is like' aspect to a higher-order awareness of a mental state having a phenomenal property of some sort. We have a phenomenal conscious experience, then, only to the extent that we are aware of a mental state exhibiting the sensory quality of pain, redness, and so on. (Rosenthal 1997:433, 2005a:38, 2005b:144) From a certain point of view, this seems to be a fairly accurate description. If I knock my calf into a low table, I feel an instant pain, but might forget about the pain if the doorbell rings. The pain, though, will most likely come back after a short while, but for a few moments there, I was distracted and not aware of it. It is still good sense to say that it is the *same* pain that came back and not that I got a new one. (Rosenthal 2005a:39) Accurate maybe, but does it grasp what it is that characterizes the phenomenality of a conscious experience.

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[1] A related, but inversed argument is put forward by Fred Dretske who argues that it is possible that the first-order state in which one is conscious has properties that one is not conscious of having. "If this is true, then it cannot be a person's awareness of a mental state that makes that state conscious." (Dretske 1993:278)

[2] In addition, there is a host of other problems with HOTC that need not concern our occupation with the self and self-consciousness, see for example Byrne 1997, Gennaro 2004, Hardcastle 2004, and Van Gulick 2004 and 2006. The just mentioned problem, among others, has led to an alternative kind of representational theory about consciousness, the self-representational account. According to this kind of theory, an intentional mental state "is conscious if and only if it represents itself in the right way". (Kriegel and Williford 2006:1) Self-awareness in this case requires a relation between the mental state and its own representation, and therefore indicates, like HOTC, that self-awareness consists in a subject-object structure. (Zahavi 2005:79-81, Drummond 2006:208-210)

Some authors have argued that there is a 'what it is like' aspect to the awareness of having a sensory state, for instance *painful* when you aware of being in pain. There is no *necessity* that an awareness should be felt qualitatively when a mere awareness could have triggered all the necessary avoidance-strategies. Consequently can this aspect not be reduced to awareness. (Nagel 1981, Chalmer 1996) Rosenthal more waive than counter-argue this objection by insisting that there is nothing else about a pain experience besides being conscious of having a mental state that has the content of being in pain. (Rosenthal 2005a:41) If phenomenality is due to intrinsic properties of the first-order state, a satisfactory explanation of the coming and going pain experience would be more intricate and (at least to Rosenthal himself) less appealing. This is much for the same reasons we saw above concerning unconscious mental states; the pain experience should be constant until the qualitative sensory input diminishes. (Rosenthal 2005b:146) The attraction of there being an irreducible phenomenal consciousness, in Rosenthal's eyes, is that it seems to us that nothing is more basic to being human than having a consciousness; a feeling that entails that consciousness cannot be explained by some further facts.

> But consciousness could be essential to our nature only if all mental states are conscious states. If a fair number of our mental states are not conscious, we cannot define our mental natures in terms of consciousness, and there will be nonconscious mental phenomena in terms of which we can explain consciousness itself. (Rosenthal 2005a:42)

HOTC, as should be clear now, attempts to substantiate the claim of the existence of non-conscious mental states. Rosenthal does not provide any further arguments for reducing phenomenal consciousness to awareness of phenomenal properties besides claiming that this question cannot be answered within the HOTC itself. (Gennaro 2004:7) The reason for this is presumably that such a theory would be about the *nature* of mental states and not about *consciousness* of mental states, which is what HOTC provides. Consequently, this question requires a further theory. (Rosenthal 2005b:135) This argument, though, seem to me to presuppose what HOTC is meant to uncover; that there is a distinction between the first-order state and the higher-order state that makes it conscious. Without there being such a distinction, the claim of a further theory makes no sense. Whether one is satisfied with the HOTC explanation of phenomenal consciousness depends on, it seems, already being comfortable with the extrinsic view.

An implication of HOTC's way of 'tackling' phenomenal consciousness is that we can have phenomenal experiences without corresponding first-order states, something Rosenthal readily admits. (Rosenthal 2005a:29, 1997:744) With this in mind, there is no

fundamental difference between unconscious intentional properties and unconscious phenomenal properties; both properties are picked out and defined on the background of us being conscious of them. "The reason we cannot know what it is like to have, for example, a nonconscious pain is simply that unless the pain is conscious there is no such thing as what it is like to have it." (Rosenthal 2005b:137, cf. 1997:733) There is, then, no more mystery to having an unconscious pain than there is to have an unconscious intentional mental state.[1] Although Rosenthal maintains that HOTC is capable of, and to a better extent than the intrinsic view, explaining this aspect of being conscious, not everybody is convinced that HOTC does the job.[2] (Chalmers 1996:361 n16, Byrne 1997)

Co-givenness

Even if we grant HOTC as having a satisfying account of the phenomenal aspect of being conscious, there is still another aspect that is just as, if not more, fundamental to subjectivity. In this section, I shall ask to what extent HOTC manages to handle this other aspect in an adequate manner. We need to ask this, because the 'what it is like' aspect, although it is there in all our conscious experiences, lacks the homogeneity that is, or at least presumably is, an essential part of being a subject, being a self.

> What it is like to be me is not some one something; it varies from day to day, even moment to moment. We wake up in a mood: on the wrong side of the bed, unaccountably happy or sad, ready to take on the world or to shrink from it. Before we have even begun to focus on our surroundings or the tasks of the day, we are in a mood. (Wider 2006:67, cf. Heidegger 1962:173/134)

By being in a certain mood, or meeting the world in a specific way – that is, being conscious with whatever specific phenomenal feel it has (which may very well differ from moment to moment depending on our general mood), discloses subjectivity in a different way from the phenomenal feel of specific experiences. Whatever we experience, it is experienced as belonging to someone, as belonging to myself. The lack of homogeneity of specific conscious experiences is balanced through displaying *mineness*. Any conscious experience is experienced as being *ours*; conscious experiences are experienced as

[1] Is not this a somewhat non-falsifiable claim? It is, if one holds that unconscious phenomenal properties, in contrast to unconscious intentional properties, have no causal effects.

[2] Byrne argues that the possibility of unconscious phenomenality renders HOTC useless as a credible alternative to an intrinsic kind of account of phenomenal consciousness. "[I]f this move is allowable at the level of higher-order thoughts, it ought to be allowable at the level of the sensory states themselves". (Byrne 1997:123) The self-representational theory of consciousness can be seen as a direct reply to this problem. (Kriegel and Williford 2006:2f)

belonging to us.[1] In other words, what it is like to be someone requires that one *is* a someone. But what exactly is this someone?

First, it is important to note that 'this someone' should not be understood as being on par with the kind of acquaintance we experience when standing face to face with another human being. That would be an acquaintance of a subject from a third-person perspective. As we discussed above, we can even experience ourselves in this manner, which is indirect and observational. Encountering ourselves as ourselves in a conscious experience, however, involves an entirely different access to ourselves.

> When I am aware of an occurrent pain, perception, or thought from the first-person perspective, the experience in question is given immediately, non-inferentially and non-criterially as *mine*. That is, the experience is given (at least tacitly) as an experience I am undergoing or living through. First-personal experience presents me with an immediate and non-observational access to myself. (Zahavi 2005:78)

In conscious experiences, then, the world is presented to us, but we are also presented with ourselves. We could say that the moment of conscious experience points both 'outwards', the intentionality of consciousness, and 'inwards', the specific kind of self-awareness, the direct and immediate self-experience of a conscious moment.[2]

In Chapter 3, we saw how intentional experiences require a transcendent object (regardless of whether this object exists in the world or is fictional). However, it is also the case that there is no intentional experience without there being a subject of the experience. This can be illustrated by reflecting on the difference between two different modes of being in the world. For a consciousness, the world, objects, events, other subjects and so on (in short intentional objects), *appear*, but if "I lose consciousness, I (or more precisely *a* body) will remain causally connected to a number of different objects, but none of these objects will appear". (Zahavi 1999:23-4) The discussion on intentionality in Chapter 3 substantiates this; in a similar manner to the impossibility of perceiving an object without seeing it from a perspective, an intentional object appears in a certain mode: it is plainly perceived, it can be desired or disliked, judged about or thought of in curiosity, etc. For a consciousness, the object does not appear at all unless it appears in such a way. As Zahavi warns against, analysing intentionality in this manner does not imply that we have an indirect access to the object. It is, actually, the other way

[1] The concept of 'mineness' is Heidegger's (1962:68/42, 78/53) and concerns the relation between inauthenticity and authenticity. I shall explain it without going into his definition. For the most part, although used in a different setting, the notion as it appears in this chapter is in agreement with Heidegger's use. See next chapter.

[2] 'Inner' and 'outer' are dangerous words, as they seem to imply a Cartesian duality.

around; *it constitutes the access to the object*. (1999:23, cf. the concept of articulation in Chapters 2 and 4) Thus, appearance presupposes that it is *for* someone, which is the reason we can say that the subject is co-given with the intentional object in conscious experience. Self-awareness is implicit in being conscious; self-awareness and intentionality "refers to the other as that which it is not, but upon which it depends". (Zahavi 1999:130) The self, then, is present in experience, but not in the sense of requiring reflection on the experience, it presents itself in the experience itself.

However, what is the self that is co-given in experience? How should we understand the kind of self-awareness that appears in this manner? Above, we saw that HOTC regards consciousness and self-consciousness as co-given. We are conscious because we have a higher-order state directed at a first-order state that represents a fact in the world (or a state of the body). The content of this first-order state is made conscious, and we become self-conscious at the same moment because the first-order state is taken to belong to the same subject as the higher-order state. As Rosenthal puts it, higher-order states "make us conscious not only of their target states, but also of the self to which they assign those targets". (Rosenthal 2005c:343) That is, we become conscious *and* self-conscious because a representing first-order mental state becomes the object by a higher-order state. Self-consciousness, like consciousness, is therefore explained as being dependent on the intentional directedness of the higher-order state.

This intentional relation between the first-order and the higher-order state, in accordance with what we saw characterizes the implicit awareness of ourselves in intentional experiences, is direct and unmediated. But that should not mislead us to think that self-consciousness is intrinsic to the conscious state. Without the higher-order awareness, we would not be conscious of anything, and neither of ourselves. If we think about it, our awareness of the intentional object is comprehended in the same manner, as immediate and direct. For instance, if we suddenly become aware of the hum of the refrigerator that we know has been there all the time, but had not noticed until just now, this transition of the sound from unconscious to conscious does not *feel like* being a mental state being taken as an object by a higher-order mental state. Therefore, the felt immediacy is no argument for self-awareness to be intrinsic: "Access to things often seems spontaneous and unmediated without actually being so; perceiving typically seems spontaneous and unmediated, though we know that it isn't." (Rosenthal 2005c:355)

However, there is a fundamental characteristic of intentional relations that is left untouched even by accounting for the immediacy of self-consciousness, namely "the distinction between *intentionality*, which is characterized by an epistemic *difference* between the subject and the object of experience, and *self-consciousness*, which implies some form of *identity*". (Zahavi 2005:28) Being conscious of something is experienced as belonging to me, there is an identity between the conscious experience and me, while there is a difference between what is experienced, say a chair beside a table, and me. I can be wrong about the latter, maybe it is a hallucination, but I cannot be wrong in that it is me who is having the perception/hallucination. In other words, a theory about self-consciousness must capture the identity that is implied in the subject-use of 'I' (see above).

How does an extrinsic theory of self-consciousness, such as HOTC, account for this aspect? To put it differently, from 'where" is the *mineness* of the conscious experience, disclosed by the co-givenness of intentional object and self, supposed to come from. Bear in mind, for HOTC it is the first-order state that is the conscious state, but self-consciousness cannot be intrinsic to this state. As long as self-consciousness is meant to arise from the *relation* between the first-order and the higher-order state, the mineness of being conscious must be due to the higher-order state's taking of the first-order state as an object. In a recent article, Rosenthal confirms that this is what he has in mind, and counter-argues against the subject-use of 'I' in a by now familiar fashion:

> The mental analogue of the pronoun 'I' refers to whatever individual thinks a thought in which that mental analogue occurs. So each HOT [higher-order state] in effect represents its target state as belonging to the individual that thinks that very HOT. When a pain is conscious, the individual the relevant HOT represents that pain as belonging to is the same as the individual that thinks that HOT. So one cannot be wrong about whether the individual that seems to be in pain is the very same as the individual for whom it is conscious. (Rosenthal 2005c:357)

As we can see, Rosenthal holds that there is no mystery to the immunity in the subject-use of 'I'. The higher-order state, in taking the first-order state as its object, not only represents the content of the first-order state, it represents it *as its own*; mineness is due to the higher-order state recognizing the first-order state as 'mine".

This, of course, is no more than a re-hashing of what has already been said about HOTC, and it is unlikely that it amounts to a satisfactory explanation of the full content of the subject-use of 'I'. As was discussed above, there is another, more fundamental, argument concerning theories that postulate self-consciousness in terms of a relation: If self-consciousness is taken to be extrinsic rather than intrinsic, an identification process is

required, but recognizing something as *me* requires a previous knowledge of me. To be sure, Shoemaker advanced this argument towards conscious mental states, but even if Rosenthal can account for both consciousness and phenomenal consciousness in terms of the relation of *un*conscious mental states,[1] it is hard to see how this move can do the job concerning *self*-consciousness. The structure of Shoemaker's argument still applies: How can the unconscious higher-order state, in a manner of speaking, recognize the first-order state as being one's own?

> Just as I cannot recognize something as mine unless I am already aware of myself, a nonconscious second-order mental state (that per definition lacks consciousness of itself) cannot recognize or identify a first-order mental state as belonging to the same mind as *itself*. (Zahavi 2005:29)

Rosenthal's model of self-consciousness attempts to ensure that the identification process is infallible (it is spontaneous and unmediated), but in the Shoemaker/Zahavi model, there is no identification process at all, the awareness is already there, implicitly. We do not need to identify ourselves in the most proper and correct way in order to know that we are in pain, that we have a perception of a chair, or that we desire an ice-cream on a hot summer day. The only solution HOTC seems to be able to resort to if they want to account satisfactory for mineness, the taking of the first-order state as *its own*, is to postulate yet another higher-order state that can monitor and 'guarantee" that the two mental states are in fact mental states of the same self. However, this state, of course, will be in an equal need for yet another, so there is an infinite regress threatening HOTC after all. (Zahavi 1999:29)

The kind of self-awareness that is given to us in a conscious experience cannot be captured by an objective 'look" or thought about oneself, but is *implied* in any such looks and thoughts about oneself. 'This someone" that I spoke of above, is, most fundamentally, what or whom we are self-aware of in a conscious moment. But it is equally clear that this someone is not apprehended in an act of reflection; it is present *prior to* reflection. It is therefore better to speak of it as a pre-reflective kind of self-consciousness, or better yet, self-awareness; pre-reflective implies pre-conscious, at least in a thematic sense. Instead of regarding self-consciousness as being a question of awareness of *a self*, it can "rather be understood as the awareness that a specific experience has of *itself*". (Zahavi 2005:2)

[1] I am not saying that I endorse the HOTC- account of consciousness and phenomenality, only that it is possible.

Zahavi warns against understanding the critique against reflective notions of the self as claiming that reflection on oneself is impossible. (1999:33) That, of course, would be an absurd claim. This analysis merely points out that reflective consciousness presupposes a different notion of the self, a notion that does not have the dualistic tendencies of the Cartesian self (although, as we have seen, the object- and self-awareness in a conscious experience implies a *duality of moments*, but without this duality there could be neither object- nor self-awareness). As Jean-Paul Sartre, who discusses pre-reflective consciousness extensively in *Being and Nothingness*, argues:

> [T]he reflecting consciousness posits the consciousness reflected-on, as its object. In the act of reflecting I pass judgment on the consciousness reflected-on; I am ashamed of it, I am proud of it, I will it, I deny it, *etc.* The immediate consciousness which I have of perceiving does not permit me either to judge or to will or to be ashamed. It does not *know* my perception, does not posit *it*; all there is of intention in my present consciousness is directed toward the outside, toward the world. In turn, this spontaneous consciousness of my perception is *constitutive* of my perceptive consciousness. In other words, every positional consciousness of an object is at the same time a non-positional consciousness of itself. (Sartre 2003:9)

The implication of the pre-reflective self-awareness is that the Cartesian kind of self that HOTC implies, which takes itself as an object and reflect on itself, cannot evolve without being intractably linked to the world. We discover ourselves in the intentionality of consciousness, or, in other words, we discover ourselves in being concerned with the world with its objects and other subjects. How the world appears, then, is part of ourselves prior to becoming (reflective) selves. We could also say, selves are constituted in-the-world. Herein lies the critique of the Cartesian/HOTC self. Without there being a world active in the constitution of the (reflective) self, there could not be a self sufficiently self-reflecting to ask the question whether there actually is a world 'out there" (cf. Chapter 3).[1]

Agency and ownership

John Searle admits having thought that Hume had had the last word on the issue of the self, but that now he has come to think otherwise. This, he says, has "to do with the notions of rationality, free choice, decision making, and reasons for action". (Searle 2004:293) We have, or at least we presuppose that we have, free will when we choose and

[1] There are hosts of issues left untouched here: the unity of consciousness, the precise nature of pre-reflective self-awareness, the relation between pre-reflective and reflective self-awareness, intersubjectivity, and so on. Some of these will be touched upon later, but I hope that the present discussion has been sufficient to illustrate the elusiveness of the self-concept.

when we act, and this aspect falls outside the Humean theory of action, which is dependent upon a certain sequence of impressions and ideas. These, even supplemented with the behaviouristic notion of disposition, are not sufficient to explain *rational agency*. The crux of his argument is that we can cite all the possible reasons for us to perform an action, and yet not fix the realization of the action. I can choose at any time not to act, even if I would be better off doing it, or I can choose to do something else. Because of the possibility of doing nothing, or doing the alternative, the action itself is not determined by its reasons. Therefore, citing reasons (including so-called 'psychological causes') is not sufficient to secure the onset of an action. Rational agency is described in opposition to mere agency, as cases where one has the feeling of no alternatives, or no retreat. Mere agency can also be performed by a stimulus-response system, such as a robot. The addition that makes a difference is what he wants to call the self: "Agency plus the apparatus of rationality equals selfhood." (Searle 2001:92)

There is a further argument for the notion of the self. The self denotes "an entity capable of assuming, exercising, and accepting responsibility". (Searle 2001:90) We are in no way responsible for our perceptions, as we are for our actions. So if (bundles of) perceptions (and dispositions, etc.) are the sole reasons behind action, what then is responsibility? If we postulate a self, this question disappears. On Searle's theory, there is "a formal requirement on rational action that there must be a self who acts, in a way that it is not a formal requirement on perception that there be an agent or a self who perceives". (Searle 2001:93)

An obvious impediment to this is that free will cannot be the *explanation* of the self for the reason that it already presupposes a self. Because what, unless a self, has free will? However, we do not know much about the formal requirements that amounts to the self at the present (Searle calls his theory "not more than a beginning" (2004:299)) Therefore, there is a deliberate gap of ontological significance in his theory of rational action. Deliberate, because Searle identifies the gap as the reason why we should not be content with Hume's analysis. A gap, because we know a lot about what precedes it (reasons for action), and equally a lot about what follows it (actions, alternatives to action, no action, etc.), but not much about the nature of the formal requirements. Not much, that is, except the necessity of a self to instantiate them "because the intention-in-action is not just an event that occurs by itself. It can occur only if an agent is actually doing

something, or at least trying to do something". (Searle 2001:83) Selfhood, then, is bridging the gap. *We* exist, as he says, in that gap. (Searle 2001:94)

There is a curious tension in Searle's notion of the gap that makes the ontological status of the self somewhat ambiguous. Is it a mere theoretical construct, designed to give the theory of rationality coherence? Or, is it a transcendental notion, that, *à la* Kant, is required to give consciousness itself coherence?[1] Actually, it seems to be a little bit of both. Because, on the one hand, "it is the complex of the notions of free action, explanation, responsibility, and reason that give us the motivation for postulating something in addition to the sequence of experiences and the body in which they occur". (Searle 2004:285) This indicates that the self is employed instrumentally, that is, primarily as a formal merging of several cognitive functions.[2] On the other hand, it is also, he says, a fact that "an important feature of our experiences is what one might call a 'sense of self'…something that it feels like to be me". (2004:298f) And elsewhere he says that "'self' is simply the name for that entity which experiences its own activities as more than an inert bundle". (Searle 2001:93) In this sense, there is an experiential dimension to being a self. However, this dimension, he claims, is not sufficient to "flesh out the purely formal requirement that… [is] necessary to supplement Hume's account in order to account for the possibility of free rational action". (2004:299) In other words, Searle does not, or cannot see any reason to, align the consciousness of the agent with the agency of the agent *in a constitutional manner*. Therefore, besides the fact that it is through being conscious that we detect our own rationality and free will, there seems to be no reason, according to Searle, to delve into analysis of the experiential dimension.

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[1] "[T]he empirical consciousness, which accompanies different representations [*Vorstellungen*], is in itself diverse and without relation to the identity of the subject. That relation comes about, not simply through my accompanying each representation with consciousness, but only in so far as I *conjoin* one representation with another, and am conscious of the synthesis of them. Only in so far, therefore, as I can unite a manifold of given representations in *one consciousness*, is it possible for me to represent to myself the *identity of the consciousness in [i.e. throughout] these representations*." (Kant 1929:B133) Kant's notion of self-consciousness is strictly formal: "we cannot even say that this [I] is a concept, but only that it is a bare consciousness which accompanies all concepts". (Kant 1929:A346, B404)

[2] Thomas Metzinger proposes something similar to this. The self, Metzinger argues, is a confusion, a misinterpretation of a *self-model* that the brain generates for "an organism to conceive of itself as a whole, and thereby to causally interact with its inner and outer environment in an entirely new, integrated, and intelligent manner". (Metzinger 2003:1) Not unlike something Hume would say, Metzinger claims, "[n]obody ever *was* or *had* a self". (Metzinger 2003:1) All that exists is the self-model. Seen this way, we are akin to the robot HAL in *2001: A Space Odyssey* that starts to think of itself as a *himself*, as a sentient being with emotions and self-consciousness. Metzinger argues that the self-model is transparent, and that this is the reason we are fooled into thinking we exists as selves; we are unable to see the self-model itself, because we see through it. (Metzinger 2003:330ff) This, of course, makes Metzinger's self-model entirely un-falsifiable (in much the same way as HOTC's claims about phenomenal consciousness). Although being positive to Metzinger's analysis of phenomenal experience, Zahavi questions the conclusion Metzinger draws from his own arguments and claims that Metzinger's dismissal of the self is due to a self-concept that is too Cartesian, too dependent on advanced cognitive functions. (Zahavi 2005)

The reason for this view, I suspect, is due to a rigid definition of what an experience of a self consists in. To experience a self, means, for Searle, to fall into the Cartesian trap. One therefore has a choice between two options, either one, like Hume, denies the possibility to experience a self, or one experiences a self in the Cartesian way. To avoid any hints of Cartesianism, it is of utmost importance for Searle to stress that his conception of the self is a formal conception. "The point… is that though the self is not the name of an experience nor is it the name of an object of an experience, nonetheless there is a sequence of formal features of our experiences that are constitutive of ourselves as selves", and therefore, "the postulation of a self does not require that we have any experiences of the self'. (Searle 2001:93-4)

It seems to me that Searle does not distinguish between awareness of *a* self, and awareness of *it*self. As we saw above, this distinction concerns the nature of the self-experience. If one experiences *a* self, then the self is taken as an object, which presupposes the ability to reflect upon oneself. To experience *it*self, on the other hand, is a basic, non-reflective, non-thematic awareness that an experience has of itself. It is a way of owning an experience without inferring (or perceiving) one's ownership. This makes it possible to speak of self-awareness without experiencing *a* self. Searle understands self-experience to be only of *a* self, which he cannot accept. The tension in his theory, then, is that without grounding rational agency, that is, selfhood in non-reflective self-awareness, self-experience very easily resembles the experience of a self in the Cartesian respect. Searle's reluctance to analyze the experiential dimension therefore prevents him from going beyond the mere statement of 'formal features', and he thereby leaves selfhood in an ontological limbo. Releasing this tension could set Searle on his way to a different understanding of selfhood.

Searle's conception of selfhood as closely associated, or even coinciding with rational agency, corresponds to what Shaun Gallagher calls a *sense of agency*. Gallagher contrasts this with the *sense of ownership*. Both senses are "first-order, phenomenal aspects of experience, pre-reflectively implicit in action". (Gallagher 2005:174n) Normally, these two senses coincide, but this is not necessarily always the case. For example, I am at a party, holding a glass, when someone is passing me and accidentally bumps into my arm making my hand hit the glass of another person out of his hands. Now, was the breaking of the glass my doing? I would say no to that, I am not the one who made him lose his glass. But was it my hand hitting the glass making it fall to the floor? Yes, that much I have to admit. In

this case, I have no sense of agency of the movement of my arm, but I have a sense of ownership of the arm.[1] Gallagher mentions examples of the same dissymmetry from various psychiatric disorders, such as thought insertion and schizophrenia. (2005:174f) However, it would be harder to find an example of the other way around. If I have a sense of agency I necessarily also must have a sense of ownership. This means that the sense of ownership is more basic than, and more interestingly also a prerequisite for, the pre-reflective sense of agency, and therefore for rational agency.

For Gallagher the sense of ownership is intimately tied to *proprioceptive awareness*. Proprioception is the name for the unconscious processes that monitors and regulates body movement, body posture, etc. We are proprioceptively aware only insofar as we are not consciously aware of these processes (which would be a different kind of monitoring and regulating). But even when we are not conscious of them, we retain a sense of ownership about them. Because, if we did not

> It would be possible for me to be proprioceptively aware of my body, but not as my own body. This would involve a structure similar to a situation in which I am aware that someone, X, is acting in a certain way, but I do not know that X is myself. This can happen in certain cases when I perceive X in an objective way, 'from the outside', but not when the awareness is based on proprioception, which is an awareness 'from the inside'. (Gallagher 2005:105)

Proprioceptive awareness is akin to the subject-use of I, which we saw Wittgenstein and Shoemaker defined as immune to misidentification, and to pre-reflective *mineness*. In this way, proprioceptive awareness, and its accompanying sense of ownership, becomes a very early consciousness, or at least the seed of such, in the sense of a mechanism that distinguishes between self, and non-self. (Gallagher 2005:106) Of course, this would not mean that the non-self is identified as an other or anything even distinct; what is operative is the indication of self versus the non-self. Again, we can see an implication towards the impossibility of a self without a non-self, there is no self without a world.

The synaptic self

While Gallagher looks at the role of the whole body in the development of (a reflective) consciousness, HOTC explains (self-) consciousness in strictly mentalist terms. The

[1] An example, paraphrased from Armstrong (1993), that cuts across this division, is the driver that drives a familiar route, for instance from the grocery store to his home. The driver thinks of many things (plans for the evening, what he could have bought instead of that keg of beer, etc.) without attending to the driving, which is performed in a state of automatism (Armstrong 1993:94), when suddenly the car swerves and ends up in the ditch. Although the driver was not consciously aware of his driving, he will likely see himself as responsible for, as the *agent* of, the incident, and he certainly would be responsible as an agent in the legal sense, something that can be disputed in the glass-incident.

presupposition in HOTC is that the brain activity has been organized into a functional structure, and consequently, terms for consciousness and self-consciousness are reduced to abstract functional states. This is to a certain degree speculative, and another reductionist approach to the study of (self-) consciousness is to investigate the relation between the self and neurophysiological brain states, that is, to connect our terms directly to the brain activity. Before ending the discussion in this chapter, I shall see if this approach might make the self a little less elusive.

Joseph LeDoux sums up his theory in a straightforward way: "you are your synapses".[1] (2003:*ix*, cf. 324) According to LeDoux, to discuss the self in terms of consciousness, self-awareness and self-knowledge, is a too narrow focus. The self should instead be discussed at the level of personality, that is, as something that evolves ontogenetically, in interaction with other people. Our personality is linked to genetic and learned traits, our behaviour, other people's behaviour towards us, and our social situatedness and so forth: "the self is the totality of what an organism is physically, biologically, psychologically, socially and culturally". (LeDoux 2003:31) However, on the level of personality, there is no such thing as *a* self. As sociologist Erving Goffman has studied, we exhibit disparate personas and personality traits in different situations; when at work and at home, from one social situation to another, from one point in time to another, and so on. Sometimes this is because we want to accentuate certain of our traits and downplay others, but most often, we perform a role that it appropriate for the social setting we are in; it is a way of connecting to other people on the presumption that we have a shared knowledge of the social situation. (Goffman 1959, Chapter 1)

Although not designating a unitary set of behaviours and ways of being, the self is nonetheless a unit, according to LeDoux. This is because our behaviour is controlled by the workings of our brain, that is, the *whole* brain, or if one is speaking philosophically or psychologically, the *whole* mind, not just by the conscious aspects. Focusing on self-consciousness will therefore only disclose some aspects of our self, namely the explicit ones: "These are what we refer to by the term *self-aware* and constitute what we call our self-concept." (LeDoux 2003:27) The explicit self corresponds to what we are directed at in reflection, that is, when we are conscious of *a* self. However, due to the involvement of the whole brain in shaping behaviour and personality, there are also implicit aspects,

[1] The synapses are the area for 'communication' between brain cells.

which "are all other aspects of who we are that are not immediately available to consciousness". (LeDoux 2003:27-8) Implicit aspects include both what is not accessed as the moment and workings of the brain that are never accessed. Unconscious cognitive functions are as important in determining what the self (in LaDoux's sense) is like, according to LeDoux, and therefore, seeking out the self in our conscious knowledge, or conscious *feel* of being a self, will fall short of grasping what it is that makes up the self. The concept of the self has to be thought broader, and because of this, the empirical focus can be narrower, namely on the brain.[1]

The brain consists in various functional subsystems, where only a few are conscious, taking care of attention, perception, memory, emotion, learning, retrieving, motivation, thinking and so on. All these functions play a part in how we become who we are. LeDoux's therefore believes that the self arises from the way these systems interact, and work together in creating a coherent perception of the world and consistent behavioural response to inputs from the world. The argument for this is simple:

> Without these interactions, and the mental integration they engender, each of us would simply be a collection of isolated mental functions rather than a coherent person… [O]ur brains make us who we are [because of] synaptic processes that allow cooperative interactions to take place between the various brain systems that are involved in particular states and experiences, and for these interactions to be linked over time. (LeDoux 2003:32)

In other words, behind what we call a self, there is a *synchronous* process, the mental integration, and a *diachronic* process, the memory that links interactions over time, that determines who we are. The presupposition, and he cites strong empirical evidence for this, is that the various subsystems are plastic, that is, susceptible to neurological change due to learning. Consequently, even though the brain systems are the same in each of us, and the number of neurons roughly is the same from individual to individual, "the particular way those neurons are connected is distinct, and that uniqueness, in short, is what makes us who we are". (LeDoux 2003:303)[2]

Now, for this to become a theory about the self, and not merely a theory of how the brain integrates information, we need to see how those two processes give rise to an explicit self, that is, we need an account of self-awareness. In LaDoux's case, this amounts to the relation between the implicit and the explicit aspects of the self. Actually, and somewhat

[1] This concept of the self, because of the focus on the whole brain, leads to the view that animals have selves also. In fact, all creatures with a brain have a self, in the sense of an implicit self. (LeDoux 2003:27)

[2] Most of LeDoux 2003 is dedicated to showing empirically how brains develop into individual minds.

surprisingly, this is not easy to find, as LeDoux primarily presents an account of the processes amounting to the implicit self, the coherent whole. However, without an explicit self arising from the brain activity, the coherent whole would hardly be called an implicit self. Concerning the synchronous process, one alternative is to opt for a higher order theory: the explicit self as a monitoring of the implicit self. If so, the explicit self would amount to a higher order representation of certain aspects of the implicit self, which would mean that his theory is open to the same objections that we encountered above, such as the threat of infinite regress. For the diachronic process, LeDoux's theory is quite close to Locke's memory-based theory, so an alternative concerning this process is that the explicit self is an appropriation of the implicit processes as one's own, and the memory of this appropriation in earlier encounters of the self. This, apart from the inherent circularity of any memory-based theory about the self, would actualize the problem of how to recognize something as one's own without already knowing what it is that characterizes that which is one's own.

None of these alternatives appear to be the case. In contrast to Locke's top-down approach to personal identity through appropriation of a subpersonal process, LeDoux's emphasis on the unconscious makes his understanding of identity dissimilar; he proposes a bottom-up approach. The thought is that the various brain subsystems, doing their varied kind of work, gives rise to a coherent personality, "a fragile patch job", as he calls it. (LeDoux 2003:304) And this is the argument for his main claim; since it is the synapses that are responsible for the communication between the various subsystems, the integration is down to the synapses, and consequently, it is the synapses that constitutes the self. That is, this is the case for the implicit self. For the explicit self, when we turn our focus on and thematize ourselves, self-consciousness, the case is rather different, and it might seem that LeDoux is claiming that the explicit self is an epiphenomenon; merely arising from the workings of the implicit self. As such, it will be an after-the-fact phenomenon, entirely dependent on what goes on at the unconscious and non-conscious level. LeDoux certainly suggests something to this effect:

> Many of our thoughts, feelings, and actions take place automatically, with consciousness only coming to know them as they happen, if at all. Figuring out the mechanism of consciousness would surely be a major scientific coup, but it wouldn't explain how the brain works, or how our brains make us the individuals we are. (2003:10-11)

However, the bottom up process, although important in integrating the implicit self, is not the end of the story. The prefrontal cortex (larger in humans than in other species)

assembles spatial ('where') and object ('what') information about the world from specialized brain systems reciprocates its activity back to the specialized brain systems. (LeDoux 2003:182) Of especial importance in this regard is the working memory, which is linked to the activity in the prefrontal cortex. There are good reasons to believe that the reciprocate activity is not an epiphenomenal process, but selects and shapes the neural activity in the underlying specialized areas. In other words, the higher order level of perception and behaviour control feeds back information that has non-trivial impact on the lower level neural activity. (LeDoux 2003:185) This top-down process "can direct traffic in the areas with which it is connected, enhancing the processing of stimuli that are relevant to the task on which it is engaged and suppressing the processing of other stimuli". (LeDoux 2003:319) LeDoux's idea is that consciousness and the explicit self is connected to the activity of the working memory.[1] Consequently, the working memory is extremely important in order to understand the *function* of consciousness: "we can begin to see how the way we think about ourselves can have powerful influences on the way we are, and who we become. One's self-image is self-perpetuating." (LeDoux 2003:320)[2]

Even though this implies that the explicit self is no mere epiphenomenon, a functional consciousness does not itself explain the relation between the implicit and the explicit self; that we are able to think about ourselves as ourselves. There are good reasons to believe that other animals, especially primates, are conscious in this functional way, but without being self-consciousness (in the narrow definition). LeDoux recognizes this, and believes that self-consciousness can only be due to the specifically human language-processing module. "Language radically alters the brain's ability to compare, contrast, discriminate, and associate on-line, in real time, and to use such information to guide thinking and problem-solving." (LeDoux 2003:197) Language makes the human brain special among animals, and although animals may have the ability to be conscious, "they are unlikely to be able to represent complex, abstract concepts (like 'me' or 'mine' or

[1] This does not rule out that "there may exist primitive levels of consciousness, especially involving the passive awareness of events as opposed to the active use of online information to guide decision-making and behavior, that do not depend on the prefrontal cortex". (LeDoux 2003:192)

[2] LeDoux's understanding of the function of being conscious seems uncontroversial among those who work empirically on the brain and consciousness. For instance, it has a certain likeness to the global workspace theory of Bernard Baars, who sums up the theory in the following way: "[c]onsciousness creates access to unconscious resources". (1997:159) For Baars, as it is for LeDoux, consciousness is a practical way of making unconscious information globally known, that is, available for all other brain subsystems. Consciousness therefore becomes functionally involved in alteration of priorities, decision-making, the recruiting and controlling of actions and many more cognitive and behavioural aspects. See also Chalmers 1996:225. For a textbook on various functional aspects of consciousness, see Baars et al. 2003.

'ours'), to relate external events to these abstractions, and to use these representations to guide decision-making and control behavior". LeDoux 2003:197) In other words, the explicit self has *something* to do with how language re-creates consciousness. More specific than this, though, LeDoux does not become.

From what we have discussed in this chapter, the problems with such a theory should be obvious: Why is the explicit self accompanied by a subjective sense, when the implicit self is not? And how does the explicit self 'recognize' the implicit self as its own? In a sense, the implicit self is integrated into an unconscious self (whatever that means), but LeDoux offers no hints whether this should be understood in the direction of a pre-reflective consciousness, or if it plays a role in proprioception (LeDoux is strictly focused on the brain, not the whole body). That leaves us in an explanatory vacuum. Despite depending on language to constitute the explicit self, LeDoux's vocabulary does not seem to include the subject-use of 'I.' As such, the theory of the synaptic self lacks an ingredient that we have seen many hold to be important for the understanding of consciousness and the self. For LeDoux, the question of the self is not about subjectivity, the phenomenal feel of being someone, or the mineness of being conscious, it is about how the brain controls behaviour and makes it coherent.

In closing

I have in this chapter distinguished between various conceptions of the self. Few of them have been dismissed altogether, but most of them seem to lack something. This something can be summed up as a *foundation*. Repeatedly I have returned to this foundation, having called it 'subject-use', pre-reflective consciousness, or a sense of ownership. I have investigated into more advanced, more complex, notions of the self, only to be left with a self-notion that is not really a self, but more of a feeling of, a sense of, *mineness*. The claim of the chapter has been that the self is an elusive notion, and as such, hard to pin down (unlike, say, the Cartesian self). This is the case, not only because the concept is used in several different manners, but also because many approaches have to overcome serious problems if their conceptualization of the self is to become coherent. However, in its elusiveness, the self has appeared in a minimal sense: There seems to be a *mineness* to any experience, prior to one consciously deciding that it is *me* that is having a conscious experience.

The implication of this was that conscious experience is described as having a duality of moments, one 'pointing inwards' and the other 'pointing outwards'; without world-presence, there would be no self-presence. As I have mentioned earlier, the world-presence manifests itself also in the constitution of the self in the more reflective sense as well. In being surrounded by things and others, the self gains opportunities that an investigation into the minimal self cannot tell us anything about. I needed the notion of the minimal self, because without the minimal self, we could not experiences ourselves as selves, and therefore not as actors either. The minimal self is therefore crucial in being a reflected self, and consequently in *seeing oneself* as having possibilities, but it tells us very little about these possibilities and how one is attached to them. For this, it is required that the self is conceptualized as an autonomic entity, but in a sense that does not presuppose a Cartesian self. This self is *the embedded self*, and it is to this self that I now turn. In the following chapter, we shall see the role of both the others and of technology in the embedded constitution of the self.

chapter six

EMBEDDEDNESS

Extrinsic notions of the self

A number of self-concepts were introduced during the previous chapter: self-consciousness, self-awareness, and personal identity, to mention only a few. We saw that these concepts both overlap and could encompass anything between rudimentary and momentary subjectivity via pre-reflective self-awareness, to a fully-fledged, mature and lasting personality. The wealth of concepts reflects the wealth of understandings one can have, and make use of, concerning the self, both academically and in a commonsensical manner. I find it doubtful that most people think of themselves as Cartesian *cogitos* when they think of what it is of themselves that persists through their lifetime. The concept of 'soul', though, might be that for many, and 'soul' does contain some *cogito*-like aspects. Neither does pure bodily continuity strike me as a widespread criterion, although it certainly is important (especially in ascribing continuity to others). I also think that Locke's emphasis on psychological continuity (memory) denotes something important for what connects one's present self-awareness with one's earlier experiences. In addition, it is plausible that we do get to know ourselves better through an objectifying retrospection of our own reactions, ways of thinking, and judgements in situations that have occurred, and that this self-knowledge is then included in our concept of ourselves.

Distancing his late philosophy from Ryle, Wittgenstein blames behaviourists for making the same reductionist mistake as Cartesians, in trying to find one, unequivocal, objective criterion for the self. (Wittgenstein 1953, §304-7) Instead, the word 'person', in its ordinary use, must be considered a composite. (Wittgenstein 1960:62) Perhaps we employ a bundle of criteria, where no one is primary, but some are emphasized in certain contexts and others are more important at other times? Neither Ryle nor Wittgenstein seems to accept that 'I' contains the unified and unifying core that the linguistic function implies.[1] In that case, not just behaviourism is under attack, but all approaches that search for *the* single, unproblematic criterion that manages to fend off all criticism.

Moreover, to handle personal identity, if we are going to understand it as the phenomenon that holds together moments of conscious experiences, there is the question of how our self-image (to introduce yet another concept…) is constituted. The discussion in the previous chapter focused on how we come to perceive ourselves as a lasting entity with an identity over time, but this lasting self-image might not be constituted entirely through our own (mental) activity. Sometimes schizophrenia and split-brain thought experiments are used to demonstrate the possibility of two personalities inhabiting the same body. What happens in actual cases of this kind? If a person shows signs of having a split personality, others would say that *this person* (nobody would say 'these persons') has a disorder. In reality, *society does not accept two selves in one body*. Intersubjective and social strategies will be undertaken to treat the disorder in order to eliminate what is regarded as illegitimate personalities. The same goes, I suspect, for the philosophers' more fanciful thought experiments, say Locke's cobbler whose soul is inhabited by the soul of a prince[2], or Shoemaker's Brownson[3]. Whatever intrinsic criterion is singled out, and these examples

[1] But Ryle nevertheless sought *the one* explanation for the use of 'I', and found it in retrospection. Wittgenstein, however, claims that both Descartes and behaviourism have misunderstood the self's role in language (we saw that Ryle thought that Descartes had, but presumably did not think he made the same mistake himself).

[2] "For should the soul of a prince, carrying with it the consciousness of the prince's past life, enter and inform the body of a cobbler, as soon as deserted by his own soul, every one sees he would be the same person with the prince, accountable only for the prince's actions." (Locke 1975:340) Locke commented himself that other people would say that the prince was not the same *man*, but as long as the prince's memories were intact, Locke maintained that he was the same *person*.

[3] Brown's brain is transplanted into Robinson's body, creating a new person, Brownson. Brownson exhibits all of Brown's behavioural characteristics, except for the recognizable bodily ones (at least, 'outer' ones, since he still has Brown's physical brain). Shoemaker claims that "[t]here is little question that many of us would be inclined, and rather strongly inclined, to say that while Brownson has Robinson's body he is actually Brown". (Shoemaker 1963:23) Fission is a more advanced variation of these thought examples: A person A's two brain hemispheres (both halves are presumed to keep the full psychology of A) are transplanted into two bodies, B and C. For complication (!), the bodies are supposed to be clones of A's body. B and C will then be numerically different, but qualitatively the same as each other and to A. As no one, not even they, would be able to tell the difference, I will not discuss fission here, but see Parfit 1984, Garrett 1998, Martin and Barresi 2000.

do emphasize intrinsic ones, it is still a matter of dispute how the world around the person reacts to instantiations of 'same person-different bodies'.

What creates a lasting self, a person, is not only due to the subject's own awareness of his own person's identity, but must be seen as the result of many contributing factors, both subjective and intersubjective, both intrinsic and extrinsic. Evan Thompson expresses this in the following way:

> One of the most important reasons that human mentality cannot be reduced simply to what goes on inside the brain of an individual is that human mental activity is fundamentally social and cultural. Culture is no mere external addition or support to cognition; it is woven into the very fabric of each human mind from the beginning. (2007:403)

If Thompson is correct, it is wrong to go for one specific, intrinsic, criterion as the sole reason for why and how we think of ourselves as persons. We need to think in extrinsic aspects as well, and this is the task for this chapter. Regarded generally, the chapter is a dismissal of the clear-cut distinction between intrinsic and extrinsic factors in both biological/environmental and psychological/social aspects. Of course, this was inherent in Part 1, as well, where we saw numerous reasons why we should think of the external world (of technology) as not being neutral and mere instruments, but as being an *upgrading* of our *possible practical space*. We are in-the-world through the possibilities our technologies afford us. This chapter will explore the same core idea, but in terms of what this implies for the constitution of the self and the self's self-image.

Extrinsic co-constitution of the self is also illustrated by the fact that observing oneself does not necessarily mean the intrinsic, mental acts of intro- or retrospection. We are social beings, and we participate in social action, and we observe our own actions in the world. In an intersubjective world our actions trigger repercussions that have short- and long-term bearings on our own self-image. A strong part of the self-image is *what we are in the world*; how others see us, and how we see ourselves, as being. Cognitive psychologist Ulric Neisser operates with two basic forms of self-knowledge, one based on reflexivity (intrinsic) and the other based on perception (extrinsic). Through the latter, we are acquainted with the way we operate in an immediate and social environment. In contrast to the reflexive self, the interacting self "need[s] not be recalled, imagined, constructed, or conceptualized" (1993:3), but is perceived *directly* through engagement in the physical and interpersonal surroundings. This is important for how we conceptualize the self(s) and personal identity because developmentally the perceiving of our interactions with our

surroundings predates higher order functions; we act in our surroundings, and observe the repercussions of our acts, before we are able to take ourselves as objects in an intrinsic act of reflection. Young infants, Neisser says,

> see what is within their reach, maintain a specific awareness of things that have gone out of sight, and distinguish their own actions from those of other individuals. They engage in lively social interactions with other people and are aware of the extent to which they control those interactions themselves. The fact that these achievements appear in the first weeks and months of life makes self-perception especially important: It is the first and most fundamental form of self-knowledge. (1993:4)

Extrinsic factors then, whether they are our fellow humans or our own actions, are in this respect an essential part of the constitution of the self. Therefore, for the concept of the self, it is necessary to reflect on how the self is co-constituted by its surroundings. The possibly rather intriguing lesson of this is that personal identity is maintained, not just as an intrinsic, psychological act in the person himself, but in the social world.

In addition, there is a further element of the concept of self and personal identity that needs to be recognized. The self is not something that just exists now, or in the past. We also live in a way that has the future built into our lives. We are, as selves, directed towards the future, and any kind of planning, whether it is an arrangement for our days of retirement, the summer holiday next year, or going to the store for some milk, can be performed because we presuppose that we exist as individuals in the time after now. An integral part of how our present lives are conducted is due to how we think about, hope for, and anticipate the future.[1] This kind of self-awareness is different from introspective or retrospective acts, as these are directed at the now and the past respectively. Although our existence 'in the future' might be modelled as an inference from our experience of already existing over time (although, as we will see, I believe such a model to be flawed), the interesting aspect is how the many different respects in which we can be self-aware constitute the self as stretched out from its here and now. Our extended awareness constitutes the self *across the 'I'*. The self extends from the past, through the now, and into the future, and it extends from the inside to the outside (and vice versa).

Personal identity, then, is modelled in this chapter as stretching out in time and in space. I shall model the self as a criss-cross, as *an 'x'*, with one line representing the extension in time and the other the spatial extension. Any 'x', though, has an intersection, a nexus that

[1] This directedness on the conscious level might reflect the transcendental structure of our consciousness. Husserl claims that every conscious moment is in fact a time-extended now, made up of the fundamental triadic structure of *retention* (the just-now)- *present* (the now) – *protention* (the anticipated-now). (Husserl 1991)

holds the criss-cross together. What is the nexus in the varying aspects, the varying concepts, of the self? Having rejected any objectifying approaches, we saw in the previous chapter that the *mineness* in pre-reflective consciousness stood out as a possible candidate. In keeping with the criss-cross metaphor, objectifying approaches can only be taken from somewhere out on time- and/or spacelines, which would make the intersection correspond to what was identified as the minimal self (or more precise, the minimal notion of the self). The minimal self is extended and persists through higher order functions, such as language, reflection, and narrativity. 'The extended self' is a commonly employed notion, for instance; both Antonio Damasio and Ulric Neisser use it to express how a person's autobiographical history is actualized in his present *persona* (Neisser 1988, Damasio 1999), thereby focusing on the timeline.[1] The criss-cross model, however, merges this aspect with what Neisser calls an interpersonal self, "the person who is engaged, here, in this particular human interchange" (Neisser 1988:36) and, lastly, the more fundamental co-constitution of the self of extrinsic aspects, such as interpersonal relations, social aspects and the use of technology.

In what remains, I shall look more closely at the lines going out from the intersection, that is, to leave the criss-cross metaphor behind, *embedded notions of the self*. In this chapter, I shall explain the concept of embeddedness through three different *types* of embeddedness. The first concerns the relation between 'nature' and 'environment', because, in my mind, 'interdependence' finds its clearest expression in the writings of Susan Oyama. The second type concerns intersubjectivity, the relation between us and others. Finally, I shall look into the most important aspect of embeddedness, how the self is not just something that has been until now, but is constituted in terms of its own possibilities, in terms of what it might *become*. What we do now is not a mere result of what we have been so far in life, we conduct ourselves now in anticipation of what we see ourselves as being able to do, to achieve, both in terms of actions that we are able to undertake and in terms of what we might achieve in life. Why is this embeddedness? Because the possibilities we see ourselves as having are to a large degree related to the possibilities we see in the entities that we encounter in our surroundings, in things and in other people. It is in the act of creating our own future self that we can find the most proper alternative of reflective and memory-based concepts of the self. In other words, our possibilities cannot be reduced to being intrinsic features of our mind.

[1] Neisser later re-christens the extended self the remembered self. (Neisser 1993)

What arises from the discussion is a view of self as extended in time and space, which, for that reason, is more appropriately named *the embedded self*. The concept of, but not the expression, embeddedness was introduced in Chapter 3, through the discussion of Heidegger's concept of Dasein. In that sense, this chapter proceeds from where that chapter ended, by looking at the 'human existence' (Dasein) in its dependence on its surroundings, in the understanding of the environment itself, the understanding of other subjects, and in the understanding of itself as something that has been, is, and will become. In this sense, this chapter is about meaning, not as a cognitive, representing, internal structure, but as embedded in-the-world, as becoming.

Embeddedness 1: interdependence

In the thinking around the relation between 'the biological world' and 'the social world' there is something like, for lack of a better expression, a *received view*. This expression signifies that it is a widespread view, and that it is a view that often is adopted without sufficient critical scepticism. The expression also indicates that it signifies a cluster of thoughts, which are aligned as a family of attitudes rather than making up a clear-cut theory. The received view is the idea that nature and the social are two completely different realms, two ontologically differentiated categories, one penetrated by meaningful relations, and the other devoid of meaning, merely driven by causal relations.[1] This implies that either a) meaning is an epiphenomenon, completely reducible to the causality of the meaningless nature, or b) meaning develops as a social phenomenon without being anchored in nature, which makes meaning just as mysterious as Descartes' *cogito*, and causally speaking, equally problematic.

As we saw in Chapter 3, in order to live successfully in our surroundings, we have to enter and master the complexity of meanings in our surroundings. This is, I guess, a somewhat trivial observation, and could even be labelled a 'cultural fact'. However, the same goes for a biological existence. All species occupy an ecological niche. An ecological niche is the *what of* the world, and *how* this *what* presents itself to an organism belonging to a certain species. The ecological niche is not just *the* world; it is the world in its species-specific appearance. Ontogenetic development is the development of an organism into an ecological niche. In this sense, organisms develop into a world that has a certain meaning for its species. I say that the ecological niche involves meaning because the way the

[1] Without arguing further, my claim is that the ontological dualism is held by both biological and social determinists.

environment appears is matched to the physiological, behavioural and cognitive characteristics of the species. (Gibson 1986:128f, Uexküll 1982) Items in the niche do not appear in any objective sense; they present themselves as having specific values and functions for the individual of a certain species. These values and functions are not something the individual can choose, or the result of an interpretation; the individual must learn to master these to live successfully in its niche. For many animal species, but most notably for humans, the ecological niche includes social phenomena. To grasp the transition that our species made from a (hypothetical) biological existence to a social one, it is required that the meaning gap between nature and culture, between our status as evolved, natural creatures and our status as social beings, is bridged, or better, *filled*. Once this is done, we can see that the two categories, 'biological' and 'social', are *idealizations* that do not reflect the actual lived existence. Therefore, the problem of meaning's seemingly cultural belonging is fallacious. In this section, the alleged gap is questioned through the description of the relation between genes and the environment.

The received view might seem to denote something long since obsolete, and perhaps the contrast was accentuated above, but there are research areas where the distinction is maintained, at least implicitly. Much attention, from funding-resources to popular media, is on genetics and related matters these days, as is seen in the charting of the human genome, in research on stem cells, in the (in the public) ill-understood question of cloning, and of course in the thriving pharmaceutical business and related research. Through the works of Edward O. Wilson (1975) and Richard Dawkins (1976, 1999), genetics was combined with ethology, the study of animal behaviour, and the theory of evolution to create sociobiology. Sociobiology and its more recent offshoot, evolutionary psychology, [1] attempt to understand social actions (goal-directed movements, communication, morals, etc.), through what is portrayed as the underlying level, the genes. In this sense, sociobiology and evolutionary psychology retain the dichotomy between the realms of meaning and the realm that 'just is'; our social actions are regarded as meaningful, while our biological traits are regarded as meaningless (in themselves). Dawkins has a number of times stressed that genes *just are*; they are not good, they are not bad (or selfish in any moral understanding of the word), they just do what they do. (See for instance Dawkins 1999:9-14) The question is, of course, what exactly do they do? Or rather, what are they envisioned as doing?

[1] See for instance Barkow et al 1995. For a critical view on evolutionary psychology, see Buller 2005.

While the received view leaves a problem for our self-understanding, in the sense that it creates a not easily mended gap between understanding humans as evolved, natural beings and humans as social and cultural beings, sociobiology proposes a well-known mending strategy, namely reductionism. Social phenomena must be understood as the expression of the activity of genes, that is, as an expression of nature. Social actions like alcoholism (Mulligan et al 2006), infidelity (Cherkas et al 2004) and anorexia,[1] are reduced to the activity of specific, although generally numerous, genes. However, since there was no alcohol around when the proposed gene for alcoholism entered the human gene pool or any marriages when the infidelity-gene entered, this type of explanation is reductionist not only with regards to the actions themselves, but more importantly with regards to the meaning of the behaviour of the alcoholic, the infidel husband and the anorexic teenager. The kinds of behaviour these genes are presumed to support or influence have changed; today they have taken on a new meaning. Consequently, it is much more than a mere set of behaviours that are explained or reduced by the genetic link, it is a whole range of socially meaningful behaviours. Although the reduction of each specific behaviour might seem sound enough, this methodology potentially has a strong implication: the total realm of the social is reduced to an expression of genetics.

Not surprisingly, because of this possible implication sociobiology was fiercely attacked from the word go, often for political reasons. (Lewontin et al. 1984, Rose 1997) However, a brief glimpse at the tabloids suggests that supporters of sociobiology shrugged off this criticism quite successfully; every week now it seems that a new gene for… *something* has been located.[2] As we will see, doubts about sociobiology and its foundation are to a certain degree warranted, but it should have been the simplified tabloid version that was the main target for the attacks. In general, it is the case that actual scientific work is more detailed and complex in its explanations and models than a popularized version ever has capacity to be, which is also the case for sociobiology. Both Wilson and Dawkins are better described as interactionists than greedy reductionists. In fact, there are very few examples of a one-to-one correlation between genes and phenotype.[3] Such a correlation does exist, though: Huntington's disease is a brain-damaging illness that develops with certainty if one has a particular gene (and lives long enough). If a person does not have

[1] http://www.webmd.com/mental-health/anorexia-nervosa/features/anorexia-bulimia-genetic-code [02.01.2009]
[2] A recent addition, the genetic link for lung cancer:
http://www.nature.com/news/2008/080402/full/news.2008.733.html [02.01.2009]
[3] Phenotype is the 'visible' expression of the genotype, which can encompass possibilities for several phenotypes, as the case is with eye colour, where we might have genes coding for both brown and blue eyes.

the gene, the illness will not develop, but if it is there, the disease is unavoidable. In most cases of ontogenetic development, though, there will be necessary contributions from the environment to 'build' a phenotype. This is also acknowledged in sociobiology, even if the tabloids do not have enough column space to present the full complexity of the relation.

Now, interaction seems the better option given the alternatives of biological or social determinism. But it is not clear how we can go beyond the mere statement of interaction to an actual model that explicates the interaction. For instance, how are we to isolate a contribution stemming from biology, or from culture, for that matter? This, Susan Oyama points out, has proven quite difficult.[1] (Oyama 2000:52f) As already mentioned, there is no shortage of attempts to propose a genetic base for socially meaningful behaviours. The problem is that often an attempt to identify a certain feature as 'biological' presupposes a prior, and usually implicit or tacit, conception of the biological-social gap. So, these kinds of explanations that seemingly attempt to justify a genetic bias are in fact the result of having a genetic bias to begin with. (Oyama 2000:3)

The main problem, the way Oyama sees it, is the uncritical holding of two mistaken ideas about interaction in ontogenetic development, the first being that traits are *transmitted* through DNA. (Oyama 2000:21, cf. 27ff) This is not the case, Oyama argues; developmental interactants are *informational*, not by carrying context-independent information about phenotypes, but because of their context-bound impact, that is, by making a difference through *being present* in the developmental process. What difference this will make, will depend on specific environmental features, not on any inherent characteristics in themselves. Consequently, the interactants cannot be said to carry specific information.

However, this idea must be said to already be implied in most evolutionary thinking as biologists are more concerned with the *variations* that can be found due to genetic variation than with the similarities that can be found due to genetic similarities. The real lesson from this, though, might be a little muddled because of the implicitly held gap of the biological versus the environmental. This leads us to the second mistaken idea, namely the holding of a developmental duality, that there are two distinct kinds of developmental processes, one controlled from the inside and the other from the outside. If the understanding of interaction rests on this idea, the world will remain carved up into

[1] Huntington's disease is a notable exception, but she does not discuss it, and it does instantiate a rare occurrence.

'innate' and 'acquired' characteristics. (Oyama 2000:21) This, of course, will reinforce the nature/social gap ontologically as two foundational and mutually exclusive categories.

Oyama's main target is the sociobiological understanding of interaction, but she emphasizes that any social reductionism, or socially biased interactionism, is not an option either. Actually, at one point she argues that the two seemingly opposite concepts share some similar assumptions in a very unlucky manner.

> Much of social constructionism, in fact, not only fails to question these divisions ['biology' vs. 'social'] but is actually grounded in them… Indeed, a poignant aspect of some of this work is that it often begins with a desire to defend the reality and significance of the social against what seems a hypertrophied biology (or individual psychology), but then ends by ratifying some of the very beliefs that feed that biology's unbalanced growth. (2000:16-17)

In fact, if we are to avoid the ontologization of two fundamentally different categories, development must be conceptualized without a cultural or biological bias.

What we need, according to Oyama, is a radical transformation of some of the key concepts involved. First, we need a new conceptualization of *causality*; DNA is not a coded representation of traits and a recipe for building an organism. The causality involved in ontogenetic development is non-linear; it is non-reductionist. This means that there is no central control of causality, not from the 'inside', or from the 'outside'. Instead, development is systemic: its control is multiple, mobile, and distributed. The language used in molecular biology is misleading, and indicates that genes are controllers of causal relations, with talk about genes that 'self-replicate', that engage in 'gene action', that 'make' proteins, that are 'turned on' or 'turned off' by 'regulatory' DNA. Such language leads to a picture of development as being controlled in an outward flow of information. (Oyama 2000:47) However, as DNA does not 'do much' on its own, such metaphors conceal the degree to which genes depend on the environment, not only for their actual expression, but also as to *how* they are expressed as a phenotype.

What is required, according to Oyama, is a different look at the developmental process, and not one that merely replaces the causal view with a simple interactionist one. "Movement among scales, both of magnitude and time is important: from interaction of molecules inside cells to those between persons, from the brief periods involved in the action of a hormone in the nervous system to changing relations among conspecifics over the life span." (Oyama 2000:4) No process or relation should be privileged in modelling development. Of course, she does not by this discourage delimiting the context by focusing on merely one level; restricting oneself to the details on a particular level is

necessarily part of what doing actual science is about. But that should not mislead us to make ontological claims using the specifics of a limited sub-process as prototypical.

Further, we also need a different understanding of *heredity*; heredity involves more than passing on DNA to the next generation. According to the so-called central dogma, what is inherited is the genotype. The genotype 'builds an organism', and the genotype that has built itself the best fitted organism wins, and passes on its genotype to the next generation. Traits therefore are said to be in the genotype, and are transmitted. But claiming this is primarily a consequence of having the wrong assumptions about the concept of causality (and transmission). In fact, the totality of what is inherited is both innate and external. The external factors can be narrowly or broadly defined, depending on the scope of the analysis.

This should be recognized even in the central dogma: If the genotype is envisioned as contributing to an environment, this environment will be around for the next generation. This is of course what culture is, the preservation of knowledge, successful techniques, language and so on, through other means than the passing on of DNA. Actually, the two-sidedness of heredity makes it impossible to see biological and cultural evolution as separate processes, and it is not sufficient to supply this notion with an ill-defined notion of interaction either. "Nature and nurture are… not alternative sources of form and causal power. Rather, nature is the *product* of the *processes* that are the developmental interactions we call nurture." (Oyama 2000:48) There is no genotype versus phenotype – there is only phenotype; what we call nature is already phenotypic and depends on a developmental process that includes both genomic and extra-genomic contributions.

The inherited-acquired distinction, with its different *kinds* of developmental processes, and different sources of *form*, must therefore be discarded. What passes from one generation to the next is *an entire system* that guards and contributes to development. At one point Oyama lists nine such contributors, ranging from the genome, via intra- and extracellular chemicals, to the immediate physical environment, climate and food resources – indirect (parents) and direct contributions. (Oyama 2000:73f)

The complex developmental process should therefore be conceptualized differently; genetic and environmental factors do not merely interact, they are *interdependent*. Rather than understanding genetic and environmental contributions as a mere statistical interactions, where predefined contributors can create predictable results, the

contributions are mutually dependent. Interdependence, as we saw it defined in Chapter 2, implies in this context that genes and environment are more than mere mutual constraints for each other's possible expression; they must be seen as actively defining each other. When this is the case, whatever is genetic, or 'nature', makes no sense without a notion of environmental, and vice versa; none of the categories can be taken as fundamental. In fact, rather than denoting something genuinely fundamental and causally independent, whatever is labelled 'genetic' or 'environmental' is, in this view, an *idealization*, certain attributes of a totality taken out of their actual situation. What is perceived as a gene, then, is in reality an idealization, embodying much of what actually is not genetic, but 'environmental' (itself an idealization), as, for instance, in the aforementioned genes 'for' alcoholism or infidelity. If we can talk at all about information *in* the genes, it is information that only comes into play in an environment. None of the categories even exist until they 'meet' as a relation of meaning.

The interdependence of 'genes' and 'environment' demonstrates a very basic sense of embeddedness. Genes, to be genes *for* something, that is, as having meaning, as *being distinct*, must necessarily be embedded. Articulating something *as* something means holding it up in its embeddedness, but embeddedness does not only concern how we conceptualize something's existence; as we saw, it concerns its *very* existence. Although genes are not important for developing the notion of the embedded self, the structure of Oyama's criticism of traditional biologistic thinking shall follow us throughout this chapter.

Embeddedness 2: intersubjectivity

Who do I meet when I move around in interpersonal space? How do I meet this who? Do I meet 'the other' – an impersonal and neutral self, or do I meet 'doll face', 'fat guy', 'the hooligan', 'the overly self-conscious dude', etc – that is, *people*? Do I have to recognize the other as a self *before* I attribute this self with my prejudices? Or, do I meet the other *through* the prejudices, in the sense that they are a pathway into the other? Are the prejudices inferences that presuppose the self, or are they a means for acknowledging the others' self? And what about me, my *self*, am I prior (for myself) to the other; do I have an awareness of myself prior to an awareness of the other as a self?

In this section I shall look at the relation between the self and other selves. Although the question of the self is a question of the 'I' – who or what am I, it is also a question about

the other – in what respect am I different from the not-I. As we saw in Chapter 5, in intentional experiences there is co-givenness of the self and the world. What implications does this have on the I-other relation, and what implication does the I-other relation have on the concept of the self? In Chapter 3, we saw that our primordial acquaintance with the world is of a world where every item is immersed in meaningful connections, praxes, and so on. To be able to know every item as an item in itself, an abstraction from the actual lived situation is necessary. Does this also have implications for the I-other relation?

The Cartesian understanding of self-knowledge as the basis for all other kinds of knowledge implies that knowledge and acquaintance of 'the other' are secondary; to establish the existence of others, it is necessary first to establish the existence of oneself.[1] However, the mere establishing of oneself as a self does not in itself explain knowledge of the other as a self, so how do we, so to speak, go from me to you? Gilbert Ryle contends that this problem, often dubbed the *problem of other minds*, occurs because it is held that the only kind of access anyone can have to his own mind is through a privileged, inner perception-like access to a private mental realm. (Ryle 1949:13ff) I can only know what goes on in my own mind, not in the mind of the other; the only one who has access to that mind is the other one, that is, if he has a mind. Can I, then, really know that the other is a subject, a self, on par with me? Ryle himself, as we saw in the previous chapter, denies that the kind of access we have to our own mind is of the privileged sort. Instead, the kind of information that we use to determine the contents of our own mind is accessed by observations of our own, publicly available, behaviour. According to Ryle, statements about the mind are in reality statements of behaviour and dispositions to behaviour, not about some private closed realm. Saying that I believe that it is unwise to drink coffee after 7 pm is to say that if I am offered a coffee at 8 pm, I would turn the offer down.[2] Structurally, then, the access to our own mind is the same as the access we have concerning the status of an other and his mind. (Ryle 1949:90, 179ff) There should be no

[1] Descartes himself does not discuss how we can know that others are *cogitos* as well. Some sporadic remarks indicate that he is content with the definition of human beings as the only animal that has a mind. Recognizing others as human beings (mainly on the basis of the use of language), then, is evidence enough for Descartes. (Avrimides 1996)

[2] Besides being phenomenologically unconvincing, the common argument against how philosophical behaviourism explains mentality is that such an explanation would require other mental terms. For example, in saying that coffee should not be drunk after 7 pm, it must be because I *believe* that late coffee consumption would keep me up at night, and further, that I do not *want* to be kept up at night, and further still, that this is because I *think* I *need* a good night's sleep, which is because I *want* to perform well in the morning, etc. Logical behaviourism, attempting an elimination of mental states, does not seem to escape from this regress. (Searle 2004:53)

more mystery about other minds than of our own minds, according to Ryle, and claiming otherwise would be to be tangled up in the Cartesian Myth, which Ryle calls the conviction that our mind is private.

Ryle's and other kinds of eliminative strategies about the mind aside, for those accepting that there is more to the mind than statements about behaviour and dispositions to such, the certified existence of other minds does pose a challenge. However, in terms of recent cognitive psychology this is not questioned the way a philosopher might question the existence of other minds, but is a question of *how* we get to know the other 'body's' mind. It is the case that we very often successfully understand and predict another person's behaviour, the question is: how is this done? A widespread idea is that we all employ a 'theory of mind' (ToM) that enables us to explain and predict the behaviour of others. ToM is not a scientific or philosophical theory, but a kind of common-sense psychology often called 'folk psychology', and seen as "an implicit naïve theory". (Gopnik and Wellman 1994:257) The crux of ToM, which is quite the opposite of behaviourism, is that explanations and predictions of behaviours are undertaken by appealing to knowledge or acquaintance of our own mental states. It is this knowledge that amounts to the theory of mind that we subsequently can apply to others.

There are two prevailing approaches to the hows and the whys of ToM, the theory-theory of mind and the simulation theory of mind.[1] What these approaches have in common is that our access to the other's mind is indirect. The approaches differ in *what* it is that we consult in gaining knowledge about the other's mind. The theory-theory (TT) holds that we understand "other minds by implicitly employing a *theoretical stance*… [that] involves postulating the existence of mental states in others". (Gallagher 2001:83, my emphasis) That is, in explaining and predicting behaviour we appeal to beliefs, desires, motives, intentions and other mental states in the other. Such mental states are represented as concepts in our ToM. According to TT, the concepts we have are generated against the background of what we experience in the world, including both what we can observe around us and what we experiences 'inside' us. In other words, ToM might be socially influenced, although this influence is constrained by innate structures of our cognitive system. (Moses 2005:12) Nevertheless, the employment of ToM is internal to our own

[1] There are some others, as well. (Moses 2006:12) These can be seen as variations and mixtures of TT and ST in the sense that they share assumptions about the relation between mind and world that I shall discuss shortly.

mind; in applying this ToM to another person's behaviour we *infer* from the observed behaviour to the concepts in our ToM.

In its dependence on concepts and in assuming a theoretical stance, TT postulates our understanding of others' minds as a rather advanced cognitive task.[1] In fact, it is thought that a child does not have a proper ToM until approximately at the age of four, when it is able to understand the difference between its own and another's state of belief about a particular feature of the world. (Gopnik and Wellman 1994:264, Gallagher 2001:83f) Before this, a child has conceptions of perceptions and desires, but these are totally reorganized when the concept of belief is fully developed. As Gopnik and Wellman express it, explanations and predictions might be *successful* prior to the age of four, also, but they will be *incorrect* from an adult's point of view because they are not founded in belief attributions. (1994:264) That is to say, TT postulates the theoretical stance as a conceptual holism that is consulted when we attribute mental causes in understanding others behaviour, and changes in or the introduction of a new aspect, that is, concept, into this whole brings along changes in other concepts. (Hutto 2005:59)

The simulation-theory (ST) postulates a less theoretically inclined mentality in the explaining and predicting of others' behaviours. As the name implies, the accomplishment of understanding a foreign mentality is due to a (mental) simulation of what oneself would experience or think in a situation that is similar to the one we are observing. I pretend (usually implicitly) that I am the other person in that specific situation, assess (usually implicitly) how my reactions would be and apply (explicitly) this to the other person. The reason that I am able to explain and predict another person's behaviour is that I use my own mentality as a model for the other person's mentality. (Gallagher 2001:84) Instead of appealing to and applying a theoretical construct about minds in general (the theoretical ToM that TT postulates). I simulate an experience in imagining being in a similar specific situation. However, ST still requires conceptualizations in the sense that to understand the other as having specific mental states we must be able to differentiate between our own (simulated) mental states. In this sense, ST is not an alternative to the cognitivist leanings of TT; as mentioned above, an important common trait of TT and ST is that we explain and predict the other person's behaviour in an indirect manner. The main difference is that TT sees the mental construct that we consult

[1] The knowledge of our own in similarly mediated by theory, but I shall not go into that here. See previous chapter.

as a theory in its own right, while ST sees the mental construct as being situation- and person-specific.[1]

In that respect, TT and ST have certain similarities with an older argument for the relation between the self and the other, namely the argument from analogy. Consequently, they also share some of the problems with this argument. The argument was raised as a direct response to the Cartesian understanding of self-knowledge.[2] The argument goes something like this, using a by now familiar dichotomy between me and the other: While having direct access to my own mental life, all I can see of another's inner mental capacities is his outer bodily and linguistic behaviour. The reason I think that there is a mentality, conscious experiences, behind that behaviour is that I connect my own body and my own behaviour to my own conscious experiences. I know I have a mentality, so I assume that the same goes for the other body as well. If I *feel* hot, and *want* to cool down, and *believe* that having an ice cream will do the trick, I buy an ice cream. If I observe another person buying an ice cream, I suppose that that person does this because he *wants* one and perhaps for many of the same reasons as I. If not those reasons specifically then at least for reasons that are similar in form: I bought the ice cream because I was hot, he might just have a craving for something sweet, but what triggers his ice cream buying behaviour is a *belief* that an ice cream will answer this craving. I am able, then, to explain (and predict) another person's behaviour in terms of beliefs, motivations and desires. The analogy argument is similar to TT in that we infer from publicly observed behaviour about the closed up and hidden (presumed) mind of the other. The similarity to ST consists in using knowledge of our own mentality as the model for what we explain and predict about the other's mind. (Gallagher and Zahavi 2008:181)

The main problem with the analogy argument is that if I accept the Cartesian pre-supposition, there is no way I can ever *know* that the other person has conscious experiences, or is a self; this will always remain a conjecture. Searle points out an obvious shortcoming of the analogy argument:

> If I ask everybody in the room to put their thumbs on a desk and I go around pounding each thumb with a hammer to see which ones, if any, hurt; it turns out that as far as I can

[1] For more on important differences between TT and ST from a TT point of view, see Gopnik and Wellman 1994:275-280, and from an ST point of view, see Hutto 2005.

[2] Although Descartes perhaps implicitly held a version of the analogy argument, through language use (see note 1, page 213), John Stuart Mill is often thought to be the originator of the actual argument, although his argument might better be labelled *inductive* rather than analogical. (Thomas 2001:508)

> observe there is only one thumb that hurts, the one I call mine. But when I hit the other thumbs, there is no feeling at all. (2004:20)

This holds for any kind of observable behaviour. I can observe all kinds of behaviours around me, but the only behaviour that elicits any conscious experiences is performed by my own body (cf. Ryle 1949:14f). So, instead of assuring us of the mentality and the selfhood of others, the argument seems to do the opposite; to confirm the solipsism that threatens the Cartesian self-knowledge.

The reason for this is that the argument from analogy involves circularity: Only if we see a type of behaviour as expressing a specific kind of mentality can we interpret this type of behaviour as 'evidence' for the presence of that kind of mentality in another body. Max Scheler points out that the only valid conclusion I can draw from perceiving a behaviour that is similar to my expressive behaviour is that I myself am present. (1954:240f) If I instead conclude that the behaviour of the other body indicates the presence of an *other* mind, it can only be because I already assume that the other body has a mind that the behaviour is expressing. In this sense, the argument from analogy presupposes what it sets out to explain, and, as such, "can never establish the existence of other conscious individuals".[1] (Scheler 1954:241)

The circularity of the argument from analogy makes it evident that it can only be proposed by someone taking for granted the thesis about the mind as something that is *hidden* inside each (human) body. Consequently, to base our belief in the existence of other minds on inference from behaviour, that is, as regarding bodily and linguistic behaviour as being separated in nature from mentality, will never enable us to know for certain that another body harbours a mind like ours. The entry to the other's mind therefore becomes *a question of knowledge*, and of how to go about attaining this knowledge properly. This is evident in the cases of those who deal with the solution to the problem of other minds in terms of a ToM.[2] (Cf. Gallagher 2001:91) Both TT and ST assume that knowledge of the other's mind is in fact knowledge of *our* theory-theory or *our* simulation;

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[1] Another weakness of the analogical inference is that the behaviours that enable us to infer another's mentality rarely or never are identical to our own, but are variations. (Scheler 195:240) The conscious experiences, however, are said to be the same: pain, joy, desire. Scheler also points out that perceiving behaviours can generate only specific assumptions about the mentality of an other, such as 'he can remember A', 'he perceives B', 'he desires C', etc. In other words we cannot, without doing a further, *inductive*, inference, conclude that the other is, indeed, a self, that is, that he is equipped with mentality in a general sense. In fact, the way Scheler sees it, it is the presence of a general mentality that is presupposed when we attributing specific conscious episodes in another person based on analogical reasoning.

[2] See Meltzoff and Brooks 2001:174 for a blatant analogy argument for knowledge of the other's mind.

we do not encounter the other's mentality directly, we are confined to conjectures about it. However, is our assurance in other minds a mode of knowledge; *is the existence of the other self really an epistemological question*? I return to this question in the next section.

As we saw, Scheler's critique of the classical argument from analogy is that the position from which we carry out the analogical inference presupposes that we are in the presence of another mind. For TT and ST, the same applies, and Shaun Gallagher points to several abilities that must be in place for a subject to begin its theorizing about or simulation of the mind of another:

> [A]n understanding of what it means be an experiencing subject; … an understanding of what it means that certain kinds of entities (but not others) in the environment are indeed such subjects; and… an understanding that in some way these entities are similar to and in other ways different to oneself. Furthermore, to form a theory about or to simulate what another person believes or desires, we already need to have specific pre-theoretical knowledge about how people behave in particular contexts. (2001:90)

These aspects concern the ontogenetic angle of the problem of other minds; how we acquire the ability to simulate or form a theory-theory. This is in contrast to the question we looked at above, which concerns the nature of online reasoning. Due to the cognitivist nature of the online reasoning system presupposed by TT and ST, the ontogenetic question is investigated in terms of the development of concepts and of the ability to differentiate between mental acts, often amounting to a discussion of innate versus learned (proto-) concepts and abilities of our mentality. (Gopnik and Wellman 1994:264-267, Meltzoff and Brooks 2001, Malle 2005, Hutto 2005) That is to say, the investigations into primary forms of intersubjectivity take as their perspective the same cognitivism that is reflected in the explanations of the adult level. Consequently, the investigations into the pre-conceptual stage are mentally biased, and the direction in the developmental stories is towards a fully-fledged adult mentality.

An example that displays this clearly is found in Bertram Malle's (2005) description of the development of the intentionality concept from a TT perspective.[1] Malle first points out that infants at the age of 9 to 18 months learn to distinguish between intentional and unintentional behaviour. Since the infant has no mental intentionality concept yet, it finds the meaning of this distinction in the context of the behaviour:

> [T]he degree of movement 'smoothness' as a symptom of the agent's control (compare walking down the stairs versus falling down the stairs); characteristic accompanying

[1] As we will see, this is an entirely different concept of intentionality from the one discussed in Chapter 3; instead of the directedness of consciousness, it is the goal-directedness of behaviour that is under discussion.

> behaviors (e.g., head turning, eye gaze); the connection and manipulation of objects in the world; equifinality (the principle that intentional agents pursue their goals along multitude paths, trying a different path when the first one failed); and characteristic agent responses at the end of the behavior (e.g., 'there!' or a happy face with an intentional action; 'oops' or an unhappy face with an unintentional action). (Malle 2005:28-9)

The infant displays understanding and grasp of intentionality, but "[a]s far as we know, intentionality is not 'mentalized' at this early age". (Malle 2005:29) Later, however, between the age of 2 and 4 years, this understanding of intentionality takes on another form, when it is a) 'mentalized', that is, represented as a mental concept, and b) 'paired' with other mental concepts. This enables an advanced understanding that considers an action as intentional "only when the agent has *desire* for an outcome, *beliefs* about the action that leads to the outcome, an *intention* to perform the action, and *awareness* of fulfilling this intention while acting". (Malle 2005:29, my emphases) Mentalization is required for evolving a mental framework, that is, a synthesis of the mental concepts (which all have been grasped pre-conceptually on an earlier stage) deemed necessary for the display of the smooth, advanced interactive behaviour that older children, adolescents and adults display.

> This frame allows the powerful inference that whenever an action is intentional (presumably judged, like the infant does, on the basis of cues other than mental states), there must be the involvement of various mental states, most notably beliefs and desires that provide the reasons for acting. (Malle 2005:29)

This is to say that we, unconsciously, make inferences (or, in the case of ST, mental simulations) involving other mental aspects in all cases of assessments of intentional behaviour. This is true not only when we 'stop' and reflect on a specific situation, as in bewilderment about a person's reasons for doing something, but in all cases of ascribing intentions behind behaviours.

For Gallagher, this approach is entirely wrong because it implies that we do not communicate or interact directly with each other but indirectly: "one's understanding involves a retreat into a realm of *theoria* or *simulacra*, into a set of internal mental operations that come to be expressed (externalized) in speech, gesture or interaction". (Gallagher 2001:93) Although more reflective forms of thinking about the other's ways of thinking and evaluating are not excluded but are seen as frequently used – Gallagher calls them "specialized and relatively rare modes of understanding others" (2001:94), *typical* social and communicative interaction, according to Gallagher, is direct and external. In this respect, our normal interactions, although much more complex, are not unlike that of a child, using contextual information as the cue for determining the intentions, the desires

and beliefs of others. If this is the case, we should "think of communicative interaction as being accomplished in the very act of speech, gesture and interaction itself". (Gallagher 2001:93)

This statement entails a number of things, but it is important to note that it presupposes that mind and body are not separated in the manner of the Cartesian tradition; contrary to ToM, Gallagher does not regard communication as something that happens between two Cartesian minds. (2001:93) Instead, the mind is associated with the body, as being in the body, and vice versa. The mind is not hidden behind the appearance of the body; the appearance of the body is the co-appearance of the mind – perceiving a body is to perceive a mind.[1] Rather than regarding the development of persistently more proficient abilities for social interaction as a mentalizing of meaning, it should be regarded a process of the embodiment of meaning.

This means that what Gallagher proposes is not a form of eliminativism, where we stop using terms for the mental. Rather, inspired by Jean-Paul Sartre (2003:370), he requests that we associate mental terms with bodily behaviours: Sadness is not merely a state of mind – it is in the tears, joy is in the rolling laughter, and pain is in the arm movement that in a caring way puts a Band-Aid on a scrape. Expressive behaviours like "screaming in pain, laughing with joy, or growling with anger", are also recognized by Malle as being "sufficiently transparent so that the perceiver who uncovers their meaning gets by without any mental state inferences". (2005:29) In addition there are "basic human movements, such as reaching, grasping, walking, standing up, and lying down" (Malle 2005:30), which, like expressive behaviours, are "embedded functionally in physical contexts". (Malle 2005:30) That is, their meaning can be contextually grasped. However, as we saw above, this way of grasping meaning is seen by Malle as a transitional phase, or building blocks for the mental apparatus to fall into place. Once that is accomplished, this form of comprehension is transcended and abandoned in favour of a theory of minds in general.

Gallagher objects to this and claims that it is simply not a correct way of describing our (adult) social interactions. A non-mentalist biased investigation of social interactions will disclose that our ordinary ways of acting are much more in line with the expressive behaviours as described by Malle. Rather than being fringe phenomena, such behaviours

[1] This means that an expression like 'co-appearance' is deceiving, implying that mind and body are separated.

are the norm, and comprise several more forms that the semi-hysterical ones that Malle includes. More subtle aspects, such as intonation, posture, eye movement and gesture and so on are also effective in 'revealing' our mentality. In interaction with others, we normally take our cues from the directly perceptible aspects of the situation that we and the others are in. Usually, Gallagher claims, this is sufficient for communication to proceed successfully. However, sometimes it breaks down, and we need to take a reflective standpoint towards the communication, the situation it is situated in and the persons we are interacting with to grasp what is going on.[1] That, however, does not imply that a reflective standpoint is always used in social interactions. Not only, then, should we stop regarding the mind as closed and hidden, we should also give up the converse prejudice, namely to regard the body as a purely physical and mechanical system, as an object that is in need of a subject to function. It is not the case that the body, an object, reveals (or hides) a subject, the mind. The body is both object and subject; the mind is both object and subject. The mind is not *in* the body, it *is* the body.

It seems to me that this discussion revolves around whether we should see the data from developmental psychology as supporting a theory that claims that an 'open' and embedded organism turns into a 'closed', representing mind at a later stage. Perhaps we should better regard the organism, that is, *us*, as a combination of 'open' and 'closed', as being partly 'outwardly' directed and partly 'inwardly' directed? Conceptualizing social and communicative interactions in the 'open' manner leads us from the *passive* mode of TT and ST, which sees us as being unable not to go through the representing motions to interact with and understand others. Instead we could regard our role in an interaction in an *active* mode, where we ourselves, based on the situational requirements, control the extent of mental reasoning and mental simulation that is necessary to obtain the knowledge we need to 'get abreast' of the situation.

Although Gallagher discusses embodied meaning, this consideration also has implications for how we model representations, if we still want to grant theory construction and simulation a role in social interactions, as when we need to take a more reflective perspective. Sometimes it might come in handy to rehearse a way of reasoning without

[1] It is no accident that this sentence contains a not-so-hidden reference to Heidegger's description of the breakdown of the hammer that takes us from a state of practicality to a state of theoretical interest (cf. Chapter 3). Gallagher is in a likewise manner inspired by phenomenological theories, in the text referenced here especially Scheler and Maurice Merleau-Ponty, and, as we shall see in the following section, Heidegger. For much more on the embodied nature of aspects that we normally associate with mentality see Gallagher 2005.

forming a theory of an agent's desires; if a student makes a mistake in a logics assignment, do we need to make a representation of this student's desires to figure out how he reasoned? Other times, we consider a person's desire without taking his beliefs into consideration. If I perceive a friend of mine grabbing a donut, I figure that this is because he desires it, or at least desires something sweet or is merely looking for a snack, I do not stop to wonder whether this is tangled up in a belief that eating a donut will ease his craving; is it even tangled up in his own evaluations of the situation? If such aspects are not necessary for my conscious assessment of the intersubjective situation I am in, for the pragmatic grasp of this situation, why should we use mental and physical resources to construct implicit representations that are not required? If we grant that reflection demands of us the formation of some kinds of representations, it is still not given that these representations are of the kind presumed by ToM theorists. While the passive mode of the ToM sees us as forming representations (or more precisely, as representations being formed) of the entire mental repertoire (beliefs, desire, intentions, awareness etc) in all communicative interactions, the active mode sees us as forming *contextually dependent representations* based on the requirements of the specific situation. As Gallagher puts it:

> Even to the extent that evaluation becomes reflective, it is more like an embedded reflection on possible actions… than a detached consideration of mental states. Rather than drawing up a theory about a particular situation, or taking an objective, observational stance toward the other person, we have the capacity for measuring it up in pragmatic terms. (2001:95)

As we saw in Chapter 3, we are in-the-world and display certain interests, certain values and concerns. Why should this not also be reflected in the physiological and cognitive system in the sense of accommodating the use of the corresponding cognitive resources? Our encounters with the world in general, and other subjects included, is not theoretical, it is primordially pragmatic.

Embeddedness 3: the social primordial: *das Man*

Gallagher maintains that if we consider our *experiences* in encountering other people we can find no trace of the implicit and subconscious processes hypothesized by ToM. This is not a denial that such processes are at work; even in our direct encounters we of course depend on cognitive resources. It is rather to say that a) they do not constitute the full extent of our actual experiences of the other, which in some cases might be accomplished without constructing mental representations (or at least with different *kinds* of representations than presupposed) of the other's mentality, and b) as we saw in regard to

the argument from analogy, they presuppose an already constituted relation with the other *as an Other*. I cannot discuss the first point here,[1] but in regard to the last point, I asked earlier whether intersubjectivity and the question of other minds really form an epistemological question, that is, should we base our trust in the existence of other minds in what we are able to *know* about them? Having the Cartesian 'I' *in mind* (…), this seems to be the only option, even the existence of 'I' is argued for in terms of being an object of infallible knowledge. The method and the ontology are closely connected here. Above all, the method Descartes undertakes in finding what he cannot doubt is driven by the securing of knowledge. (Descartes 1984:9-15, cf. 127) But the reason we (epistemologically) cannot say for sure that other minds exist is due to the ontological mind-body dualism; as long as the mind is regarded as being hidden 'behind' the appearance of the body, we cannot achieve infallible knowledge about minds other than our own. However, it is important to note that it is *because* of the method that Descartes reaches the mind-body dualism. Therefore, if we cannot accept the ontological consequence of the epistemologically driven method we should not accept the method leading up to it either, and this is why it is important to ask whether the question of the existence of other minds is a question of knowledge at all.

A line of critique concerning the knowledge-based approach to other minds has certain similarities to Heidegger's critique of Husserl's perception-based approach to intentionality that I discussed in Chapter 3. Heidegger criticized Husserl for not taking the question of being into (proper) consideration in his account of (intentional) objects, and, as the preceding discussion displays, being is not considered in the ToM accounts of (other) subjects either, but is taken for granted. We saw earlier that the prerequisite for intentionality is that we (*Dasein*) and the intentional object both are in-the-world. What this means is that Dasein finds itself in a primordial mode of being-alongside entities. These entities present themselves as readiness-to-hand, as being related to our *concerns*, which implies that subject and object are linked not as a subject facing an object, but as joined in concernful activity. The subject-object relation that characterizes intentionality the way Heidegger reads Husserl as describing it, on the other hand, is between the subject and an object in its presence-at-hand, that is, *in its objectivity*, the way the intentional object appears in terms of itself. As we saw, presence-at-hand depends on the entity's

[1] Alternative ways of modelling representations in (general) behaviour can be found for instance in Clark 1997 (Chapter 8), Clark and Chalmers 1998.

readiness-to-hand, thereby making our relating to *objects* presuppose the more fundamental mode of being-alongside them.

Being-alongside, however, is not the only fundamental mode of Dasein's Being as being-in-the-world. Edgar C. Boedeker Jr. describes being-alongside as one of three *existential perspectives* belonging to Dasein in this thrownness into-the-world.[1] (2001:68f) The existential perspective of being-alongside expresses the relation with intraworldly equipmental entities. The other two existential perspectives are also relational modes of being-in-the-world, directed towards whatever else we *in our thrownness* find ourselves among (not in a spatial manner, of course): a) other Daseins and b) Dasein itself. (Heidegger 1962:169/131) Dasein's existential perspective to other Daseins is *being-with*, and to oneself *being-one's-self*.

By calling it an *existential perspective*, Boedeker wants to convey that it is "a distinctive stance that Dasein can *take* in its encounters with entities". (2001:69) Although Dasein in its thrownness is directed towards other entities, the perspective should not be understood as perceiving or looking at other entities. This is clear from the discussion of the relation Dasein has to the entities it finds itself being-alongside, and the same applies to those entities that we find ourselves as being-with (and also of the stance we have toward ourselves). That is, just as it is not the case that we primordially are in-the-world as a subject facing objects (entities in their presence-at-hand), it is not the case that we primordially are in-the-world in the sense of a subject facing other subjects. The subject-subject relation presupposes the more fundamental mode of being-with. As we shall see, the interrelation between the three existential perspectives will be important in conceptualizing the self, the subject, as embedded.

However, encountering other Daseins means encountering something that is of a fundamentally different kind than things. (Heidegger 1962:154/118) Contrary to ToM, Heidegger holds that the distinction between a thing and another person is not something we need to infer to establish. Instead, we 'recognize' another Dasein as a Dasein immediately and non-inferentially. This is important to emphasize, because according to

[1] Boedeker claims that the English phrase 'being-alongside' (*Sein-bei*) is too *spatial* and implies a passive mode of being among entities. He suggests 'being-at', inspired by expressions like 'at work', 'at the wheel' and 'at it again'. (2001:94 n19) I agree about the passivity of 'alongside', but find 'being-at' problematic because of the expression is too similar to 'presence-*at*-hand'. Joan Stambaugh translates *Sein-bei* with 'being-together-with' in her translation of *Being and Time*. (Heidegger 1996:51/54)

ToM, prior to the appropriate inference to the mind of the other person, there can be no initially perceived or grasped difference between a thing and a person. Differentiating between a robot and a human being, for instance, involves first perceiving these two entities as objects, evaluating their behaviour, and then concluding that one of them has a mind and is a human being, while the other, the robot, does not and consequently is not human.[1] In other words, ToM presumes the priority of oneself as separated from the Other. Instead of attempting to answer the resulting problem of how this separation can be bridged, how to align the 'I' with the Other, Heidegger rejects this presumption and in doing so turns the problem on its head. Rather than starting with an isolated 'I' and then wondering how we can attain a glimpse into the mind of the Other, he claims that we for most part exist 'integrated' with this Other, and that the Dasein only emerges as an 'I' (and simultaneously, the others as Others) out from this 'unity', which he calls *das Man*. Therefore, the 'I' is not ontologically prior to the Other, but neither is the Other prior to the 'I'.

Dasein, then, is primordially not separated from other Daseins, but is absorbed in a fellowship without questioning, or having the need for questioning whether the other is a subject in the same sense as oneself (cf. Gallagher's comments in the section above). Of course, physically we are separate entities, but we act, we speak and we think *as if on* behalf of a community. *Das Man* has been translated in a variety of ways, pointing in different directions, but a helpful way of understanding the concept is to see it in terms of social norms and conventions for conduct, speech and so on, or at least, that *das Man* is *expressed as such*.[2] Regarding it this way conveys plainly that we see, think about and act in the world in a manner that is deeply influenced by *das Man* while still being 'one's own Dasein'. In a sense, then, in our everyday life we are as immersed in *das Man* when we interact with the Other as we are immersed in readiness-to-hand when we interact with equipment.

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[1] If we imagine a sufficiently advanced robot, the observer will not discover that it is without a mind because it can display an outer behaviour that is indistinguishable from a human being. This possibility, explored in films like Blade Runner and Terminator, has led to the philosophical zombie: the creature that conducts himself behaviourally and cognitively on par with human beings, but which lacks any conscious experiences. (Chalmers 1996:94-99) It is also safe to say that this possibility displays the weakness of the argument from analogy, as it clearly shows that the argument presupposes the very thing it is supposed to provide us with; the belief in the existence of other minds.

[2] *Das Man* is in both translations of *Being and Time* translated with 'the They', but this obviously imply that the 'I' is integrated with 'the Others', when it is better to regard it as that in which both 'I' and the Other primordially reside. Outside *Being and Time* a variety of choices can be seen; in Heidegger 1992, 'the Anyone' is used, Dreyfus (1991) prefers 'the one', while for instance Boedeker keeps the German expression. As the expression is easily translatable in Norwegian ('slik skal *man* ikke gjøre det', 'hadde *man* bare visst det', etc are some of the expressions where the word '*man*' is used similarly in German and Norwegian), I have chosen to keep the German expression.

This does not mean that we do not see or detect the Others and act as one with them as a sort of collective. That is not the case, and in fact, for the most part, the Others are differentiated as being indifferent to us; we pass them by, ignore them, reckon that we have no need for them, or do not want to have anything to do with them – states of mind that Heidegger calls Indifferent modes. (1962:161/124) But, being alone or being apart means 'being-apart-from', and therefore presupposes being-with in an analogous fashion to how present-at-hand (the thing in its own) presupposes readiness-to-hand (the thing in a context). As Heidegger puts it, "Not only is Being towards Others an autonomous, irreducible relationship of Being; this relationship, as Being-with, is one which, with Dasein's Being, already is." (Heidegger 1962:162/125) Put differently, it is not the attendance to another Dasein that constitutes him as an Other Dasein (or ourselves as a Dasein, for that matter), because even in the total absence of Other Daseins is the being-with presupposed; we are, as Daseins, constituted in the mode of Being-with.

> Dasein's being-alone is a being-with in the world. Being-alone is only a deficiency of being-with – the other is absent – which points directly to the positive character of being-with… The other can be absent only insofar as my Dasein is itself being-with. The absence of the other is a modification of the being of my very Dasein and as such is a positive mode of my being; only as being-with can Dasein be alone. (Heidegger 1992:238)

In other words, it is not because there is an Other Dasein beside me that intersubjectivity is constituted, it is because Dasein is constituted in a mode of intersubjectivity, as being-with, that Others can be beside me or be absent from me.[1]

The belonging of Dasein (and Others) to *das Man* is in our everyday dealings prior to the separateness from it. Consequently, the meaning of our actions, spoken words and thoughts transcends the physical and psychological entities that we all are, and understanding others (and ourselves) can only be achieved by understanding the further social context in which we all belong. It is in this sense that Heidegger regards *das Man* as the true subject of our everyday actions.

> In the sphere of its possibilities of being, each is totally the other. It is here that the peculiar 'subject' of everydayness – the *Anyone* [*das Man*] – first has its total domination. The public being-with-one-another is lived totally from this Anyone. We take pleasure and enjoy ourselves as *one* takes pleasure and we read and judge about literature as *one* judges, we hear music as *one* hears music, we speak about something as *one* speaks. This Anyone, who is no

[1] In this sense, the problem of other minds, as explored in ToM and similar approaches, grows out of the possibility of being-alone. More precisely, it appears because we do not realize (or forget) that being-alone depends on being-with, so this is the sense in which Heidegger turns the problem on its head as mentioned above (cf. Heidegger 1962:161/124).

> one in particular and 'all' are, though not as a sum, dictates the mode of being of everyday Dasein. (Heidegger 1992:245, cf. 1962:164/126f)

Being absorbed in *das Man* is the case both in our everyday dealings with other people and in the constitution of the self as a person. In other words, the task for a theory about intersubjectivity is *not* to investigate into how Dasein and the Others can be aligned (through being *assured* that the Other is indeed a subject, just like me), but to investigate how one Dasein breaks out from the social way of being, *das Man*, and becomes a subject, a self.[1] Therefore, we do not need to search for criteria regarding how to recognize what was initially perceived as a 'thing' is instead a person, but criteria for how we are able to perceive ourselves as different from the others.

Despite the differences between perceiving a thing and another Dasein, I want to mention two important parallels in how Heidegger sees Dasein's being-alongside and Dasein's being-with. First, Being-with and Being-alongside are two different modes of Being-in-the-world. As such, as has been discussed in the last couple of pages, we do not first find ourselves as a subject or an 'I' and thereupon enter into a relationship with objects or other 'I's', but find ourselves in our thrownness as already being in a relation with things and other 'I's'. In fact, we most often encounter the other through our practical dealings with things. That is, in equipment there lies a reference not merely to other pieces of equipment, but also to Others:

> [W]hen material is put to use, we encounter its producer or 'supplier' as one who 'serves' well or badly. When, for example, we walk along the edge of a field but 'outside it', the field shows itself as belonging to such-and-such a person, and decently kept up by him; the book we have used was bought at So-and-so's shop and given by such-and-such a person, and so forth. The boat anchored at the shore is assigned in its Being-in-itself to an acquaintance who undertakes voyages with it; but even if it is a 'boat which is strange to us', it still is indicative of Others. (Heidegger 1962:153-4/117-8)

Through equipment, Others (and oneself) are assigned to the context in the sense of having roles and tasks, for instance, as producer, as farmer, as boatman. Although we encounter the Other through being attentive to concernful activity, we do not meet him

[1] Dasein absorbed in *das Man* lives what Heidegger calls an inauthentic life, not *necessarily* implying the negative connotations of this expression. (Heidegger 1962:220/176, cf. 68/42f) It is important to note that Dasein reaching the authentic life does not coincide with Dasein discovering itself as someone other than the Other, because "even in its fullest concretion Dasein can be characterized by inauthenticity – when busy, when excited, when interested, when ready for enjoyment". (Heidegger 1962:68/43) While Dasein's co-being with things is characterized by concern (cf. Chapter 3), our being-with with other Daseins is characterized by *solicitude*, a *caring for*. Solicitude is expressed as a mixture of *inauthentic care*, called 'leaping-in', which is marked by a mistrust of and domination over each other, and *authentic care*, called 'leaping-ahead', which is marked by a helpful approach to the liberation of Dasein itself. (Heidegger 1962/158f/122) I shall try to convey the embeddedness of the self without dwelling on the inauthenticity/authenticity axis, but see footnotes below.

thematized as *an* Other; the roles are anonymous. It is the common activity that is primary, thinking of the Other or ourselves as a Dasein only comes later. As being engaged in common activity, the Other is encountered as manufacturer of the equipment, or he can be in the target group of what we produce, or maybe as a co-worker, with us in a joint project. It is through activity, in our practical roles that an awareness of ourselves as being apart from the Other emerges.

> [T]here is constant care as to the way one differs from [the Others], whether that difference is merely one that is to be evened out, whether one's own Dasein has lagged behind the Others and wants to catch up in relationship to them, or whether one's Dasein already has some priority over them and sets out to keep them suppressed. (Heidegger 1962:163-4/126, cf. 1992:244f)

When we discover ourselves as being behind or in front of the others, a *distance* that is constitutive of 'I' as not-the-Other emerges. This distance presupposes that 'I' and the Other is linked to *das Man* prior to this differentiation; only by comparing our work to a norm can I say that I am ahead of or behind the Other. This displays that we are *subjugated* to the norms of *das Man*; I expose a concern about conforming to them. (Heidegger 1962:164/126) However, it is also the case that through this everyday *distantiality* I see myself as different from the Other, and for that matter, from *das Man*, in *everyday dealings*.[1]

From this discussion it is evident that for Heidegger the relation between Dasein and the Other is not a question of locating a 'point in time' when Dasein realizes that it is different from the Other (in an analogous manner to how an opposite theory tries to

[1] As mentioned in the previous footnote, how Dasein sees itself as itself should not be confused with the *authentic* ways of *being-one's-self*. There are various reasons for Dasein's break from the inauthentic life of *das Man* to attain an authentic existence. The most important aspect in this respect is Death. In the sheer act of existing, we are being-towards-death, to die is an unavoidable aspect of Dasein's existence. Inauthentically, *das Man* has developed certain strategies to circumvent the troublesome consequences of acknowledging this fact, as seen in utterances like '*one day* everybody dies', 'we all have to die, but right now, let's watch the game', and so on. These strategies imply an impersonal stance towards death. Nevertheless, death is implicitly acknowledged, and the idea that death is unavoidable is planted in every Dasein. (Heidegger 1962:199/255) However, to realize that this involves *me* requires stepping out of the inauthentic avoidance strategies of *das Man*. For the authentic Dasein, the possibility of death appears to be personal, as a non-relational event that experientially can happen only to one's own Dasein, and consequently, in being mortal we are not merely a part of *das Man* but exist as single Daseins. As Heidegger says at one point, "death is in each case mine". (1962:284/240) In general, it is hard to discuss the relation of Dasein, the Other and *das Man* without going into the details of the very intricate exposition that Heidegger offers. For my purposes, certain aspects must be left untouched, for instance, how *das Man* exerts social norms through language, especially idle talk, the role of the various moods, especially *anxiety*, in our being-in, and the briefly mentioned transition from inauthentic to authentic existence (in which anxiety plays an important role). I have chosen not to bring in the aspects of anxiety and death in relation to the self and subjectivity, preferring the exposition of *mineness* in the previous chapter. Although not discussed as such in the previous chapter, this expression is Heidegger's, who mentions it as "the condition which makes authenticity and inauthenticity possible". (1962:68/43, cf. 78/53) Although, or *because*, mineness belongs to both modalities, there would be no distinction between authenticity and inauthenticity without mineness. As such, mineness, and the minimal self, as discussed in the previous chapter, can be seen as a precondition for the projection of oneself into the future that I turn to shortly.

locate the point in which the Other's existence as a person is ensured), and then proceeds to live as separate entities. For Heidegger, Dasein sometimes conducts itself on its own terms; at other times, Dasein conducts himself immersed in a practical activity and/or in a social discourse, where the thinking of 'I'-versus-the-Other is not relevant. Consequently, we drift in and out of the (authentic) mode of being-one's-self. (Heidegger 1962:68/43) However, in parallel with the relation between readiness-to-hand and presence-at-hand, the absorption, the belonging to *das Man* is primordial, and cases of standing apart from the Other can only be understood on the ground of the belonging to *das Man*.[1]

Embeddedness 4: projection

The second important parallel in the analysis of being-alongside and being-with is that both things and Others relate to an *existential horizon*, which Boedeker in his comment on Heidegger defines as "roughly, a *set of possibilities* in terms of which entities are encountered".[2] (2001:65, my emphasis) This horizon must be understood in a particular sense, namely as *involving a temporal aspect*, and as such it underlines that our directedness towards things, the Other and oneself (the existential perspectives) is not static, but involves future matters. (Heidegger 1988:302) In this sense, the existential horizon is elusive; we can never reach it (there is always a future also in the future), and never transcend it (we cannot go ahead of the future). However, it will always be conspicuously present as an ultimate contextual limit for the understanding of that which lies before us,

[1] That intersubjectivity is primordial to subjectivity is widely held in the phenomenological tradition, but views on how subjectivation comes about differ considerably. (Zahavi 2006, Chapter 6) For instance, Sartre likens the relation of subjects in Heidegger's being-with to that of a crew, a friendly co-existence of subjects that are *alike myself* in being anonymous. (Sartre 2003:270) Sartre claims that it is hard to see how we can go from this state to the authentic state of being-in-itself, as this demands that I see myself as *different* from the Other, in the sense that his subjectivity transcends mine. For Sartre, subjectivation takes place when I realize that I am an object for the Other, for instance when I feel ashamed or proud, feelings that cannot exist without me being looked at by what must be another subject. (Sartre 2003:284) In realizing that I am an object for the Other, our difference is constituted, and so also our status as subjects, since his objectivation of me makes me aware of myself as an 'I,' as well. In other words, it is in recognizing the Other as being *different* from me that he is constituted as a subject, not as being *like* me. Of course, as we have seen, 'difference' is recognized by Heidegger, but Sartre's claim is that alikeness (being-with) does not permit differentiation in itself; the 'we' demands that we are surrounded by Others. (Sartre 2003:449) Meeting an Other involves a struggle between him seeing me as an object and me seeing him as an object, so subjectivation is more like a conflict rather than that of a friendly co-existence. (Sartre 2003:435)
Another aspect prominent in the phenomenological thinking about intersubjectivity is the role of the body. Heidegger was criticized by Sartre for not paying attention to the body, since the "body is the psychic object *par excellence – the only psychic object*", so that the "Other's body… is given to us immediately as what the Other is". Consequently, "*being-there* is precisely the body" (Sartre 2003:370, 371, 375) For more on Heidegger, other phenomenologists and the body, see Askay 1999.

[2] In using 'horizon', Boedeker connects Heidegger's concept of the world (Heidegger 1962:92f/64f) to Husserl's concept of horizon (Husserl 1982:51f/48ff), but differentiates them by emphasizing that an *existential* horizon should not be regarded as totality of things, but as a totality of *meanings*. (Boedeker 2001:72, cf. note 2, page 103)

between me and the horizon, in a manner of speaking. In our thrownness in-the-world, we are confronted with several horizons; if we are being-alongside things, the 'world' is the horizon (cf. Chapter 3), if we are being-with Others, *das Man* is the horizon.[1]

Equiprimordial to our thrownness in-the-world, Heidegger claims that we *project* ourselves *as our own possibilities* in-the-world towards the future-as-horizon. This projection is not a plan we form about how to conduct ourselves; instead it is a fundamental directedness towards the future, that is, towards the existential horizon. The basic idea is that what we are *now* is constituted not merely by what has been and what now is the case, but also by what we might become: "to [Dasein's] facticity its potentiality-for-Being belongs essentially. Yet as Being-possible, moreover, Dasein is never anything less; that is to say, it *is* existentially that which, in its potentiality-for-Being, it is *not yet*." (Heidegger 1962:185-6/145) In other words, the self is not only what it sees itself as being 'right here, right now', but it also sees itself in terms of its own possibilities. Our possibilities, in turn, are related to the thrownness, in the sense that we can only 'become' in relation to that which we are-alongside and that which we are-with.[2] Consequently, our possibilities are in accordance with the existential horizons of things (the 'world') and the Others (*das Man*); we project ourselves towards the horizons *through co-thrown* entities.

This implies no determinism. As Heidegger says himself: "Dasein *can* understand *itself* in terms of the 'world' and Others or in terms of its ownmost potentiality-for-Being." (1962:264/221) Although we can be totally absorbed in *das Man's* ways of interpreting events and phenomena in our surroundings, we are not condemned to it. For the most part and in our everyday dealings we depend on the conventions and norms with which we have been socialized, but we have also the possibility to form ourselves. Likewise, I can use a hammer to hold a window open, although the conventional use is for hammering or pulling. However, this might imply, conversely to the determinism, that we have an instrumental relation to technologies, but this is not the case either, as we saw in Chapter 4. Although *my* use of the hammer formally is *my* interpretation, it is nonetheless related to the affordances of the hammer itself; the holding-the-window-open is a virtual action afforded by the material hammer. We have a freedom towards the thing-world and *das Man*, but even so, this freedom is still within the existential horizon, it is interdependent on me, my things, and my social belonging.

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[1] In addition, Dasein's being-one's-self has a horizon that I will not go into: this is Death. (Boedeker 2001:74f)

[2] Or, cf. note 1, page 228, in relation to being-one's-self, which is the emergence of the authentic self.

As seen in Chapter 3, for Heidegger the 'world' is not to be associated with the physical world of Descartes' *Res Extensa*. Instead, what constitutes the 'world' is the totality of equipmental contexts to which things in their readiness-to-hand refer.

> In anything ready-to-hand the world is already 'there'. Whenever we encounter anything, the world has already been previously discovered, though not thematically. But it can also be lit up in certain ways of dealing with our environment. The world is that in terms of which the ready-to-hand is ready-to-hand. (Heidegger 1962:114/83)

The 'world', if we relate this back to the discussion in Chapter 4, is the totality of possibilities that things afford in terms of practical actions, what was defined as things' *virtualities*, and it is in terms of these that the 'world' forms the limits of our possible understanding of the thing-world. As we recall, through readiness-to-hand the things that make up the 'world' and the 'world' that the things are within are assigned to each other through their possible practical relations. As such, the 'world' constitutes the existential horizon of our possible actions, and consequently it also constitutes how we see our own (practical) possibilities in the world. (Heidegger 1962:120/87, cf. 185/134)

For this reason, the analysis of Dasein's *thrownness*, *projection* and *horizon-related possibilities* serves as the ontological underpinning of the interdependence of technology, self, and the social in technological articulations discussed in Part 1. With the future directedness of the existential horizon combined with the virtualities of technologies, 'world' is not understandable merely in terms of the things and conventional uses that are, *but also those things and uses that may become actualized*. The realization of these requires that we are not just dependent upon what is, but that we can *project ourselves through virtualities* as well.

I am now in the position to define the concept of practical space: it involves a throwing oneself into the future through the actual and virtual actions afforded by technologies.

In the mode of being-in-the-world that Heidegger calls being-with, it is *das Man* that forms the existential horizon. (Boedeker 2001:72ff) Although dealings with things have repercussions for the Dasein itself (especially in being intentional, in revealing a world), the possibilities we can project ourselves into towards the intersubjective horizon are more directly connected to the realization of Dasein's everyday conception of itself; how we have grown into roles, into a personality or personalities, and as maintaining social functions, in short, how we understand ourselves in relation to Others. Around us, in our existential perspective towards the existential horizon of *das Man*, we can find a wealth of such relations. In a manner similar to how the hammer is nothing in itself – it is a

hammer only to the extent that in figures in an equipmental context – any job, any social activity is nothing in itself, it gain its meaning from how it is related to other social roles.

We saw above that *das Man* was oppressive and that we in our everyday dealings willingly conformed to the rules and conventions found in the social. But it is also the case that it is through *das Man* that social behaviours gain their meaning, and this does not necessarily mean in an oppressive form; it does not *necessarily* imply social determinism. Instead it can be seen as a more general argument. The teenager rebelling against his parents, the outsider preferring to live as a homeless person instead of receiving welfare, the solitary monk – all these roles that are attempts to find one's own identity are meaningful only to the extent that they are related to the opposing (and more conforming) social roles. As was mentioned above, being-alone is dependent on being-with.

This entails, then, that in saying that our social possibilities are constituted by the directedness towards the horizon of *das Man*, we are not condemned to conformity, we do not have to become something that already is. It only means that whatever we become, it will be, or must be, related to what already is. We cannot go outside of and be totally independent of Others. Whatever social role we enter, it will be *meaningful only to the extent that it is possible to define it in relation to Others.* As Boedeker expresses it, the existential horizon of *das Man*, "is the network of possible ways for Daseins to be, it is constituted by possibilities to which Dasein can take others as referring". (2001:74) With the concept of *das Man*, Heidegger first and foremost pays attention to the historical and cultural belonging each and every Dasein is thrown into. (Heidegger 1962:439ff/387ff)

Nonetheless, it is the case that Heidegger sees our *everyday dealings* with Others as being a case of a determined way of life. "The public deprives Dasein of its choice, its formation of judgments, and its estimation of values; it relieves Dasein of the task, insofar as it lives in the Anyone [*das Man*], to be itself by way of itself." (Heidegger 1992:247, cf. 1962:165/127) This, then, implies that in our everyday roles we conform to the preferences and conventions of *das Man*, which in turn has implications for how we deal with our surroundings, including how to deal with things and equipment. Escaping this state, which Heidegger refers to as *levelling*, involves stepping out of everydayness. Heidegger thus makes our assuming a non-determined state a considerable effort.

However, the way I see it, this should not be necessary, given the understanding of the relation between technologies and ourselves that we now have developed, which again

involves the virtual actions inherent in technology. Through these, technologies have a meaning that transcends social conventions for use. It is not the case that all of our relating to technologies is mediated through social praxes. Using a regular living room chair as a ladder when I hang a picture on my living room wall, is neither a use that is governed by the chair's social role, nor is it an inventive use that was entirely discovered by me. Instead, it is a *potential use that is revealed in my interaction with the chair's materiality*; being a ladder is *a virtual readiness-to-hand* of the chair. As a result from this brief example, we can see how the aspect of virtuality prevents us from ending up in the social determinism that threatens Heidegger's conception of *das Man.*[1] For this reason, the existential analysis of Heidegger concerning both things and Others (who we primarily meet through things, or through discourse about things) is supported by the constitutional-articulative perspective on technology, while it serves as an ontological underpinning to this perspective in showing us the embeddedness of the self.

In this way, we can say that it is not the self, nor the social, nor technology that is primordial in the shaping of each other. We find ourselves as thrown into a social and technological world that is structured by (always) already existing structures of meaning, but in our thrownness we can project ourselves into the future-as-horizon with a choice to conform to the already existing structures of meaning (I can refuse to use the hammer for anything other than hammering and instead look for something else to keep the window open), or I can find possibilities that transcend those that exist. Virtualities (not just technological ones) present us with solution strategies to actualized problems, actualizing these are our own possibilities (cf. Chapter 4)

We have now seen various concepts of how to place the Self in relation to the Other. We have seen how embeddedness permeates the human organism from its conception to its formation as a person in an intersubjective and future-directed realm. The embeddedness of the self is not just a matter of the self in its surroundings *right now* (how the surroundings continually influence the self) and what-has-been (how the self has maintained an identity through time), but more importantly that the self, through its existential horizons, is constituted by its possibilities *to become*. Although this includes

[1] For Heidegger, the escape from social determinism involves the step from the inauthentic to the authentic existence. As mentioned, this is possible only to the extent that we leave the *everyday relation* to Others. Another reason why I have chosen not to focus on this aspect of escaping the clutches of *das Man*, as I have stated before, is that my overall concern is technology, so I have chosen not to focus on the *authentic becoming*.

many factors, religious, social, existential etc, this chapter has most importantly enabled us to bring the investigations of technology in Part 1 together with the concept of the self.

Technology and the self

If the self is constituted by its possibilities, then the possibilities afforded by technologies must necessarily be an important part. Especially interesting in this respect are the virtualities of technologies. Since the meaning of technology was established as transcending the intentions individuals conceive and the conventions communities govern, virtualities *upgrade* our practical space. Or, in the terms of this chapter, the virtualities of technology form a fundamental aspect of the possibilities that we project ourselves through towards the existential horizon(s).

While the discussion of the relation of Dasein to the world in Chapter 3 primarily was oriented towards clarifying the concept of technology, but nevertheless gave us a partial view of embeddedness, the discussion on the future-directedness, the existential perspectives, of Dasein towards its existential horizons clarified a more fundamental sense of embeddedness, temporality. This is because encountering equipment, items with functions, presupposes not just an equipmental context; it presupposes a community of Other Daseins. This substantiates the interdependence between the self, the social world, and technology. However, before the investigation into the embeddedness of the self, this interdependence was not ontologically founded. Said differently, the constitutional-articulative perspective on technology required an 'openness' of the self for the dynamics of the interdependent relation to be effective, which is what the last two chapters have provided.

The notion of the minimal self is both open and 'closed'. It evades the problems of the objectifying approaches to self-consciousness, but retains a sense of unifying experiences. Through the sense of unifying, the embedded notion of self does not lose subjectivity even without taking the reflective self as a foundation. This is seen in the way mineness is a requirement not just for constructing and projecting aspects of the embedded self. Projecting ourselves into our possibilities requires that I am, indeed, a me.

> [I]n each case Dasein is mine to be in one way or another. Dasein has always made some sort of decision as to the way in which it is in each case mine… [Dasein] comports itself towards its Being as its ownmost possibility. In each case Dasein *is* its possibility, and it 'has' this possibility but not just as a property, as something present-at-hand would. And because Dasein is in each case essentially its own possibility, it *can*, in its very Being,

> 'choose' itself and win itself; it can also lose itself and never win itself; or only 'seem' to do so. (Heidegger 1962:68/42)

In other words, the duality of the minimal and the embedded self constitute our possibilities. And the embedded self, of course, is never a bare self à la Descartes' *cogito*.

In closing

This chapter has revealed the need for a theory about the self and the social that does not keep technology at a distance. That is to say, this chapter has completed the investigation of the interdependence of self, the social and technology from 'the other side', from the side of the self and the social, whereas Part 1 showed us this interdependence from the side of technology.

Having considered the plausibility of regarding the self as embedded, the implication of bringing the two lines of our investigation together is that the self in an important sense is *technologically* embedded. Not in the fairly trivial sense of finding itself among a great deal of technologies, in an increasingly technological lifeworld that the self has to master to be able to lead what would count as a normal life, but because what becomes *a* self surfaces in and is defined out from this technological lifeworld. This has been illuminated through two lines of reasoning. First, technologies are not merely there for our tasks, they co-constitute our tasks, the goals, and the means we use to reach those goals. Second, understanding our surroundings, including the technologically permeated lifeworld, means understanding ourselves, understanding our own possibilities, understanding what we might become. Change the social and technological surroundings and you change the self's self-perceived possibilities. Understanding ourselves means grasping our possible practical space, proximally (what am I able to do right here, right now) and ultimately (where can I go 'in life').

In short, Part 1 was about the shaping of the world in which any self necessarily finds itself. In contrast, we thus far in Part 2, have seen some arguments for treating the self as an 'open' entity, as something that is fundamentally embedded, something that depends on its surroundings, with both the thing-world (Chapter 3) and the intersubjective world (this chapter), as its common way of being. The self as something that is withdrawn *from* the world is in this view an achievement that can only be made against the background of, and *out of*, embeddedness.

chapter seven

SOCIETY, COMMUNICATION AND TECHNOLOGY

Communication technology and social change

In the previous chapter, a sense of the self was understood in relation to the concept of technology as it was developed in Part 1. As far as the self sees itself, not only in terms of its history and present state, but also in terms of its potential, it is a self in the midst of technological actions. Consequently, the potentials of the self are intrinsically tangled up in the technological potentials. It is clear that this holds in a double sense: for the individual holding the hammer (or the gun, or the computer keyboard) and, perhaps more fundamentally, for the individual as a part of a social group, as constituted intersubjectively. This chapter is about those possibilities that open up for the individual in so far as it lives in a society. More precisely, whereas the previous chapter was about the relation of the self to society (or, more general, intersubjectivity), this chapter is about the relation of technology to society.

Society's potentials, as for the individual, are tangled up in the technological potentials of that society, but not, as I argue in this chapter, determined by them. Coming with constraints on its meaning and affording various virtualities prevents us from regarding the meaning of technology as a mere effect of its designed or conventional use. As we recall from Part 1, being autonomous in this careful sense, technologies are intentional in

that they open up, *reveal*, the world for us; having a lifeworld entrenched with technologies means perceiving and comprehending it *through* these technologies. As we have seen, technologies, in not being transparent, influence 'both ends' of technological actions: both the user(s) and the product, the articulation, of the action.

Thematically, this chapter picks up where the previous one left off, in discussing the relation between technology, society and us. As such, this chapter extends the topic of intersubjectivity into a discussion of society. Methodologically, however, it is a turn into a less abstract level of analysis. More precisely, I shall look at the presumed shaping of society from communication technologies. In medium theory, known from for instance Marshall McLuhan, Harold Innis and Joshua Meyrowitz, it is held that communication technologies excise a very strong influence on how we relate to each other, on how we make up a society. Consequently, we can learn much about the development and the present and future states of society by studying the evolution of communication technologies. As such, we can find some obvious inclinations towards some of the stronger ontological claims that have been discussed earlier. Inherently, medium theory refutes the instrumental notion of technology. It would simply be a contradiction in term to develop an entire discipline that studies a phenomenon, in this case a mediating technology, which is held to be transparent, a mere instrument; without a presumed impact, there would be no reason to study media in the first place. However, the strong claim in medium theory, that society as a whole is organized through the communication technologies that belong to that society, obviously implies technological determinism.

In this chapter, I look at how medium theory argues for the technologically induced societal change, discuss the potential determinist implications, and finally, using the terminology developed in the previous chapters, present a way of conceptualizing communication technologies as influencing our society without doing so deterministically. My main assertion is that the determinist implication of medium theory is due to a vague analysis of the relations between technology and the social.[1] Describing wide-ranging social change as merely following technological innovation, without a clear conceptualization of *how* the presumed impact is carried out, ends up implying technological determinism regardless of this being intended or not. This chapter, then, is

[1] 'Medium theory' is a rather loose notion, and includes thinkers from history, communication studies and information science. What aligns them is not a common methodological platform, but an interest in the impact of communication technologies on society.

primarily about what problems a study of technological innovation and development might lead into, if the study is performed without an adequate contextualization of the concept of technology.

By now, my proposal for a more distinct analysis should come as no surprise: selves, society and technology are interdependent. For this reason, it is just as true to say that society *is* structured in a certain way because of the history of our communication technologies (implied in medium theory), as it is to say that we (re-) structure our society through communication technologies (implied in social constructivism); through technologies, we meet the world as an (always already) structure of meaning, but technologies also afford us to create new structures of meaning, new societies. This is true for communication technologies, but it is also true for other kinds of technologies: infrastructure, military, surveillance, etc. *All kinds* of technology organize our lifeworld in different ways, according to their specifics and their role in various praxes. That any one kind, such as communication technologies, should determine, exclusively, how we meet and act in our surroundings seems incorrect even if one accepts technological determinism as a general platform.

Communication eras

According to Joshua Meyrowitz, the relation between media and society can be approached through two different kinds of studies, one investigating the *content* of media's messages and the other investigating "the particular characteristics of each individual medium or of each particular media". (Meyrowitz 1994:50) The latter approach is called, in Meyrowitz' own coinage, medium theory, while the former, which by far is the most common in media studies, is called media theory. Media theory typically studies how various forms for mass media influence and is itself influenced by social, economic and political factors. Examples of this kind of media studies are the shaping of propaganda, how people react to what they are exposed to, for instance, in video games and reality-TV, how news broadcasts are formed; what is reported and what is not and how something is reported, how gender roles are formed, consolidated or undermined through mass media, and so on. Clearly, media influence society through presenting audiences with specific attitudes and values, and offering content of pure entertainment or more thought-provoking programs, traditional or experimental, fiction or news, and so on.

However, Meyrowitz believes that media theory, valuable as it is in studying aspects as those mentioned and more[1], only grasps a part of the impact on society that media have. To grasp this further impact, we need to move beyond the forming and the reception of media's content, and consider the technological aspects of mediated communication. What one then is concerned about is how different kinds of media offer different kinds of impact on society. The thought is that one and the same message can have one kind of impact if it is presented in one media, but another kind of impact if it is presented in another. As such, the medium theorist is occupied with the extent the mediating technology itself contributes to the reception of a message; whether mediated communication is different from non-mediated communication and how various media differ from each other in relation to its social, political and psychological impact.

> Medium theory examines such variables as the senses that are required to attend to the medium, whether the communication is bi-directional or uni-directional, how quickly messages can be disseminated, whether learning how to encode and decode in the medium is difficult or simple, how many people can attend to the same message at the same moment, and so forth. (Meyrowitz 1994:50)

The influence of the mediating technologies can be studied on two levels (which by no means are independent). For instance, in what way does my choice of e-mail instead of a letter, or a phone call, have an effect on the interaction with the addressee. Or, if I send an SMS to my neighbour downstairs instead of walking down the stairs to complain on the noise he is making, what does such a choice reveal about how my neighbour and I relate to each other? Questions like these concern the individual, micro-level, and, Meyrowitz implies, have been under-represented in medium theory. Instead, medium theory has for the most part been concerned with the macro-level, "the ways in which the addition of a new medium to an existing matrix of media may alter social interactions and social structure in general". (Meyrowitz 1994:51)

As we can see, both the micro- and the macro-level investigations presuppose that communication technologies are not merely transparent instruments, but contribute to and at least partly shape the actual communication and/or the society in which the technology is distributed. Interestingly, in an almost exact parallel to Hans Achterhuis' division of the two generations of technology-philosophers (cf. Chapter 1); Meyrowitz distinguishes two generations in medium theory corresponding to the two levels. While

[1] See Meyrowitz 1985:13-15 for an overview of various models in and methodological approaches to the study of media content.

the first generation, represented by thinkers like Harold Innis and Marshall McLuhan, was occupied with the macro-level and put forward claims about a far-reaching societal and ontological impact of communication technologies, the second generation is more concerned with the micro-level and makes claims of a more empirical nature about users' actual interaction with such technologies.

Especially investigations into the macro-level tend to result in some rather strong explicit claims about the impact of communication technologies on the societies in which these belong. That is to say, the dominating *type* of communication technology that belongs to a certain period is taken to shape not just the individual forms of communication of that period, but also social, political and economic aspects of the society on a whole. Furthermore, and stronger still, it is held that fundamental changes in such non-technological aspects come about *because* of the introduction of a new type of communication technology, eventually leading to the rise of a new era. (McLuhan 1962, Innis 1972)

Reviewing the literature in medium theory, not just the sweeping scope of McLuhan and Innis but also research with narrower scope presenting more modest claims about the societal impact of communication technologies, Meyrowitz finds that "a surprisingly consistent and clear image of the interaction of media and culture emerges". (1994:53) The history of communication is thought to be separable into three periods, with each period dominated by a specific communication form: oral, writing/printing and electronic. While the first period is seen as largely technology-free, at least in terms of communication technologies, the latter two periods are entirely dominated by their respective paradigm communication technologies. The step from the original 'oral' culture was triggered by the introduction of the alphabet and orality as the dominating form of communication faded away as writing was institutionalized.[1] Although writing dates back approximately 5000 years (Schmandt-Besserat 1996:1), the real significant social changes because of writing did not occur until after the printing press enabled written manuscripts to be widely distributed, and cheaply so, from the mid 15th century. For this reason, the pre-print written culture might better be regarded as a transitional phase. (Meyrowitz 1994:54) From the introduction of the electric telegraph and the telephone, via radio and

[1] One might not agree that the alphabet is a technology in itself, although I think it should be considered as such, nevertheless, writing is dependent on technologies developed specifically for writing, pen, paper, ink, etc. (Ong 1982:81f)

television, and now extended into internet based communication forms, written culture is challenged, and medium theorists now agree that we have entered a new post-writing era, dominated by electronic communication. What, however, this culture will do to our ways of relating to each other we can only catch a glimpse of now, at most, as the evolution of these communication forms is still underway. In fact, one might argue that we are still in another transitional period, parallel to pre-print era in written culture, where electronic media not yet have reached their full impact. What is needed for electronic culture in order to break through is a technology on par with the printing press in written culture. Maybe the Internet is this kind of technology; it is impossible to say yet.

It is important to note that none of these cultures removes the older forms of communication; we still talk to each other, we still write to each other, we still print books and papers, and on the internet, we frequently write (e-mail, chat) as well as talk to each other (Skype), which can be supplemented by vision (webcams). It is safe to say that the preceding communication form figures as a precondition for the new one. For instance, the written (or printed) word obviously depends on language as oral, and electronic communication, as mentioned, makes use of both written and spoken words. Walter Ong, who has investigated into the transition from oral culture (orality) to written culture (literacy), says, "we can style writing a 'secondary modeling system', dependent on a prior primary system, spoken language. Oral expression can exist and mostly has existed without any writing at all, writing never without orality." (1982:8) Leaving one period for another means entering a period where a new kind of communication technology shapes the dominating communication forms in society, but we do not for that reason dispose of the older communication forms.

Nevertheless, one should not regard the 'new period' as merely adding to our existing repertoire of communication, leaving the older form(s) intact; a new dominating form of communication technology re-shapes the functions, the significance and the effects of the older forms of communication. (Meyrowitz 1985:19) For instance, as Ong has explored, writing changed fundamentally the role of oral language. This includes relatively innocent features, such as that the phrase 'to look up' something would not mean anything to a person coming from a strictly oral culture. The resources for fact checking would be some person's memory, not books or notes (or Wikipedia!). Consequently, the corresponding phrase could only be something like 'to recall' something. (Ong 1982:31) This innocent example, though, points us to a markedly social difference between orality

and literacy, namely, how stories, events, biographies and more are remembered. Without having the resources to write such things down (and later to look them up), they have to be remembered. Knowledge, history, yes, much of the culture of a group of people, besides rituals and artefacts, are restricted to what individuals can remember. Transferring this history and knowledge to a new generation is done by mouth, by telling stories about the shared past, including the group's religious and mythological narratives. Obviously, a very fragile method, as persons tend to jumble memories and to forget. As a result, developing various mnemonic strategies is important.

> In a primary oral culture, to solve effectively the problem of retaining and retrieving carefully articulated thought, you have to do your thinking in mnemonic patterns, shaped for ready oral recurrence. Your thought must come into being in heavily rhythmic, balanced patterns, in repetitions or antitheses, in alliterations and assonances, in epithetic and other formulary expressions, in standard thematic settings (the assembly, the meal, the duel, the hero's 'helper', and so on), in proverbs which are constantly heard by everyone so that they come to mind readily and which themselves are patterned for retention and ready recall, or in other mnemonic form. (Ong 1982:34)

Traces of orality are today found in terms of proverbs, idioms and phrases (Ong 1982:26), and in such rituals as the (fading art of) mandatory memorizing of bible verses in school. We find it in rhymes and rhythms in poetry and in lyrics. Books like the *Odyssey* and the *Iliad*, and the Bible, are all books that first existed as oral narratives. (Ong 1982:17ff) The same is true about the Norse *sagas*, such as *Edda* and *Håvamål*. Having developed modern science, modern history, archaeology, etc., the tales and sagas contained in these books still live on, but while they had a historical and veridical function in orality, they are relics of a way of living long since gone, curiosa and on par with fiction in literacy (although still important as historical documents).[1]

Meyrowitz (1994:54) points to two limitations (when seen from our culture's perspective) in orality. First, individuals in oral cultures cannot communicate with people that are not physically present. This applies to both space and time continuums, and has various social consequences. Ong notes that while "oral societies live very much in a present which keeps itself in equilibrium or homeostasis by sloughing off memories which no longer

[1] Another interesting aspect of the transition from orality to literacy that displays that the older dominating communication form is transformed is that writing gives rise to *grapholects*, that is, official languages, such as Standard English or in Norwegian, *bokmål* and *nynorsk*. Grapholects, although usually being modelled on one or a few dialects, encompass resources (vocabulary, etymology, etc) that surpass greatly that of a single spoken dialect. (Ong 1982:8, cf. 106f) Belonging to a grapholect enriches the spoken resources at one's disposal. For a discussion of many more examples of how written language has transformed orality, see Ong 1980, Chapter 3.

have present relevance" (Ong 1982:46), writing materializes memory into words on a paper (or equivalent writing material). As Ong adds, such preservation of thoughts and thinking patterns was important for science to evolve (from history to physics). The second limitation, not entirely unrelated, is that individuality has little room for being unfolded. "Individual expressions, novel ideas, and complex arguments can find little place in such cultures because they are hard to remember (even by the persons who come up with them)." (Meyrowitz 1994:54) Furthermore, they can only be passed along to those who are present in time and space. Therefore, changes are slow to come about in oral cultures. However, on a more positive note, orality invites close interaction, openness within the group and a fairly homogenous perspective on the world.

One important aspect of the introduction of writing into a group is that people can share physical environment and yet know and experience it differently; two neighbours can entertain different worldviews. (Meyrowitz 1994:54) One is no longer confined to the presentation of the world of one's peers, but can encounter alternative outlooks through texts that were written in different contexts. Although this aspect is undoubtedly important, I believe we should be careful to accentuate the difference between orality and literacy here. Without question, there were discussions and disagreements on how to interpret the world, how to worship one's gods, how to respect the elders and so on in orality as well. Nevertheless, there can be little doubt that "writing permits people who read the same material to feel connected to each other regardless of the physical distance between them" (Meyrowitz 1994:54-55), and by that literacy undermines that closeness could only be felt to those who are physically present.

The parting of the speaker and the spoken, however, has both strengths and weaknesses. Naturally, in the transitional phase it will be the weaknesses that are focused on. For written culture this is clearly stated in Plato's *Phaedrus*, where Socrates, who likens writing to painting, that is, as quite low on the ontological scale, lists a number of negative effects on thinking that the reliance on writing will have. For instance, writing is unnatural and consequently inhuman, it destroys memory, and furthermore, the written text is unresponsive and cannot defend itself the way a speaker does. (Plato 1999)[1] One of the strengths of writing, as mentioned, is that it renders possible communication and connectedness over distance, but this particular benefit also comes with a weakness, a

[1] Ong finds it amusing that most of these objections are also directed against electronic communication technologies. (1982:79)

distortion, which is in the *nature* of this new connectedness. As Paul Levinson puts it, in a clear reference to Plato, "the written word sacrificed the interactivity of in-person speech – you cannot receive a reply from a written page". (Levinson 1995:152) Not if the person who did the writing is distant in time and space, anyway.

This, according to Levinson, is typical of the evolution of communication technologies; introducing a new communication technology will have its (technology-specific) benefits, but at the cost of leaving certain cherished aspects behind; in enabling communication over distance, interactivity was lost. Another benefit of writing is the enabling of keeping statements, knowledge, and history, etc. 'alive' independent of the individual memory; there is no longer any need to memorize everything that one needs to recollect at a later stage, remember, it can be 'looked up' later. This benefit also comes with a potential negative side, as stated early in written culture by Plato's Socrates, who claimed that writing "will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves". (Plato 1999:66-67) The destruction of this inherent human quality is a worry, Ong observes, that lived on well into the Renaissance and was charged against the printing press as well. (Ong 1982:80)

Literacy can be seen as taking communication away from being a natural, real-time, social activity. (Meyrowitz 1994:55) Besides those aspects already mentioned, a high degree of effort goes into learning to read and write, and it depends on artificial means, alphabet, writing material and a medium to write or print on. Levinson concurs, and points out that "the written word has neither the intrinsic emotional shading of speech nor the form, color, etc of images". (Levinson 1995:153) In this sense, worries about the naturalness (whatever that is) of communication in the evolution of communication technologies, and therefore also worries about their potential alienating effects, might seem appropriate. However, the way Levinson sees it, electronic culture reinstates interactivity in the dominating type of communication technology. Technologies like telephone, e-mail, chatting, video conferences and e-learning once again enable real-time social interactivity also for long distant communication. In other words, with electronic communication devices, being absent in space is no longer necessarily an obstacle for interactivity, although absence in time presumably is still an impossibility for interactivity also in

electronic communication.[1] The latter electronic era, then, is a return of sorts to some of the characteristics of orality, that is, it incorporates synchronicity, closeness etc., that were absent in the technologies of literacy, but still it retains the advantages of literacy.

The impact of printing

As mentioned, literacy did not attain its real breakthrough until Gutenberg's printing press enabled availability of (much more) written material at a lower cost.[2] It is easy to see why: The social changes due to writing technologies required wide distribution of identical written material so that people from all over (that is, those that knew how to read) could read it, take a stand on what they were reading, and discuss it with others in assurance that they were discussing what indeed was the same text. The changes due to the printing press and printing culture has been widely discussed in medium theory and is acknowledged as the prime example of a penetrating societal impact of a communication technology. (McLuhan 1962, Innis 1972, Eisenstein 1980, Meyrowitz 1985, Levinson 1997, Misa 1994) Elisabeth Eisenstein, for instance, who provides a very thorough empirical study of the aftermath of Gutenberg's invention of the movable type, claims that the wide availability of scripts due to the printing press had a direct causal effect on the Renaissance, the Reformation and on the Scientific Revolution. She, clearly inspired by McLuhan, also displays the influence of the printing press on the Age of Discovery, the colonization of America, the rise of national states, and capitalism (cf. Levinson 1997:9,24f, Ong 1982:117f). Thomas J. Misa, a writer careful to attribute too much inherent power to change society to technologies, writes of the Reformation, "in this instance, the medium formed the message". (2004:23) The printing press is indeed seen as an example of a powerful communication technology that induced wide-ranging changes to our culture, and enabled the final breakthrough of literacy as the dominating form of communication.

The Catholic Church firstly welcomed printing. In it, they saw an opportunity for a uniform education of clergymen and practising of the religion, in addition to being helpful in implementing "long delayed internal reforms". (Eisenstein 1980:314) However,

[1] Electronic communication technologies also include films, TV and radio, traditionally one-way communication forms although making them more interactive has been attempting (calling-in programs, votes on potential endings, etc). Also, oral culture includes communication forms that do not invite interactivity, giving a speech, for instance.

[2] In Paris in 1470, the price of a handwritten Bible was about 5 times that of a printed one. (Innis 1972:141) This was only 15 years after the first printing of the Bible. For the characteristics of Gutenberg's printing plant, based on movable type, as opposed to preceding and competing types, see Eisenstein 1980.

printing soon turned against Catholicism. It has been common, Eisenstein notes, to map social and religious reasons for the Protestant Reformation, and then to consider the printing press only as an instrument for the cause. Through it, it has been thought, dissenting theologian Martin Luther could distribute his 'heretic' thoughts and attacks on the Roman Church. However, as she documents, there are good reasons to believe that the printing press, or rather what the printing press enabled, was more than a mere handy instrument. For instance, church traditions had been challenged also before Luther, but such challenges were always local and transitory. With the printing press, the 'heresy' could be spread, and in being printed, it was of a more permanent nature: even if one exemplar is destroyed by censorship, there is always another copy.[1] (Eisenstein 1980:311) The printing press had contributed to a *change of the social milieu* within which the heretic thoughts occurred. This social effect was partly due to the wide distribution of Bibles enabled by the printing press, something that had already taken place well before Luther. Although the first Bibles printed were in Latin, vernacular Bibles soon followed. The first German edition came in 1466, and by the time Luther quickly rose to fame in 1517-18, Bibles were available in German, Italian, Spanish, French, and other languages. (Eisenstein 1980:346) "The position of the Church and the quality of Christian faith was already in the process of being transformed by the shift from script to print before the Protestant revolt had begun." (Eisenstein 1980:368) With Bibles in wide distribution, and in vernaculars, people could follow Luther's arguments for themselves, and were not merely surrendered to the authority of the Church.

As Misa notes, printers were also businessmen, and in late October in 1517 they saw the business potential in a note that was hung up on the church door in Wittenberg. (2004:22) The note contained 95 theses criticizing the Church's arrangement of the letters of indulgence. The Church had no right, it was claimed, to grant indulgences because the judging of good and evil was a job for God, not for the Pope, and forgiveness should not be granted for money anyway. The theses were, according to their author, Martin Luther, intended for academic discussions (the note itself was an invitation to a meeting were these were to be discussed), and for that reason, they were written in the learned language of Latin. Had the note stayed on the church door, and in Latin, nothing much probably would have come out of it. However, the theses were soon 'bootlegged'; re-printed,

[1] That is of course not to imply that only original manuscripts existed before Gutenberg. The scribal culture, that is, the business of copying by hand, could be quite efficient (Eisenstein 1980:10ff), but it could of course never reach the numbers of the printing press. (Eisenstein 1980:46)

translated to a number of vernaculars, and printed in those. Within a month, they had spread across Europe, and in so doing, they incited the Protestant Reformation. (Misa 2004:22, Eisenstein 1980:307)

Luther pleaded ignorant of the spreading of his theses, but Eisenstein wonders if that could be right. There are reasons to believe that although he himself did not contribute to the actual re-printing and distribution, he was aware of it and welcomed it. (Eisenstein 1980:306ff) Nonetheless, the Protestant voices soon saw the revolutionary potential in the printing press, and made well use of it in the years to follow. Between the printing of the 95 theses in 1517 and 1520, Luther issued 30 publications, selling 300.000 copies. (Eisenstein 1980:303) By 1523, 493 German titles were in print, 180 of them were written by Luther. (Levinson 1997:23) Protestantism was "the first movement of any kind, religious or secular, to use the new presses for overt propaganda and agitation against an established institution". (Eisenstein 1980:304) The Catholic Church soon experienced the dilemma of censorship: In trying to prevent further distribution of the heretic words of Luther and other dissenting voices, it offered a tactic that boosted the distribution of the very same voices. It issued its first list of prohibited books in 1559, the so-called *Index*, but "for printers in Protestant countries it amounted to a conveniently compiled list of potentially best-selling titles". (Misa 2004:23)

In a similar manner, the printing press helped pave the way for other developments in the same period. As mentioned, most major breakthroughs in the years following the introduction of printing is by medium theorists held to be rendered possible, or at least highly influenced, by the societal changes due to the printing press. These claims are supported by pointing to the same kinds of examples as in the Protestant revolution: Printing spread the news, and spread it fast enough for feedback to be noticeable when the news is still fresh, thereby setting off social reactions. By this, the printing press contributes to a change in the social climate in which news travel; it changes the world in which these events occur, thereby allowing the events to bear the consequences that they do. For events to gain the 'causal power' to elicit change they need to be known outside the local situation in which they happen; heretic thoughts before Luther evaporated before taking effect, the discovery of America by Vikings was not known in other parts of Europe, etc. (Levinson 1997:25f) With the printing press in place, Europe got 'smaller', distant parts of the continent got close enough to interact rather than just receive news of events having taken place weeks, or months, earlier at faraway places. In this sense,

Europe was transformed through the new technology. As I will return to later, this aspect, the eradication of distance is an important *trajectory* of communication technologies that is carried on through the electronic era.

In transforming Europe, the printing press continued the development away from the homogenous, egalitarian, local culture that started with the transition from orality to literacy. Meyrowitz points to a number of characteristics of literacy that accelerated or was accentuated with the invention of the printing press. First, the divide between those who could read and write and those who could not expanded. This directed people into two separate communication systems; one wholly oral and another that was infused with written communication. Taking part in the written communication discourse enabled one to withdraw from community life and take part of a different stream of events and discourse. Thus, we see the formation of political, spiritual and intellectual units that exceeded local communities. This had the effect of creating new conceptions of 'them versus us' that rose above the limits set by the local village. "Feudal societies based on face-to-face loyalties and oral oaths begin to give way to nation-states and to nationalism based on a shared printed language." (Meyrowitz 1994:55) The rise of nationalism was also spurred on by the new dignity that vernaculars acquired once Bibles and other material began to be printed in non-Latin languages. (Eisenstein 1980:358f)

Most importantly, perhaps, was the change in thinking patterns that emerged. This, according to Meyrowitz, should also be credited the printing press.

> The break from intense, ongoing aural involvement distances people from sound, touch, and direct response and allows people to become more introspective and more individualistic. 'Rationality', which comes to be highly valued, resembles the form of printed type: step-by-step abstract reasoning along a continuous line of uninterrupted thought. From the simultaneous world of sound, literate cultures move toward a one-thing-at-a-time and a one-thing-after-another world. The isolation of stimuli fosters cause-and-effect thinking. Literate thinking diminished the view of life as a repeating sequence of natural cycles and promotes the view of constant linear change and improvement. (Meyrowitz 1994:56)

Medium theorists regard this as the onset of modern science.[1] The effect of the transformation of thinking could soon be seen in architecture and urban development, and in classroom design where the "new physical settings generally discourage informal

[1] Note the similarity to Heidegger's thoughts that technological thinking (in general, though, not limited to printing) fostered modern science (cf. Chapter 1). The impact of technology on the ways of thinking is indeed important, as also Ong (1982) argues repeatedly. I agree on this, but, as I will argue below, do not see this shift as *determined* by the technology, but as rendered possible by the technology *given* various other aspects.

oral conversation". (Meyrowitz 1994:56) Finally, the printing press also elicited changes in such literary aspects as writing and intellectual style. In short, Europe before and after the invention of the printing press was two radically different worlds, and, if we are to believe the medium theorists, it was all down to Gutenberg's invention of the movable type printing press.

Electronic culture

Even though the invention of the electrical telegraph was close to 200 years ago, medium theorists regard Internet based communication forms as continuing a style of communication that started with the telegraph and proceeded through other electronic and digital technologies such as the telephone, the radio and TV, and now, the Internet. Seen this way, the step from the second to the third communication era, from literacy to electronic culture, is very much still in progress. For this reason, it is too early to conclude about how electronic culture will influence society. However, some tendencies are proposed. As already mentioned, it is held, in a pseudo-Hegelian fashion, that through ICTs we are able to revive some of the aspects that characterized orality, but still maintain the advantages of literacy. While the first era was characterized by real-time interactivity, this aspect was lost in the dominating communication technologies of the second era. Instead, we gained the opportunity to communicate over distance. With ICTs, we communicate over distance, but talking on the telephone, taking part of the conversation in chat rooms, etc. makes it possible to do this in real-time. Or, in the case of e-mail, discussion groups and blogging, something approximating real-time (with an added ingredient compared to the telephone: a choice whether to attend and respond to incoming messages right away or to wait, which is a characteristic inherited from literacy).

Certain features known from the face-to-face encounters we know from oral societies can therefore be said to once again characterize the leading communication form. Ong even calls electronic culture an era of "secondary orality' (1982:136f). Meyrowitz concurs, but points out a further aspect:

> Electronic media bring back a key aspect of oral societies: simultaneity of action, perception, and reaction… Yet the orality of electronic media is far different from the orality of the past. Unlike spoken communication, electronic communication is not subject to the physical limitations of time or space. Electronic messages can be preserved, and they can be experienced simultaneously by large numbers of people regardless of their physical locations. (1994:57)

Because of this *technological difference*, there is a huge dissimilarity between the kind of society evolving from oral culture and the one evolving from electronic culture; the technological presence enables societies to be constituted differently. Meyrowitz claims that physical location is given too much weight in distinguishing what it is that constitutes a society. (1985:7, 35)[1] Such a notion suits oral culture quite well, of course; a village is semi-isolated and self-sustained, and without today's possibilities for travelling long distances, interactions are limited to those living close by. As such, society is defined in terms of (geographic) place; one is in society with those that are proximate. However, if we consider later communication eras, we will find this insufficient at defining society. Through new communication technologies new patterns of interaction emerged, patterns that transcended geographical limitations. Through written words, people are able to interact with and relate to others that are not proximate, not in space and perhaps not even in time. The limit of one's possible interactions in written culture is defined by the understanding of language, not the edges of one's village. Re-definitions of 'society' continue with electronic communication technologies.

The title of Meyrowitz' 1985-book, *No Sense of Place*, indicates something about the kind of society that arises from the proliferation of electronic communication technologies. If we disregard the spreading of vernaculars due to colonization, literacy was still rather limited, geographically speaking, and certainly limited in terms of the speed of interaction. Not so for electronic culture. Now we can communicate, in real-time, just as effortlessly with someone in Australia as with our next-door neighbour, and news (on radio, in TV, on the Internet) of an earthquake in China comes to us as fast as the news of a rockslide in a nearby region. "[E]lectronic media affect social behavior – not through the power of their messages but by reorganizing the social setting in which people interact and by weakening the once strong relationship between physical place and social 'place'." (Meyrowitz 1985:*ix*) Consequently, we are in need of a definition of society that does not refer to geographical place.

Society is still defined in terms of intersubjectivity and is anchored in the interactions going on inside of it, but it "is not the physical setting itself that determines the nature of interaction, but *the patterns of information flow*". (Meyrowitz 1985:36, my emphasis) What is important for interaction is access to the behaviour of other persons; what do we do and

[1] Meyrowitz discusses *situations* rather than *society*, but indirectly it is the definition of society that is scrutinized. (Meyrowitz 1985:*viii-ix*)

what can we do together with other persons. I cannot do anything with anybody without having access to their behaviour, at least that part of their behaviour that is relevant for the situation we share. Consequently, what defines the nature of interaction, and ultimately also for constituting a society, is "the types of behaviors that are available for other people's scrutiny". (Meyrowitz 1985:36) This definition is more basic than physical setting, and applies to all three eras of communication, encompassing the social behaviour of the illiterate farmer of orality, the intellectual academic bookworm, and the intense online gamer in present electronic society. Physical presence should therefore be considered an accidental definition of society, tied to a specific form of availability belonging to a specific kind of society.

For the medium theorist, what social behaviours that can be accessed differ considerably in the three communication eras *because* of their respective available communication technologies. In the propagation of electronic culture, when personal computers and the Internet (initially two different trajectories, although with much common background) were combined, a powerful contributor to the occurring social change emerged. As we have seen over the past 15 years, this combination has enabled people to connect and interact in new unprecedented ways. Internet enthusiasts, such as Nicolas Negroponte, were soon to point out, or better phrased, soon to *envision*, the consequences of this change.

> As we interconnect ourselves, many of the values of a nation-state will give way to those of both larger and smaller electronic communities. We will socialize in digital neighborhoods in which physical space will be irrelevant and time will play a different role. Twenty years from now, when you look out a window, what you will see may be five thousand miles and six time zones away. When you watch an hour of television, it may have been delivered to your home in less than a second. Reading about Patagonia can include the sensory experience of going there. A book by William Buckley can be a conversation with him. (Negroponte 1995:7)

The underlying thought is that we feel connectedness towards those with which we are able to communicate. This held for orality, it held for literacy, and it will hold for electronic culture, both Meyrowitz (writing about television) and Negroponte (writing about the Internet) claim. The printing press played a part in the rise of national states, but electronic culture takes us even further, above national state borders and connects us with people from the other side of the world sharing our interests (or offering us something we want, but probably did not know that we wanted…). Michael Dertouzos, another net-enthusiast, calls this new connectedness *electronic proximity*.

> During the Industrial Age, people's physical mobility expanded tremendously, widening a person's universe of potential relationships from a few hundred village neighbors to hundreds of thousands of people within driving range. As a result, our proximity to people whom we could reach grew a thousandfold. Incredibly, the Information Marketplace[1] will increase this range by yet another thousandfold, to hundreds of millions of people who will be within electronic reach. (1997:277)

What might be seen as the main development on the World Wide Web the later few years, the move into easy-to-establish-and-maintain blogs, wikis and twitters, and the emergence of socially oriented networks like Facebook, MySpace, YouTube and Flickr, seems to confirm such visions. This move has led some to talk of a Web 2.0, meaning that the Internet presently is about connecting people to people, implying that the Internet earlier, 'Web 1.0', was more about connecting computers to other computers, that is, the setting up of networks. Tim Berners-Lee, widely regarded as the creator of the World Wide Web, however, claims that the so-called Web 1.0 always was about connecting people to people, and that it is meaningless to talk of a new kind of web as long as the social networks mainly follows the same standards and uses the same programs that were produced for Web 1.0.[2]

Nevertheless, through electronic communication technologies, new forms of 'them versus us' (the basic structure of society) arise. Internet culture, whether or not we should speak of a Web 2.0, is of course a prime example of this, more so than earlier electronic media such as TV or radio. Although they bring us recent news from all over the world with a strong impact due to images and sounds, TV and radio are hampered by the lack of, or the slowness of interactivity. For Paul Levinson, the tendencies of latter stage electronic culture means that the third communication era to a higher degree than the preceding one, is anthropotropic, that is, it supports the *natural* human way of being and the *natural* human way of communicating. (1995:153) Electronic culture, in Levinson's opinion, is therefore more *humane* than written culture. Compared to literacy's technologies, electronic technologies rather paradoxically take us closer to a pre- or non-technological kind of existence. For that reason, populating our lifeworld with modern (electronic communication) technologies does not make it more artificial, more hostile, for humans to live in, the way we saw Heidegger and Ellul characterized modern technological existence (cf. Chapter 1). Instead, at least for communication technologies, we are now

[1] Dertouzos' preferred coinage for 'the Information Superhighway' and similar notions trying to capture the essence of the Internet. Apparently, he started using this phrase already in 1981. (Dertouzos 1997:10f)

[2] In a 2006 interview: http://www.ibm.com/developerworks/podcast/dwi/cm-int082206txt.html [02.01.2009]

capable of overcoming some of the alienating effects of modern technology. (Levinson 1995:161n8) Medium theorists might see the inherent power of communication technologies to be the prime mover in changing society, but for most part, in a far more optimistically manner than Heidegger and Ellul.

This development has its potential dark sides, as well, some of which are known from the orality, and some that are specific for electronic culture. Bernulf Kanitscheider figures that if the netbased communication forms become all pervasive, we will be caught in the demand for always being available: "Probably it will be rather impossible to disconnect oneself from the network to return to the individuality of the hoary days of yore." (1999:7) Once such a system is implemented into a society, we are caught up in it and must live by the rules and logic of the system, including social rules. If we withdraw from the online co-existence, even for just awhile, we must answer for our action, much like a person in a small village that does not partake in the communal village life. Of course, (always) being hooked up to an electronic communication network has the further disadvantage of being exposed to means for control and surveillance in unprecedented manners. The means for social control seems at least just as strong, but perhaps more fundamental in this form for community than what was found in orality's kind of social control, since all our electronic actions can be traced, stored and exploited in technology-specific ways, which were, or is, not available in orality.[1] (Kanitscheider 1997:7)

Technological determinism?

As we can see, medium theorists forward some rather strong claims about the relation between society and specific technologies (alphabet, printing press, Internet, etc). These claims, especially those put forward by the more empirically inclined second generation medium theorists, are usually well supported by historical data concerning the chief role played by the printing press in making crucial events known to a wider audience. However, is that role sufficient support for asserting *causal power* to the printing press? Although the processes leading up to the Reformation, the Scientific Revolution, etc. undoubtedly was augmented by possibilities that came with the printing press, it is unclear

[1] ID-theft, hacking, digital traces and surveillance are only some of the concerns stemming from electronic communication technologies. Relevant in Norway right now is the discussion about the new directive for the retention of information concerning private person's use of data and telephone. The new directive, a result of the later year's international measures to prevent forms of terror, is a noticeable expansion of the legislation that already exists, and has met fierce criticism. http://www.datatilsynet.no/templates/article____2155.aspx [02.01.2009]

just what kind of empirical data it is that can support claims about a causal relation in this context. According to Leo Marx and Merritt Roe Smith, claims about technology being the chief cause for social changes is generally diffuse, and might partly be due to the tangibility of material artefacts compared to other possible causes, socio-economic, political, cultural, and ideological, which are more abstract, but, in their view, just as important contributors to the changes. (1994:*x*) The methodological problem is that in comparing the situation before and after the introduction of a piece of technology, one is focused on the consequences rather than the genesis of the introduction. This focus will seek, almost by default, a causal reason, and since materiality is more tangible than a social factor, technological artefacts will assume the dominant causal role in the narratives. This, then, is followed up by exploring how the piece of technology takes on a life of its own; how new developments follow suit and conform to what is perceived as an internal logic of the technology. Again, little regard is paid to the socially driven aspects of post-developments as well. (Marx and Roe Smith 1994:*xi*)

Although having a strong point concerning the literature on the history of technology, this criticism is nevertheless slightly off-target, in my mind. Eisenstein and Meyrowitz, for instance, state quite explicitly that they do not seek a deterministic tale of their technology-focus; after all, nobody wants to be a simplistic technological determinist.[1] The subject matter for these theorists is a certain piece of technology, so it is only natural that the investigations primarily are concerned with technology-related causes and effects. That said, it *is* the heavy focus on technologically related causes that invites suggestions of determinism. However, this is not necessarily a consequence of writing the history of technology: Historians such as Thomas Hughes and Thomas Misa (both 2004) show that it is possible to write on the history of technology and still have an eye for socially related aspects of technologies' invention and development.

In place of technology as being the driving force through the later 5-600 years, historians have pointed to:

> [t]he particular efficacy of certain material, geographic, demographic, and socio-economic preconditions: access to raw materials or markets; the existence of mercantile capitalist economy; the operation of the profit motive; the accumulation of capital; the availability of a needy, teachable, exploitable labor force. Others attribute causal primacy to intellectual, cultural, or ideological factors: the extent of secular learning; the existence of a reservoir or

[1] For the most part, Marx and Row Smith talk about technological determinism from a 'public opinion' point of view, so it is unclear whether they include any of the theorists I have presented.

> entrepreneurial or financial skills; the presence of scientific rationalism, Christianity, the Protestant work ethic, or an artisan ethos. (Marx and Roe Smith 1994:*xiii*)[1]

For instance, what was the social context for the invention of the printing press in the first place – should the invention of it be seen as technological in itself? What were the social processes leading up to the introduction of this technology? The printing press was no invention from out of the blue by Gutenberg. Its inception was in China in the third century A.D., and its development in the west was tangled up in an interplay with (the state of) other technologies, paper, ink, presses, lead and other metal, etc. "Gutenberg's principal inventions were the adjustable mold for casting type and a suitable metal alloy for the type." (Misa 2004:22) That Gutenberg 'saw' the possibility for the moveable type printing press was therefore not an invention from scratch, driven by technological aspects, but primarily a clever merging of the possibilities that existed in various existing technologies.[2]

Furthermore, Protestantism called for everyone to read the Bible for themselves and not just rely on the official Catholic interpretation. I take it to be an uncontroversial fact that the widespread distribution of Bibles was a direct result of the possibility to print many, and cheaply. However, had the Bibles only been available in Latin – would the call for widespread reading have had the same effect? Would Protestantism have come about with only Latin Bibles (widely) available? That might be (this is not the place to speculate about counter-history!), but surely, the decision to print Bibles in vernaculars was not a technological decision, but was related to other social concerns, from the pious desire to make the holy text widely known to more secular concerns such as earning money. As mentioned above, the bootlegging of Luther's 95 theses was very likely done by printers seeing a business opportunity. Eisenstein also mentions that part of the reason why Luther's material gained the sales that it did, might be down to the sale techniques that were implemented: certain book peddlers were asked by Luther's sympathizers to sell nothing but Luther's works. (Eisenstein 1980:309)

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[1] However, it has happened that these factors figure in a soft version of the technological determinism thesis, where technologies have been invested "with enough power to drive history". Marx and Roe Smith 1994:*xii*) This view of technology differs from the one that I am trying to develop, and I do not regard this as determinism at all, but as presupposing that technologies are mere instruments for the intentions behind their development and use (cf. Chapter 1).

[2] Movable type printing existed before Gutenberg, e.g. in China, but these types were made of wood, and without the versatile western alphabet, the types numbered thousands, making printing a complicated effort. (Misa 2004:19f)

Likewise, even if news of the Viking discovery of *Vinland* had been spread to the rest of Europe around 1.000 A.D., it is very unlikely that an Age of Discovery would have ensued at that time even if the printing press had already been in place. For this exploratory activity to happen, Europe had to be in a very different state also when it came to scientific and mechanical knowledge, to distribution of economic power, and to the overall technological system. Even if Levinson recognizes this, he still finds it hard to shake his determinist leanings, and holds that "[u]nlike the winds that moved the Norse vessels, the oral sagas had no power to move anyone other than those who had personal reason to trust the speakers". (1997:26)

Evidently, according to Levinson, printed texts come with an authority that news distributed orally does not have. Eventually, they did (as we all know today), but in the late Middle Ages, just prior to the Age of Discovery, a written statement was *not* considered more trustworthy than an oral statement. Ong points out: "A present-day literate usually assumes that written records have more force than spoken words as evidence of a long-past state of affairs, especially in court. Earlier cultures that knew literacy but had not so fully interiorized it, have often assumed the opposite." (1982:96) One of the reasons for this, which is still shown in the practices of courts today, is that those carrying an oral statement can be questioned and challenged on what they report. Since he does not discuss this, it is unclear whether Levinson holds that the quality of written news changed due to the printing press; making it more trustworthy, or if it is the sheer distribution of printed material that counts for the differing consequences of Columbus' discovery and the Norsemen's discovery of the same continent. Either way, merely pointing to the presence of the printing press as the prime catalyst for the great discoveries leaves one with more questions than answers.

The interdependent view

The reasons for anything to be an effect of a technology are always so complex that any talk of determinism seems curious. Also, the reasons why a specific technology gains the impact it does are just as complex, and tangled up in the social milieu within which it is embedded. However, is it so complex that we should not speak of a technological contribution at all? As discussed in Chapter 2, more nuanced stories of technological invention and development are in danger of ignoring the actual power inherent in material constraints, and thereby losing valuable insights into our relation to technology (and,

consequently, into how we ourselves are constituted). The way I see it, and this is the main argument of this chapter, causal claims (by 'determinists' and their critics alike) are *discussed without an adequate conception of what 'technological impact' actually means*. My claim is that we do *not* need narratives about who controls who, who is the strongest party, etc.: technology or society. The implication of what I have been trying to say over the last chapters is that the ongoing shaping of society is no power struggle by two clearly demarcated 'entities'. What is needed is *to conceptualize this relation in co-constitutional terms*; neither component would be what it is, without the other being part of its very definition.

The situation here, I think, is quite comparable to the relation between genes and environment, as it was discussed by Susan Oyama (cf. Chapter 6). As we saw, it is conceptually impossible to distinguish what is contributed from 'gene' and what is contributed from 'environment' in ontogenetic development because the very thing that 'a gene' and 'the environment' is, is only understandable in light of each other; they are interdependent. Thinking of the social and technology as interdependent enables us to view either as having an impact on each other without any of them necessarily being the stronger party in all concerns, for all aspects of socio-technological development. Probably, in some cases 'the social' will dominate, in others, 'the technological', just as 'genes' in some cases will be more dominant, and 'environment' in other. Never is a developmental trait present without some influence of both contributors and never is it possible to point to what is 'genetic' and what is 'environmental' without the other factor having been put into words. In our technologically permeated lifeworld, the same applies. What is 'technological', and what technologies do, is definable only within a social setting/praxis. What the social is, as 'environment' to the technology, is only understandable in accordance with the technological presence; technology shapes its social environment; the social environment shapes the technology (cf. Chapter 2). In the example of the printing press, the technological presence had a tremendous effect, perhaps even 'dominating' as some authors claim, but it was not the sole cause of the subsequent changes, neither was its appearance, the way it came to be and subsequently came into a position to have this effect, unaffected by social factors. And if it is not, why speak of technological determinism?

If we analyze the relation between the printing press and its alleged determined effects in the terminology developed in the previous chapters, we can say that for a technology to determine its social impact, say 'the Reformation', or 'the Age of Discovery', the actions

constituting this impact are virtualities of the technology in question (cf. Chapters 5 and 7). That is, that those actions are potentials 'in' the technology; the mass production of Bibles, and in vernaculars, the spreading of other 'heretic' material, etc. are virtual actions of the printing press. However, such virtuality is not available, or visible, in just any circumstances. As discussed in Chapter 4, virtualities are only available from a certain situatedness. The argument for this is that any virtuality is revealed, or opened up, by the technology's actuality; a technology's present role and functions. Said differently, it is only as far as having an *actual meaning* that a technology can have *virtual* (potential) *meanings*. The reason for this is quite simple; it must be a 'problem' in its actuality (defined in terms of social, technological, economic, political considerations) that directs our gaze to one of its virtualities. Using the printing press for the wide distribution of vernacular Bibles, for instance, is to employ the present 'meaning' of the printing press (mass production, cheap reproduction) for a social and religious 'problem' (how to spread the holy text, people should interpret the Bible themselves rather than leaning on the clergymen's interpretation, and so on). The Reformation, if we should see it as following this 'meeting' of actuality and religious problems, is then co-constituted by the printing press and the religious problem; none should be seen as the sole driving force. Because of the printing press, the Reformation became possible, but only in that particular setting.[1] This is the sense in which the Reformation was a potentiality of the printing press.

If, say, the printing press had been regarded as suitable only for the printing of restaurant menus and operating manuals, and unsuited for the printing of the holy text, mass production of Bibles would not be a potentiality of the printing press, even though it still would be technically possible.[2] The Reformation would not be possible through the means of the printing press, because the printing press' *actual* meaning did not include the printing of the holy text. As we can see from this rather general example, 'a problem in its actuality' involves embeddedness – a problem is only a problem in a certain context. A virtuality of a technology is co-constituted from its embedded actuality. In other words, it is the problem, and the recognition of this problem, that carries the potentiality from its virtuality to its actuality.

[1] I am not implying that 'the Reformation', with all everything that that expression involves, was planned.

[2] An affordance, as it was defined in Chapter 4. To sum up the complex relation between these terms: An *affordance* is how a material item proposes itself to be used. As such, the material item points towards, reveals, a potential action that, in its non-actualized state, is called a *virtual* action. What the present paragraph is about is the *actualization* of this virtuality, a process that rarely, if ever, involves a one-to-one relation between the virtual action and the actual action. This because of the circumstances in which the actualization is brought about.

Regarding the relation between a piece of technology (or a technological system), its social embeddedness and its co-constituted 'products', or effects, in this way renders any talk of determinism (also of the social kind) redundant seeing that any technologically related effect is 'unleashed' because of its embeddedness (social, ethical, political, economic etc). Furthermore, this way of conceptualizing the relation also underlines that the effects are revealed as potentialities only as far as the embeddedness has a certain technological presence; this being in line with the revealing function of technology discussed in Chapter 3. We cannot discover the full potential of a technology without it being actualized. Some yes, but rarely, if ever, all. As mentioned more than once, through technological presence, a world, actual and potential, is unconcealed.

Paradoxically, perhaps, the relation between a technology and the revealing of a potentiality is more clearly seen in the case of *unintended* effects of technological presence. Evidently, such an effect is brought about by the introduction (or re-definition) of a technology – we might say that it existed as a *non-recognized virtuality* of the technology. As such, the effect's actuality is clearly indebted to the technology that brought it forth, but is it for that reason determined by the technology? No, it is not, and in at least two ways. First, as we can see in the case of the Reformation, the actions that bring about an unintended effect must involve the merging of several factors, some technological and some social, economic, political etc. These factors constitute the action that produces this unintended effect. No action is purely technological, or purely social. This follows from what was discussed in Chapters 3 and 5 concerning the co-constitution of a technological action. In other words, in distinguishing clearly between the action itself and its effect, the product of the action, the unintended effect is never to be said to be determined by the technology (nor of any of the other co-constituents).

The other reason why technological determinism is unsustainable even in talks of unintended effects is that the mere bringing about of an unintended effect is no guarantee that it will 'take hold' and gain any further social breakthrough. Like a piece of technology, a technological effect (material or social, economic, etc) is also an actuality. As such, it comes with its own virtualities, that is, further potentials in its embedded actuality. Such potential is necessarily invisible before the unintended effect itself is actualized. Once it is actualized, however, the further potential becomes revealed; like any case of virtuality, it is not a potential without an actualized presence. However, there is no guarantee that its mere presence will lead into a trajectory. In line with the argument from

Chapter 4, whether the further potential of the unintended effect is actualized will itself be co-dependent on the embeddedness of the unintended effect itself, that is, the situational factors it finds itself among. To exemplify this in somewhat simpler, binary terms, let us say that an unintended effect of a technological action has only two possible outcomes; it prospers, or it disappears. None of these alternatives existed as potentials until the unintended effect was itself actualized; they were revealed as potentials in the actualization of the unintended effect. In other words, we need to disengage the technological action from its, intended or unintended, effect, and *regard it as an actualization on its own terms*. Consequently, which potential (to prosper/to disappear) is realized will depend on the embeddedness of the actuality of the unintended effect; that is, how the unintended effect is received.[1] Of course, most developments involve far more complex potentials than this binary example exhibits, but it nonetheless demonstrates the non-determinist dynamics between a technological action, its effect, and the effect's virtualities.

Lee Sproull and Sara Kiesler capture this complex developmental trajectory nicely. They claim that communication technology has two kinds of effect; one related to its planned effects, which they call 'first-level effects', such as efficiency or productivity gains, and a 'second-level effect', which "come about primarily because new communication technology leads people to pay attention to different things, have contact with different people, and depend on one another differently". (Sproull & Kielser 1993:4) The result of the second-level effect is an entire change in the social system (as we have seen in connection with the introduction of the alphabet and the invention of the movable type printing press). As Sproull and Kielser recognize, the second-level effect is hard to foresee. Because such effects are hard or nearly impossible to foresee, "inventors and early adopters are likely to emphasize the planned uses and [to] underestimate the second-level effects". (Sproull & Kielser 1993:7-8) This means that the second-level consequences are slow to emerge, and *only as* "people renegotiate changed patterns of behaviour and thinking". (Sproull & Kielser 1993:8)

It is therefore not a matter of regarding the impact that second-level effects have on the society as being *caused by* the technologies, but rather as, in my terms, being *afforded by* the

[1] Such processes are thoroughly investigated for instance by the social constructivists mentioned in Chapter 2. How anything develops, brought about unintended or not, is subject to all kinds of influence, especially obvious currently are commercial considerations and market forces, see for instance Postrel (1990) on the dead-end quadraphonic sound technology of the seventies.

technologies; the realization of such effects requires an active renegotiating society. Without this process, second-level effects would go unnoticed (and therefore not be effects at all…). Sproull and Kielser find an example of this in the introduction of the typewriter, whose first-level effects was to produce letters that had the same virtues as printed letters (readability, likeness from token to token, etc). For this reason, the target group was clergymen and writers. An unanticipated second-level effect, however, was soon seen in the world of business.

> Before typewriters, male assistants who were learning the trade performed clerical duties. With the new technology, clerical opportunities increased, and typewriters became a safe and respectable occupation for young women. The typewriter greatly expanded paperwork, specialization of office work, and sharp demarcations of status between typists and their male bosses. (Sproull & Kielser 1991:6)

Many of the effects of the internet can be regarded as second-level effects, the falling circulation of newspapers, for instance, or the widespread dependence of the Internet as a trustworthy source for medical information.[1] Through being online, we act and lead our lives differently, and it is the effects of our actions (for instance, changed habits in seeking out news) that lead to the second-level effects. Our actions, as we saw in the previous chapter, is a result of not just the technology, but also of the embedded, socially and physically, self. Sproull and Kiesler's understanding of how second-level effects take hold is therefore comparable to, and clarifies brilliantly, what I said above concerning the necessity of a) embedded actualization, and b) the co-constitution of a possible further trajectory.

However, sometimes an effect of a technology (or more precisely a technological action) can seem very strong, almost inevitable. The invention of the atom bomb, for instance, played a principal role in starting the cold war, and surely, the cold war can be seen as an unintended consequence of the atomic technology. Moreover, the atomic technology appears as decisive in the unfolding of the cold war. However, it cannot be regarded as a *necessary* consequence of the atom bomb itself, but because the bomb showed up at the

[1] According to a report prepared by Pew Internet and American Life Project, "[r]eliance on the Internet is so prevalent… that 'Google is the de facto second opinion' for patients seeking further information after a diagnosis". Patients collect information about alternative treatments, about possible side effects of various drugs related to the disease, etc. Internet is for not only information purposes, but also enables patients to encounter other patients with similar illnesses; experiences are exchanged, updates on the reactions to the treatment, and replies on these, are posted. Apparently, the information found online (by the experienced 'googler') is increasingly trustworthy. http://www.nytimes.com/2008/09/30/health/30online.html?_r=1&adxnnl=1&oref=slogin&ref=technology&adxnnlx=1222777195-IFeMS3IBsekaEX0WfuxMhA [02.01.2009]

time that it did (a techno-scientific development with its own social situatedness), it did have this effect. What role would the atom bomb have played in the post-war period if the communist revolution of 1917 in Russia never had happened (all other factors being equal)? The actuality of the atom bomb had the cold war as a very strong virtuality, but it had this virtuality only because of how its actuality was embedded.

In this case, we can also see why a so-called technologically determined trajectory might stop, change or become altered in any way: its embeddedness changes. Even though the atom bomb and adjacent technologies had not disappeared by the late eighties (quite the opposite!), the socio-political climate in which this technology was embedded made it possible for the USA and the Soviet union to find ways of co-existing with the other superpower having the atom bomb without being engaged in a cold war. According to Langdon Winner, the atom bomb is 'a special case' in the extent that it intrinsically requires a large authoritarian political system of intense rigidity to be constructed around it. (1986:34) If the atom bomb, then, cannot be said to determine the course of its own trajectory, what foundation is there for conceiving other kinds of technologies (or, as discussed in Chapter 1, technology *itself*), as involving determinism?

For more personal-level technologically related unintended consequences such as surprising side effects of medication the case is comparable. Such side effects might not be stopped by an embedded social or personal choice, but are not for that reason technologically determined; how they are treated, remedied, enhanced and neutralized, is never a purely medico-technological decision, but are embedded in a network of ethical, economic, family related and personal considerations. As in the case of the atom bomb, the technological influence is undoubtedly strong, but the overall reaction of the course of things' development, as in the case of the cold war, should always be seen as embedded. Strong or weak technological influence, it is never a case of all-or-nothing. And this makes it pertinent that we really understand what 'technological influence' actually means.

Anything that we label a technological effect is, as I discussed in Chapter 4, a trajectory. As such, it is under influence all along its developmental course; any effect is itself an actuality with its own potentiality, revealed and constrained by both social and technological factors. The course from the invention of the movable type printing press to the Reformation will involve a huge number of such actuality/virtuality points in time.

Seen this way, Protestantism was no more *an* effect of the printing press than the first Bibles that Gutenberg printed were effects of the printing press. Although the material items, the actual Bibles, had widely ranging short- and long-term effects they also had a content without which there would be no material Bibles, and *without which* the potential of printed Bibles to elicit change would not exist. The printing press enabled mass production, yes, but without a 'social desire' to mass-produce, to sell and an audience to read them, Bibles would not have been distributed in the way they were. Therefore, we need to regard the social function and role that the content of the Bibles had into the complex development towards the Reformation. The content and its social significance (including the Church's political and economic standing) must also be taken into account as a player, or, in this dissertation's terminology, as a co-constituent of the process leading up to the Reformation.

However, we should not forget that it is just as evident that *how* the very same content was received and perceived differed before and after the printing and subsequent distribution, and this, I contend, is understandable only in the light of the (new) technological aspect that had entered the praxis of reproducing the biblical text. Levinson calls his form for determinism soft (in a slightly different sense from what Marx and Roe Smith do, see above), claiming that this, at least for electronic communication technologies, "entails an interplay between the information technology making something possible, and human beings turning that possibility into a reality". (Levinson 1997:4) There is clearly an affinity between this statement and my thoughts about the interdependent relation between technologies and us, only I do not see this as a case of determinism, hard or soft, only as co-constitutional. Levinson does right, though, I think, in calling his own theory determinist, because he lacks the investigation into the relation between actuality and virtuality that can shed a light on the dynamics between the technological potential and the human or social interpretational activity that turns a *virtual impact* into an *actual impact*. Without such considerations, Levinson's theory continues to be determinist because the actualizations of virtualities remain shrouded. Consequently, the softness of the determinism is only stated, and not explicated. A case in point is his already mentioned list of events he claimed to be *caused by* the printing press.

Another example of the non-determinist relation between an omnipresent technology and society is worth mentioning. This one is not about the mediation of a content, but about the developmental trajectory of a specific technology. Although its roots can be traced

back to military research, an institution not primarily known for its openness, the Internet has developed mainly out of the development of open source software. The originator of open source software usually encourages others to continue to work on the product so that it constantly is refined and re-defined by others than its originator(s). Networks based on open source software and protocols can link to each other, both technically (because the codes are open) and because the networks are not owned by anyone. Networks based on open source software resulted in continuously growing and connecting networks in the 1970's and 1980's.[1] This 'open' development was possible, Manuel Castells contends, because "all key technological developments that led to the Internet were built around government institutions, major universities, and research centers". (Castells 2001:22) Network technology was mostly of interest to researchers and computer enthusiasts, and had little or no commercial potential at that point in time; even the most visionary could not find any commercial potential in networks that not yet were privatized.[2] Consequently, the networks that formed the early Internet grew largely unhindered by questions of patents, ownership and rights that private and commercial interests necessarily would have resulted in, and which probably would have 'closed off' or altered fundamentally the developmental trajectory leading to the Internet as we know it today (FULL of commercial interests, granted, but also much more). The development of the Internet can therefore be said to be based on a culture that promoted openness: "the Internet developed in a secure environment, provided by public resources and mission-oriented research, but an environment that did not stifle freedom of thinking and innovation". (Castells 2001:23) Whatever the Internet *as a technology* affords, in terms of political, economic, religious, scientific actions and communications, the openness itself, Castells claims, is a socially governed phenomenon. (2001:38) Without network technology having shown up in a milieu characterized by openness, the Internet, as we know it, might not have happened. This little example, which is far more complex than I have reviewed it here, shows how important it is to look at both the affordance and the social reception of a technology when charting its development and its social significance.

I think we now can conclude that the impact on society from communication technologies is conspicuous, but nonetheless, there are few reasons to accept this as

[1] In October 1994, relatively early in the 'Internet age', the Internet already consisted of more than 45.000 smaller networks. (Negroponte 1995:181)

[2] Privatization of the Internet did not happen until the 1990's (Shah & Kesan 2007), and early efforts in trying to earn money "did not pan out" because companies did not know how to approach the networked communities of the 1970's in a profitable way. (Dertouzos 1997:32f)

indicating technological determinism. As medium, communication technologies influence what is mediated in a number of ways, how it is made known, how it is received, how its content has its own effects and how its content is interpreted, but without anything being mediated, communication technologies would not do us much good. What is being put through the medium might be shaped by the medium, perhaps even profoundly, but the medium is not the message – not even the message is the (whole) message. Taking the relation between the actuality and the virtuality of a communication technology seriously means that the message is co-constituted by itself *and* its medium; there are not two independent levels here, medium and content, *the levels are interdependent*.

Overstating technological presence

As we can see, the determinism in medium theory follows because certain characteristics of communication technologies are 'retrieved' in the structure of the societies, without much more argumentation than merely pointing to the presence of said technologies. This is for instance implied in Meyrowitz' criticism of McLuhan: Even if no causal impact is proposed *per se*, not showing *how* communication technologies influence society, the relation between technology and society remains unclear. (Meyrowitz 1985:3) Regardless of how the relation in fact is perceived, as long as the relation remains vague, ambiguous and under-developed, critics will object on grounds of determinism. However, as it turns out, Meyrowitz' own, rather more complex, analysis of how communication technologies influence society does not escape determinist implications either. Not by ignoring the specifics, but by overstating the impact of the sheer presence of technology on society. This, I claim, is due to a less than satisfying account of how a society puts a certain technology into practice.

What Meyrowitz finds missing in McLuhan is a clear explanation of why people behave differently when surrounded by different kinds of technology. Although, in Meyrowitz' view, McLuhan correctly points to the need to study the communication technologies, his analyses "do not form a clear set of propositions to explain the means through which media reshape specific behaviours". (Meyrowitz 1985:22) But this is precisely what is required if medium theory is to show how communication technologies in fact do influence society. According to Meyrowitz, what communication technologies do is to create new situations for behaviour, especially concerning the relation between what he

calls 'backstage' behaviour and 'onstage' behaviour. (Meyrowitz 1985:29[1]) The theatre-metaphor is deliberate; in behaving publicly, we perform certain roles that are in accordance with public expectations. This means that we do not only play a role when we pretend to be something we are not; also a real doctor plays the role of 'a doctor', nor that our public life is a charade. Performing a role is a necessary part of any social behaviour, and each one of us puts on a number of onstage behaviour during the day: the concerned parent, the ill-tempered boss, the well-behaved driver, the curious shopper, the romantic boyfriend, etc. etc.

Seeing our public behaviour in terms of onstage behaviour emphasizes that, "role performances are necessary for the ordinary and smooth flow of social life. In any given interaction, we need to know what to expect of each other". (Meyrowitz 1985:28) This is at least handy because it "may take years to know a person fully, to understand the true complexities of a particular social situation, or to learn how a given group of people function in a specific social institution or establishment. And yet most social interactions require instant judgments, alignments, and action." (Meyrowitz 1985:29) Consequently, we use roles (and corresponding behaviour, clothes, gestures, and tool use) to ensure that our daily onstage social behaviour runs smoothly. There is an interesting parallel to Heidegger's analysis of readiness-to-hand here. Heidegger underlined how the flow of the practical activity stops when the tool breaks down (cf. Chapter 3). Meyrowitz seems to say that the flow of social behaviour also would break down if the roles were not performed in line with public expectations; instead of being tools for social interaction, social behaviour that does not conform to expectations elicit wholly different social discourses than usual encounters.[2] In addition, if we recall the discussion of *Das Man* from the previous chapter, it is likely that if we did not perform our behaviour along such lines, we would not know how to behave at all.[3]

What takes us from backstage to onstage behaviour (or from one onstage behaviour to another) is down to what arena we operate in. For instance, in entering the staff room, a teacher goes from an onstage behaviour to a backstage behaviour, where instead of being surrounded by pupils he is among fellow teachers. The teachers are 'hidden' from the

[1] Meyrowitz borrows both the expressions and the concepts from Goffman (1959), but elaborates on these in ways that I will go into. (1985:46ff)

[2] Please bear in mind that this is not meant to be read like a plea for conformity; challenging social roles of course can have a value in of its own.

[3] Such kind of analysis is not to be found in Meyrowitz, although he hints at something close to it, see 1985:31.

pupils, and can behave differently, less 'teacher-like', and also talk about the pupils in different terms than if any pupils were present. The same goes for all professions where one meets clients/customers/relations but have an arena to retreat to, with or without colleagues. Such examples show that there is no one-to-one correspondence between onstage/backstage and public/private. The teacher in the staff room still performs an onstage behaviour compared to, say, being in the presence of his closest family, but in the situation of being at school, the line between onstage and backstage goes at the entrance to the staff room. This goes to show that what constitutes the arenas in which we perform backstage or onstage behaviour is *who it is that has access* to our behaviour. (Meyrowitz 1985:33) For this reason, Meyrowitz regards the *means for access* to be central for *whom* we are in society with, and *how* we are in society with them. Society is constituted by the kinds of interactions going on inside of it, and those who have access to our behaviours constitute those interactions, of either a backstage or an onstage kind.

The role of communication technologies here is of enabling new or redefining old arenas, for backstage and onstage behaviour, and/or introducing different borders between backstage and onstage behaviour. In the teacher example above, the teachers were physically hidden from the pupils, and this physical obstacle constituted the onstage/backstage border. However, a piece of communication technology, for instance a 24/7 webcam, breaks down such a border, giving pupils online access to what goes on in the staff room should they be interested.[1] This is why, as we saw above, Meyrowitz prefers 'patterns of information' as a more basic constitution of society than physical presence; yes, we have access to those physically present, but also those at the other end of a telephone line, or in front of a computer. As implied earlier, 'information' is here viewed broadly, as social information, which includes "all that people are capable of knowing about the behaviour and actions of themselves and others". (Meyrowitz 1985:37) This concept of information, of course, is tailored to access as a basic constituent of society, as information, through mediating technologies, can be gathered without being in the physical presence of others, or of clues of others.

> As 'information-systems' rather than physical settings, a society's set of social situations can be modified without building of removing walls and corridors… The introduction and

[1] I cannot discuss Meyrowitz' argumentation in full, but he does paint a much more complex picture of how onstage behaviours develop, the interplay between onstage and backstage behaviour, the relation between personality and various types of onstage and backstage behaviour, and so on, than I have explained here. In general, he holds that all onstage behaviour depends on a multiplicity of both onstage and backstage behaviours. (Meyrowitz 1985:50)

> widespread use of a new medium may restructure a broad range of situations and require new sets of social performances. (Meyrowitz 1985:41)

As already mentioned, Meyrowitz argues from a viewpoint where TV, radio and stationary telephones were the foremost electronic communication devices. Nevertheless, the later year's ICTs have demonstrated the validity of his claims, or so Richard Cutler argues in discussing cyberspace technologies; an argument much in line with Meyrowitz':

> First, adopting the new communication technologies results in changed social situations. Second, with the changed social context comes a widening range of possible relationships. Third, changed relationships results in new social roles. New links among society's members are unconstrained by the usual boundaries of space, place, or even time. (1996:318)

To sum up Meyrowitz' argument, new technologies create and redefine arenas for interaction. Such arenas require new patterns of social behaviour, which subsequently changes what society is and how it is constituted. Consequently, medium theory's task, to display how communication technologies influence and change society, is done by showing how communication technologies influence types of behaviour. Shared experiences, belonging to groups of varying size, once meant being in the same place, but this notion is long since obsolete; having access to experiences through mediating technologies means that others, in other places, also have access to the same mediated experiences. It is just as natural to be 'with' people that we might never even have seen, as with someone who just happens to be nearby. (Meyrowitz 1985:56f) Although this was true for manuscripts and other written and printed materials, cyberspace technologies have turned out to be extremely efficient in connecting people that have had, or want to have similar experiences. (Cutler 1996:321f) Communities abound, for good and for worse.[1]

Obviously, a very strong link between the sheer presence of the technology in question and the changing behaviour that ensue is proposed in medium theory. Meyrowitz warns, though, that the "shared meanings of situations develop over time and through social traditions" (1985:39), citing religion, social conventions and legal concerns as important in

[1] A study of how having an extensive 'net-life' influence one's self-confidence, feeling of loneliness and social anxiety compared to face-to-face encounters, concludes, rather meta-theoretically, that we now should put conclusions of 'main effects' behind us, and realize that effects of internet interactions are as diverse as the 'internet user', a non-homogenous group indeed. (McKenna & Seidman 2006:279) The reason for this is obvious, we are not passive users of the net, but "actively shape its use and influence." (McKenna & Seidmann 2006:291)

that respect. However, such aspects can only be important for an already outlined situation, that is, an already defined pattern of information flow:

> [W]hile the social 'scripts' develop through many sources, appropriate 'stages' are necessary for the social dramas to be performed. If the settings for situations merge, divide, or disappear, then it will be impossible to maintain the old definitions of the situations. (Meyrowitz 1985:39)

In other words, constituting the situation, the points of access, comes prior to, or at least, has priority to, the actual behaviour being performed in them. This makes, the way I see it, Meyrowitz as much of a determinist as McLuhan. Even though his analysis is more comprehensive on how communication technologies influence society through behaviour, Meyrowitz still considers the sheer presence of technologies to be the eliciting point of departure in social change.

Although reluctant to draw the same optimistic conclusion from the new access afforded by electronic communication technologies, Danish social scientist Lars Qvortrup basically accepts the same definition of society as Meyrowitz, that society is founded on communicative interactions so that we are, in a sense, in society with those we are able to communicate with. (Qvortrup 2003:12, 126) Logistical and other practical problems aside[1], 'access equals communication' is in Qvortrup's mind a naïve notion of what communication involves. Contrary to what Meyrowitz (and Cutler) seems to believe, communication is not achieved through access (or, in Qvortrup's term, 'observation') in itself; availability does not necessarily mean interaction, and even less, successful or friendly interaction.[2] Availability might be a *necessary* part of communication (and therefore, also for 'society'), but is far from *sufficient*.

Qvortrup finds in such theories[3] a view of communication that is similar to the mathematical theory of communication of Claude Shannon and Warren Weaver. As a

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[1] The huge growth in access due to, for instance, the Internet, leads to the very practical problem of how to deal with all the potential information (what is spam, what is important and what is merely noise). Dertouzos, for instance, likens to e-mail to opening the front door to one's house and inviting everybody in whenever they wish with a promise to see and hear them out. (Dertouzos 1997:91) Qvortrup dubs this the complexity problem, which displays the two-sidedness of electronic communication technologies, as they are both the source for the complexity problem and the remedy (spam-filters, better search engines etc.). (2003:9) Tenner would call the complexity problem a revenge effect of the technology (cf. Chapter 4). Dreyfus presents a pessimistic view on the complexity of the World Wide Web. Organizing it through hyperlinks will make it impossible (in Dreyfus mind) to find the most relevant, most useful and the best information because this way of organizing information will eventually make us loose the abilities that enables us to find it presently, namely the ability to recognize relevance. (2001:8ff)

[2] And I will not even discuss social and political problems of cross-cultural communication, which of course is another aspect when all the world, in principle, is available to us through electronic communication technologies.

[3] Qvortrup does not discuss Meyrowitz, but mentions Negroponte and Dertouzos.

model of human communication, this theory is disapproved.[1] However, as a model for what technical challenges one faces in building communication *systems*, it is well suited, as it outlines the basic components of such a system (source, transmitter, channel, receiver, destination) and the potential obstacles in getting a *signal* as unharmed as possible from one end to the other. For technical systems, the main challenge is about *noise*, interferences on and distortions of the signal as it travels from the transmitter to the receiver. For human communication, the challenges are of a different kind, and are related to that of understanding, not of transmission. If we are to interact, mediated or not, it is crucial that those who communicate understand each other. I can hear or read what another person utters perfectly without this guaranteeing that I understand him; understanding is not something that is transferred from one 'head' to another, neither is it re-constructed in the other's head if only he can hear or see the words (and gestures) right. If communication were guaranteed through access, there would be no misunderstandings and no ambiguities in face-to-face encounters, right? Obviously, that is not the case; communication, and understanding, is an *effort*, also for non-mediated communication. There is a long tradition in communication studies for criticising the transfer model of communication, and I shall not re-hash neither the theory itself nor the criticisms,[2] but a few remarks seem appropriate as they turn on what I said above relating to the interdependent view of communication technologies.

Qvortrup finds an alternative model of communication in what James W. Carey has dubbed the ritual view. Rather than being about transmission, or even about understanding *per se*, communication is considered to be about the establishing and stabilizing of a shared context, and ultimately about the maintenance of society. It is directed "not [towards] the act of imparting information but the representation of shared beliefs". (Carey 1989:18) Accordingly, the term of communication is less linked to the concept of transmission than it is to "terms such as 'sharing,' 'participation,' 'association,' 'fellowship,' and 'the possession of common faith.'" (Carey 1989:18) Communication, therefore, is not so much about conveying new and surprising information, as it is about the upholding of *commun*ity. This is supported by research indicating that communication usually does not involve new information, or the enlightenment of listeners/readers, but is about the creation and reinforcement of already existing relations. "The media thus

[1] Famously, this is a theory that grew out of two separate papers, Shannon 1948 and Weaver 1949, and is not a jointly proposed theory. As a theory of human communication, Weaver is closer than the more modest Shannon is.
[2] These can be found in most introductory books to communication studies such as Fiske 1990.

function as did gossip in the traditional local community: They increase the probability of successful communication in society by increasing its redundancy." (Qvortrup 2003:126) In this sense, communication has *phatic* qualities: it is more about the reaffirming and strengthening of communicative ties than enlarging the potential arena for communication. (Fiske 1990:14) Of course, this is not to claim that the *phatic* dimension is *all* that communication is, but this aspect should not be underestimated, as it in turn is highly important for the success of other forms of communication through the same medium in that it involves generating trust in and closeness to those one interacts with. Furthermore, phatic communication increases one's competence *and* one's confidence in the medium itself, which has effects for other uses of the medium. Thus, other forms for communication (traditionally easier classifiable as just that), from the spreading of news big and small, updating about one's projects or interests, or, to use a recent example from Barack Obama's groundbreaking use of the Web in the US election 2008, to entice people to participate in the election,[1] are facilitated. Contrary to Dreyfus' complaints that relating to people merely through the Web endanger our sense of commitment towards one another (2001:73-89), the ritual view of communication implies that such commitment very well can arise from interacting with others through the net, for instance through online communities such as Second Life, or online games such as World of Warcraft.[2]

Clearly (although Qvortrup does not make a notice of this), the ritual model is not so much about the communicative act as such, but concerns a level above actual acts of communication; it is about the function of communication. Consequently, the transmission model is not refuted by the ritual model (Carey 1989:21f), but designates a subset of the actual communicative actions that are performed. However, the ritual model does imply a different approach to the communicative acts as well, as it calls attention to the fact that the origin of communication is outside the actual act itself, and therefore also outside the need to convey something. What does that mean? Walter Ong puts it this way: "In real human communication, the sender has to be not only in the sender position but also in the receiver position before he or she can send anything… what I say depends on what reality or fancy I feel I am talking into, that is, on what possible responses I might

[1] http://www.guardian.co.uk/world/deadlineusa/2008/nov/05/uselections20082 [02.01.2009]

[2] Considering the recentness of such phenomena, it is only to be expected that one is concerned with the potential dangers connected with them, for instance the impact of overplaying on school performance. (http://www.dagbladet.no/kultur/2008/02/06/526089.html [02.01.2009]) However, research about positive social aspects of this kind of 'online life' is also emerging. (Ducheneaut & Moore 2004, McKenna & Seidman 2006) See also http://www.forskning.no/artikler/2008/mai/182305 [02.01.2009]

anticipate." (1982:176) We take into consideration personal (adult, child, well-read, illiterate, shy, outgoing, etc.) and social (what kind of situation) aspects, not to mention all those non-verbal aspects accompanying our *communiqué*. In a sense that is more than trivial, we are already in a communicative situation with the other(s) before any words are uttered at all: "I can be in touch perhaps through past relationships, by an exchange of glances, by an understanding with a third person who has brought me and my interlocutor together, or in any of countless other ways." (Ong 1982:176) In this sense, words modify the communication rather than create it. Even an author writing a text must fictionalize readers. If not, Ong asks, why write at all? (1982:177)

With the ritual view in mind, the sheer presence of communication technology only marks the beginning of communication. Communication as an action is a virtuality of the technology, but its actualization is not by that guaranteed, as we now have seen. Consequently, we cannot say that we are in society *as a result of* communication technologies, and for that reason neither say that society changes *because* of that technology. As Qvortup puts it, "the mass media's common world is not constructed 'by' the media and then imposed on recipients. It is formatted in a network of public actors, media technologies, media institutions, and audiences, in which all parties contribute actively". (2003:126) This, however, should not be taken as a clue to just brush the technological aspect aside; the presence of communication technologies is highly suggestive of the ways communications are performed, and, as we have discussed in this chapter, in whom we can communicate with. But being able to communicate with different persons than the generation before does not necessarily mean that the processes and activities constituting communication are different with respect to how understanding is achieved and what the communication does to us, as individuals and as society.

In closing

In this chapter, I have tried to convey the sense in which communication technologies influence the *possibilities*, the *constraints*, and the *manners* of how we relate to each other. I have argued that communication technologies afford a certain society rather than determine it. Technology, intersubjectivity and selves are interdependent, they constitute a system; change one of the parameters and you will create the *potential for* a change in the overall system. This could have been explored from various perspectives, of course, the reason why I have discussed how changes in *communication technologies* affect such changes

to the system can be seen as accidental. Consequently, to emphasize this one last time, this is not to say that the technology determines the shape of society, but it is a way of mapping the changes in society related to the technological presence.

CONCLUDING REMARKS

The concept of technology developed in this thesis primarily concerns the opening up of possibilities through living in a technologically permeated lifeworld. The title of the thesis, 'The Primacy of Action', points to its two main findings: Firstly, that the primordial structures in all our relating to the lifeworld must be understood in terms of embedded technological actions (cf. Chapters 3 and 4). Secondly, that the *possibilities* for actions granted through technological presence – what amounts to our *practical space* – co-constitute what we are, as individuals as well as social groups (cf. Chapter 6). With respect to the constitutive role of technology, I have made no distinction between simple tools like chairs and advanced technologies like genetic engineering. However, even if general, the concept of technology advanced here avoid the claim that there is a uniform *essence* to technology. Contrary to the dilemma emerging from the technological analysis of 'the later' Heidegger (cf. Chapter 1), my concept does *not* prevent us from "discriminat[ing] between electricity and atom bombs, agricultural techniques and the Holocaust". (Feenberg 1999:187) Indeed, the concept here emphasizes precisely the manner in which the *specifics* of particular technologies *make a difference*. It is only by virtue of the way that particular technologies enter into and co-define concrete use-contexts that technologies take on their co-constitutional role. Therefore, the concept of technology proposed here

is, in a certain sense, 'empty' in that it is concerned primarily with the general constraints and possibilities that come with technological presence. As such, it sets the conceptual and philosophical framework for further empirical investigations into the workings of particular technologies. The 'emptiness' of this concept should not, however, be taken to mean that technologies are in any way transparent. Quite the opposite, one of my main points is that technologies *have real societal impact*, while at the same time underlining that they *do not determine* the trajectory this impact might come to have.

This is the sense in which the thesis answered the third research question, concerning *how* technology has an impact. Introductorily, this was posed as *the specific question* (cf. page 7). In so doing, I have also answered, implicitly and affirmatively, *the second, more general question* (cf. page 6): technology is indeed taken to have a philosophically interesting impact on society and us. Technology affords actions, affords possibilities, affords problems and, through that, affords a lifeworld – but never in-itself. Constituted by technology, individual motives, beliefs and competencies, and filtered through social praxes, ethics, laws and values, technological actions articulate a lifeworld; a world of both 'always already' structures of meaning and potentials or new structures of meaning. We cannot but relate to the lifeworld, and through our actions, we cannot but change it. Technologies co-constitute possibilities in virtue of co-constituting what 'always already' is.

It is my contention, then, that the way we see our future possibilities, both for ourselves as individuals and for ourselves as social beings, is profoundly influenced by technological presence. Answering the fourth research question, *the reflective question* (cf. page 7) concerning the relation of technology to our self-concept, I claim that we are primarily constituted by what we can become. We are not only what we have been and presently are; more critically, we are what we envision ourselves to become. In other words, technologies co-constitute us by influencing both our actuality and our possibilities. In this way, the specific and the reflective questions form a unified approach to the question of technology rather than two separate investigations.

The way technology has been conceptualized in this thesis, then, emphasizes the importance of doing empirical investigations into particular technologies. Such an empirical study is, however, not what I have provided. This thesis develops, rather, a conceptual framework for studies of the empirical kind, and thus serves as a *methodology*

for these kinds of studies. As such, the concept of technology developed in this thesis illuminates the research question that served as the thesis' point of departure (cf. page 6). Investigations into the societal impact of particular communication technologies easily appear determinist if not anchored in a methodology that explicitly rejects such determinism (cf. Chapter 7). But this notwithstanding, such a rejection has to be undertaken with the greatest of care, so as not to imply that technologies have no philosophically interesting impact at all (but is, at best, a mere indistinguishable part of a larger social development). Instead of tracking down the prime causal factor in technologically related social changes, an adequate approach to any particular technology should frame technology and society as interdependent. The aim of this thesis has been to provide such a framework.

A further perspective

The discussion of the constitutive and articulative role of technology touches upon a more general question of meaning, especially through the two-fold manner in which we find ourselves: thrown into an 'always already' structured lifeworld and at the same time projected towards the horizons of open possibilities. Meaning and potential for meaning are key notions in our general being in the world, not just concerning 'technological being'. Focusing on any political, social, economic and religious aspect of our lifeworld will therefore involve this two-foldedness. In this sense, language, non-technological praxes and social institutions are also *organizing aspects* of our lifeworld, that is, aspects that 'always already' articulate the lifeworld according to their own specifics, and through that, afford re-organizing measures. This thesis, therefore, also contributes to a more general investigation into meaning *per se*.

More precisely, it does this through its concern with *understanding*; with the way that we create the meanings through which we navigate in our thrownness. Understanding is not the result of a sole cognitive or interpretational act; it emerges from our embedded actions. In our embeddedness, understanding depends on external structures of meaning, structures we use to scaffold the way we perceive and comprehend the world. Understanding thus emerges from an interplay of internal cognitive acts and external meaningful structures. Only meaning can generate meaning. In this sense, technology does not only influence meaning – it *is* meaning.

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