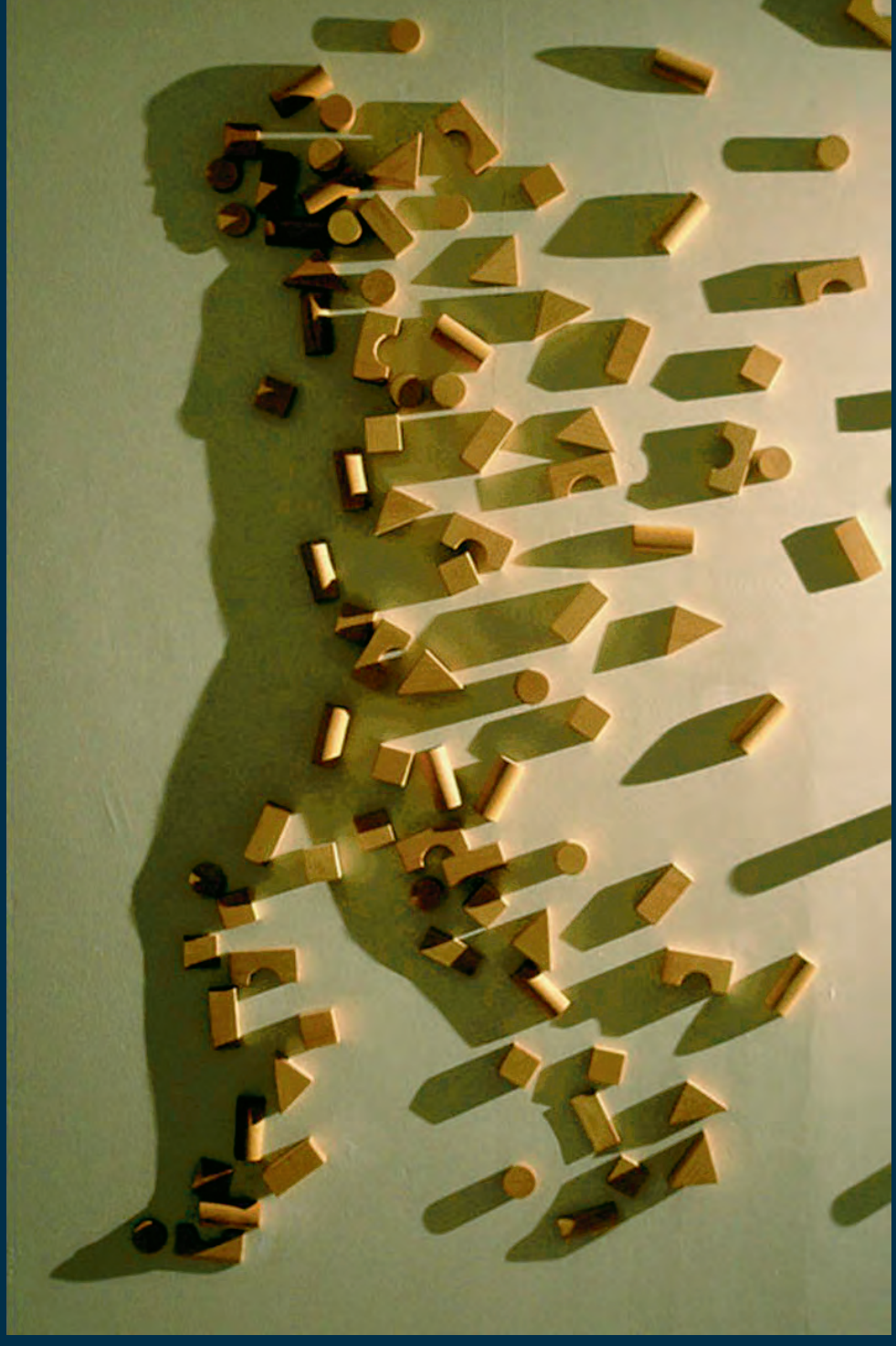

Steven Dorrestijn

The design of our own lives

Technical mediation and subjectivation after Foucault

The design of our own lives is about how technology guides and changes us. The book brings together converging trends in design theory and philosophy of technology concerning the mutual adaptation of technologies and humans. The aim is to contribute to the understanding of the impact of technology on us, to consider how this knowledge can be applied in design practice, as well as to discuss ethical questions about behavior guiding design.

The book begins by discussing the themes of user guiding and changing technology in relation to design for usability. Next, the project is compared to the tradition of socially engaged and utopian design. The central part sets out philosophical and ethical research on the interrelations between humans and technology.

The work of the French philosopher Michel Foucault is of key importance to this study and is used for elaborating a framework of 'technical mediation and subjectivation'. In this approach, technology is not set in opposition to human freedom and morality; rather coping with the influences of technology is seen as part of becoming a moral subject.

The ethics of technology developed after Foucault focuses on care for the quality of our interactions and fusions with technology. Hybridization is central to the approach: it is not to be rejected, neither is it the greatest danger, but it does deserve the greatest care. We are called upon to care for the design of our own lives.

The book contains a variety of examples. A case study about the RFID public transport e–paying system in the Netherlands (OV chip card), for instance, serves to illustrate how social and ethical aspects — from usability to privacy and security issues — can be assessed from the perspective of product impact on users.

Steven Dorrestijn (born 1977, Netherlands) graduated in Philosophy of Science, Technology and Society at the University of Twente in 2004. He also followed a two–year program in mechanical engineering and courses on the history of design. In 2005–2006 Dorrestijn studied philosophy in Paris with the support of a grant from the French Government. This PhD research was conducted at the University of Twente, Netherlands, from 2007 until 2012.

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The design of our own lives
Technical mediation and subjectivation after Foucault

THE DESIGN OF OUR OWN LIVES
TECHNICAL MEDIATION AND SUBJECTIVATION AFTER FOUCAULT

DISSERTATION

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Technical mediation and subjectivation after Foucault

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Dedicated to my parents

Contents

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This thesis is for my parents.

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Chapter 1
Product impact, usability and ethics

1 Introduction

Technology is everywhere. It is hard to imagine our lives without all the devices, machines and systems that we encounter every day. At the same time it is hard to imagine the exact role and importance of these technologies in our lives. This study investigates the social and ethical significance of technical products. How do technologies influence the way we live, change our self–perceptions, modify the way we interact with others, affect or change our notions of privacy and freedom? These questions are both questions of design methodology and of theoretical, philosophical reflection on technology. The shared interest of both fields is the problem of how technology and human beings are best adapted to each other. This research intends to theorize the social and ethical significance of design and to provide theories and tools for advancing the practice of social engagement in design.

Social engagement in design is the domain where design and philosophy of technology naturally come together. That is what the title of this study, *The design of our own lives,* wishes to express. The phrase, *The design of our own lives,* has multiple meanings. Firstly, it expresses that our existence is conditioned and in that sense our lives have a structure, a design. Secondly, also in a literal sense our lives are full of design, given all the products that we are surrounded by and that support and shape our way of living. Thirdly, *The design of our own lives* expresses that we ourselves give shape to our lives and in that sense we design our own lives. This research covers all of these meanings. It is about product design, the making of all those things that we have surrounded ourselves with. It is also about the philosophy of technology, aiming to understand the structure of our human existence as it is bound to technology. And it is about ethics, the question of how to care for the design of our lives.

This research project brings together converging trends in design theory and philosophy of technology concerning the mutual adaptation of technologies and human beings. In design research there is a trend of shifting the focus from technology to the user and how users use and accommodate technologies. In theoretical approaches to technology, in fields like philosophy, history and anthropology, how technology has deeply marked and transformed our way of

living and our very existence is often the focus of study. The goal of this research is to contribute to the understanding of the impact of technology on people as well as to consider how this knowledge can be applied in design practice.

This investigation was embedded in a larger project in which industrial designers and design theorists worked together to develop methods for 'design for usability'.[1] In that context, the question was if knowledge about the impact of technology on humans could help to anticipate and avoid problems of usability and technology acceptance, by designing products so that they deliberately guide and change user behavior. Both from the perspective of design and from a philosophical perspective, the theme of behavior–influencing technology, however, raises pressing questions of a broader social and ethical nature. Is it a task and a responsibility of designers to meddle in how people live and use technical products? In what ways and to what degree is human existence formed by and dependent on technology? Can it be morally approved to influence humans by means of technology? If people's behavior is influenced by technology, can they still be held morally responsible? If, as it seems, human existence is in fact profoundly interrelated with technology, what does this imply for our understanding of morality? The simple project of integrating knowledge about the impact of products on users in methods to improve usability is therefore wrapped in the larger philosophical question of how the relation between human beings and technology can be understood and improved.

This inquiry develops in three steps. In this first chapter I start by mapping the problem field. The leading questions are: what is meant by product impact on user behavior and how could this be relevant to design practice for improving usability? I will also discuss how this project approaches the theme of social engagement in design and philosophical and ethical questions concerning the relation between humans and technology. In the second step, in chapter two, I further explore the aspect of social engagement in design by considering how movements of utopian design and engineering deployed technology to improve society. Ultimately, the theme of user guiding and changing design brings up profound philosophical and ethical issues concerning freedom and the dependency of humans on technology. This third step of my research is carried out from chapter 3 onwards, where I will work towards a framework for 'technical mediation and subjectivation'.

Starting from the mundane question of how to use philosophy for improving usability, therefore, this study is primarily a contribution to the philosophy of technology, and especially to the study of technical mediation — the ways in which technology mediates human existence. To this research field my research adds the focus on subjectivation, meaning how we become subjects, how technologies change us, and our self–understanding. In the endeavor of understanding and framing the effects of technology on us, research on technical mediation has focused mainly on the side of technology. This was important as a compensation for a bias in philosophy and the social sciences towards humans,

[1] See: www.designforusability.org

their freedom and agency, and the consequent neglect of the significance of technologies. Technical mediation research focused on technology, to such degree however that humans as users and designers of technology were lost from sight. I wish to bring our own, human, interests back to the fore. This is not to say that instead of focusing on technology, the philosophy of technology should focus on humans again. To the question of 'what technologies do', I just want to add the significance of that question for us: What are we going to do with such kinds of knowledge? How should we integrate an awareness and knowledge of the effects of technology on us in our ways of designing and using technologies?

Of central importance in this study is the work of the French philosopher Michel Foucault (1926–1984). There is an important shift of perspective in Foucault's work. First Foucault stressed how people's lives have become more and more governed and fashioned by the growing network of institutions, regulations, and technology. Later he complemented his earlier approach by investigating how people govern and fashion themselves by actively coping with the influences from this network. Foucault has thus developed notions of the subject, freedom, and ethics which are highly relevant for ethics in contemporary technological culture. I will refer to Foucault when combining the questions of how technology mediates our existence with the question of subjectivation, how we cope with the influences of technology and how this is relevant for how we are subjects. At stake in this approach is not so much the issue of how to retain human freedom by rejecting any technical constraints, but how to shape and practice concrete forms of freedom by deliberate design of constraints. While my research draws on Foucault's work for the purpose of elaborating a framework of 'technical mediation and subjectivation', this study also can be read as a contribution to the scholarship of Foucault's work. This research explores the relations between Foucault's later and earlier work and brings out its relevance as a contribution to the philosophy and ethics of technology.

As an introduction to this study, in the remaining part of this chapter I will provide an overview of the concepts of technical mediation, usability, and user guiding and changing design by discussing the history of the telephone. After this, I will discuss how usability can be understood in the context of technical mediation and the social role of design.

2 How technology guides and changes humans: The telephone

The history of the telephone is a nice case for showing the influence of technology on culture and on individual people's behavior and lives. The telephone resulted from experiments in the 1870's to further develop the telegraph. Instead of only Morse signals the telephone was able to transmit human speech. At first the device was meant for serious, business communication, the function that the telegraph had been used for. However, network exploiters were soon confronted with an unexpected and undesired use of the telephone, namely for chatting, social talk. This use option was never considered by telephone developers, but was discovered, invented by users in interaction with the device itself (Lintsen & De Wit 2005). Similarly, during the past two decades the introduction of the mobile phone has again provoked new and often not foreseen ways of usage. Seduced by the connectivity offered by mobile phones,

people now appear to have a need for being continuously accessible. And while people are making phone calls in public spaces everywhere, there has arisen a need for new rules and etiquette, which we see taking form only gradually (cf. Sørensen 2005).

The history of technology shows that new inventions hardly ever deliver straightforward solutions for existing human needs. Products often induce new needs and provoke new use practices. Such effects of technology on people's behavior and preferences can be understood with the help of the concept of 'technical mediation' from the philosophy of technology (cf. Verbeek 2005). In common sense a technological product is a means for achieving more effectively a certain goal. From this perspective, technology would not change our goals, but only help us to do more efficiently what we always already wanted to do. However, historical, sociological and philosophical studies of technology show that technology changes human ways of living more fundamentally. Technologies have an impact on us that goes beyond providing us with ways of doing more efficiently what we always already wanted to do. The mobile phone is not simply the currently best available technical solution for an eternal need for communication. Instead, technologies change our perspective, arouse new needs and set new social norms. Technology guides and changes users.

Telephone innovation continues to mediate our behavior and way of being. Today, most mobile phones are equipped with a camera and have Internet connectivity. Some social effects of the smart phone have been adequately remarked and used by the makers of a series of TV commercials for a Dutch operator. In one commercial, children are playing hide and seek. Then, just by calling her up, a little boy has a friend come out of her hiding spot with a buzzing phone and a look of dismay. In another commercial a man is very enthusiastically studying the menu on display outside of a restaurant, but then turns away disappointed when his wife reads to him the bad reviews she has quickly accessed on the Internet. The ads conclude: 'The possibilities of today — in our own ways we all benefit'. These commercials show again that the new modes of use are not necessarily simply solving existing needs, but instead that new products have effects that take us by surprise. These effects of technology, of not simply serving our purposes but also changing our preferences and behaviors, are examples of what the concept of 'technical mediation' intends to express.

Future innovations will again mediate in new ways how we will use the phone and for what purposes. The phone increasingly functions as an additional electronic sense organ that allows us to record and share our experiences on the Internet. The fascinating consequence is that people do not only perceive what happens around them, but they can progressively share in the experiences of anybody else's world. This has many implications concerning both usability and ethics.

A usability issue is that people can never use all the features that are technically possible. Miniaturization, the increasing number of functions and the recombination of what were previously different devices, leaves many users confused. The challenge for designers is therefore not only to aim for technical advancement and perfection, but even more so to conceive of sensible, realistic use scenarios for the products they design. These scenarios can help to decide which features should actually be integrated in a device, how the menus should be arranged, how the buttons must be designed, and so on. These are all design choices that can be understood in terms of behavior guiding design: specific technical features can guide or mislead users in using products, and advance or frustrate the acceptance and accommodation of technologies. The concept of technical mediation promises to be useful for conceiving use scenarios and designing technology that, as far as possible, guides users.

Also for exploring the broader ethical implications of the development of the telephone the perspective of technical mediation can be of help. For example, the fact that mobile phones allow everybody to record everything they see happening around them and upload it onto the Internet, cannot but have enormous implications for the ethical analysis of surveillance and privacy. Most of what has been said and written about limiting the application of CCTV (surveillance cameras) is rendered obsolete as soon as individuals with cell phones can easily record everything. When I brought this up during a political debate on CCTV and privacy legislation, everyone thought it was an important point.

It also appeared a confusing point, and therefore it was decided to leave it aside and continue the discussion about principles and laws for surveillance cameras. This incident is revealing in that it shows how ethical discussions often get circumvented in practice. Fundamental discussions may never reach a conclusion, while they will simply fade out when the problems that they refer to have disappeared or stabilized in practices of use. Often such issues are settled by practical experimentation and not by reaching a shared conclusion by means of a fundamental ethical discussion.

The example of the telephone shows that technology is not simply a solution to existing human needs, but that technology also creates and changes needs and activities. People do not only pick up technical tools to do what they always did, but this time more efficiently. In the course of adopting new technologies people start doing and wanting to do other things. People are changed by technology.

The reconfiguration of behavioral routines and preferences by technology is an important topic in research on technology in such fields as philosophy, psychology and history too. To date, design practice has made little use of this knowledge, but there is a growing awareness of the possible advantages of combining research fields. The recombination of both perspectives is innovative and offers promise for enhancing human–technology interaction and usability, but proves at the same time very challenging for ethics.

3 Usability in design theory

Usability is becoming an ever more important issue in design theory. This research on product impact on human behavior is meant to contribute knowledge about behavior influencing effects of technology to the improvement of methods of design for usability. At the same time it is a research goal to investigate the ethical implications of behavior steering design. The two, usability and ethics, are however not unrelated. The question shared by the concern for usability in design and ethics is how humans and technology can be adapted to each other in a good way. The difference is that in design theory there is a tendency to arrive at measurable concrete criteria for the convenient gearing of humans and technology, whereas ethics is concerned with general principles and values with respect to the relation between technology and humans. I will briefly discuss how usability is defined in design theory as a complement to technical functionality of products and how definitions differ from narrow to broad.

In answering the question what makes up the usefulness of technologies Grudin (1993) has made a helpful distinction between utility and usability. Utility designates the technical functionality, whereas usability considers the actual use of products which are technically all right. For design practice the difference is helpful. In certain stages in the design and manufacturing process technical functioning is the centre of attention. Coining the notion of usability helps to refocus attention on the 'non–technical' aspect of the usefulness of products. What naturally happens in a design process is a chronological division: technical functioning first, corrections and adaptations for usability later. Usability experts call for as much integration as possible of usability concerns in the overall design process. This is necessary, as many engineers have a hard time addressing usability issues, which they consider to be soft, contingent and uncontrollable.

At a fundamental level, however, the distinction between the technical functioning and the usability of a product is not evident. The hard and the soft side of technology are both just as important. If a product doesn't find any practical use, it is of absolutely no relevance that it is technically perfect. But of course, it is equally clear that usability means nothing, if there is no functioning product. Technical functioning and usability need each other. It is impossible to decide which comes first and which follows. The specialization of engineers in purely technical skills can sometimes be effective because of the practical demands in the design process, but it is questionable in general. From a general perspective of technology as tools for use by humans, one could conclude by saying that designing a practice of use, an activity, is the final objective of which technology is an element.

3.1 Narrow and broad definitions of usability

Usability should be considered as an intricate element of

a good, useful product. How is usability being defined? Following the much referred–to ISO definition (International Standardization Organization) usability means 'the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use' (ISO 9241–11; cf. Van Kuijk 2010, 3; Jordan 1998, 5). This definition narrows down the application scope of usability by demanding a specification of users, goals and context of use. This seems convenient for application of the concept in a design context where it is standard procedure to start by analyzing and specifying the requirements for the product. Comparing the actual use of the product to the specifications renders a degree of achieved usability. But, is this engineering conceptualization sufficient? Many usability problems are caused by the fact that products are used in unexpected ways or by people who do not belong to the intended target group. This suggests a need for a broader definition of usability.

The ISO definition contains three criteria for evaluating usability: 'effectiveness', 'efficiency' and 'satisfaction'. Effectiveness refers to the technical functioning. Efficiency designates the amount of effort a user needs to accomplish a task. Satisfaction denotes a more subjective experience of comfort accompanying the use of a product (Jordan 1998, 5–6). If it is taken seriously that usability and technical functioning together define good technology, than usability is a basic function of the product. It hardly makes sense to say that a product functions well, but scores low on usability. If usability requirements are not fulfilled, a product does not function properly. Therefore, effectiveness is not enough to define usability, so what else is needed? The ISO definition adds efficiency and satisfaction. In particular the notion of 'satisfaction' allows for a broader understanding of usability, with less specified goals and practices of users. One could then say that a product gives evidence of usability if it causes satisfaction while used for any kind of purpose. It is clear however, that in this case it becomes impossible to measure the effectiveness in fulfilling a task, because there is no specified goal anymore. The same counts for the provision of 'pleasure' as another candidate goal of defining good technology, which was proposed by Green and Jordan (2001).

Even if the narrow ISO definition, which promises possible quantification of usability is referential in design theory, there is also an awareness that usability should be given a more broader meaning related to the adoption of technology.

3.2 The diffusion and accommodation of technology

The fact that product functions or use situations are not stable may be at the margin of thinking about usability in design theory, but it is an important concept in historical and sociological research into the development and diffusion of technology. Historian Wiebe Bijker, for example, has promoted the notion of 'social construction of technology', stressing that technologies often only gradually get a more or less stable definition and function under influence of different social groups of users during a period of early adoption (cf. Bijker, Hughes & Pinch 1987). Stewart and Williams (2005) have coined the term 'innofusion', which also expresses the idea that the phase of technology diffusion cannot be seen apart from the phase of innovation. Lastly, by addressing 'dynamic use situations' in relation to design methodology, Mieke van der Bijl–Brouwer acknowledges the difficulty of specifying use situations from a designer's perspective (cf. Bijl–Brouwer, van der & Van der Voort 2008).

These discussions of usability, similar to the discussed case of the telephone, support the idea that the use situations that engineers need to specify in order to decide on the best design solution, in reality have a dynamic, changing character. It seems therefore in accord with the process of technology adoption to broaden the narrow ISO definition of usability. The question of whether a product fits the user's needs and capabilities is related to the question of how a product fits with the user's way of living in society. Usability in this sense is not just the rate of success of use following the design specifications, but refers to the possibility of accommodation of products by consumers into their lives in meaningful ways.

4 Design for guiding and changing users

In order to apply knowledge about product impact on user behavior in design, this knowledge needs to be translated from the academic disciplines where it was developed to practices of design. In this section I will introduce some relevant approaches of behavior influencing design and attempts at a translation to design methodology. Next I will discuss the ethical objections faced by deliberate application of user influencing design.

The majority of studies into the user guiding and changing effects of technology, such as the case of the telephone, have been carried out by historians, philosophers and anthropologists. For example, Langdon Winner (1986) revealed how the overpasses to Long Island were intentionally designed very low by the city planner Robert Moses to keep away busses. In this way the overpasses acted as a vehicle for Moses' political intention to keep away poor, black people. Winner used this as an example to show that 'artifacts have politics'. Vilém Flusser also demonstrated that design can constrain other people's actions. Designing means throwing 'obstacles in other people's way' (Flusser 1999, 59). Bruno Latour saw such behavior constraints by technical products as 'delegated morality'. Latour even suggested that a better understanding of the moral significance of things would solve the problem of the decline of morals in our post–modern culture. Behavior mediating things are the 'missing masses of morality' (Latour 1992). Latour's demand for greater awareness of the way we are delegating action to technologies was directed at sociologists, but seems equally relevant for designers (and architects).

In the meantime, there have been several initiatives to introduce the idea of behavior guiding effects of technology into design methodology. One pioneer was Donald Norman (1988), who introduced the concept of 'affordance' (from ecological psychology) to analyze what behaviors a product affords into usability studies. Latour himself too has hinted at the application of his ideas in the design of technology, a theme that was taken up by philosopher Hans Achterhuis (1998) who elaborated on Latour's approach. Achterhuis commented that if technologies 'moralize' us then this should become an explicit design consideration. Jaap Jelsma (2006) followed up on the work of Latour and Achterhuis and conceived of a method for the re–design of products that focused on the behavior guiding 'scripts' of products. These and comparable approaches from different fields, have been collected together by Peter–Paul Verbeek and Adriaan Slob in *Technology development and user behavior* (2006). Two more recent approaches that have both met much acclaim are the concept of 'persuasive technology' by BJ Fogg (2003) and of 'nudge' by Thaler and Sunstein (2008). Researchers such as Dan Lockton (2010), Debra Lilley (2009), Nynke Tromp and myself (Dorrestijn & Tromp 2010; Dorrestijn 2009; Tromp, Hekkert & Verbeek 2011) are also active in this field of research.

The case of the telephone suggested that knowledge of technical mediation is of help for improving usability. Concerning usability in the narrow sense, technologies can be made to guide users better towards the intended ways of use. But beyond this, technical mediation research can also help to understand and improve the adaptation of technologies in society.

4.1 Moralizing technology

The application of user influencing design, however, unavoidably also raises political and ethical concerns. This can be illustrated by the call for 'moralizing technology' by Hans Achterhuis. In *The legacy of utopia* (1998), Achterhuis suggests that for shared values such as improving sustainability the 'moralizing' role of technology should be taken seriously. 'Moralizing technology' means designing technologies in such a way that they guide people toward behavior that promotes sustainability or assures safety, for example. [2]

As an example Achterhuis discusses the Amsterdam

[2] Achterhuis speaks of the 'moralisering van apparaten', the 'moralization of devices'. I adopt the rendering into English by Peter–Paul Verbeek: 'moralizing technology' (Verbeek 2011). It should however be noted that Verbeek's notion of 'moralizing technology' has a richer meaning than Achterhuis' expression in Dutch. Verbeek's notion refers to the project of designing moral prescriptions into design, but also to the idea that technologies can carry moral messages and Verbeek's notion also denotes the philosophical project of attributing moral significance to technology.

metro system (Achterhuis 1998, 368). The metro system was designed without gates at the entrance, and more generally without any facilities for ticket control. This was not a conscious intention in the design but reflected the belief in the individual's freedom and responsibility in the 1960's when the system was designed. Over time it appeared that the open entrances encouraged fare–dodging to the point that it was considered normal. For a long time making an appeal to people's moral responsibility was considered the only right measure for solving the problem. Achterhuis claims that it is important to see how fare–dodging is rendered normal by the absence of gates. Against this effect of technology it was unlikely that an appeal to responsibility could solve the problem. We should become aware of how technology moralizes people, and therefore we should moralize our technologies instead of moralizing people exclusively.

The above–mentioned attempts to translate insights about the transformative effects of technology into applicable tools for designers remain exceptions. Notions of product impact, stem largely from critical studies of technology, ranging from claims that technology deprives humans of a truly human way of being, to claims that it consolidates gender differences. The deliberate application of user guiding and changing design is far from straightforward, and faces important ethical problems and objections. From a philosophical and political point of view employing product impact has been a contested subject. For example, when Achterhuis suggested the moralization of technology, he was accused of promoting a technocracy where there is no place left for human freedom (Achterhuis 1998, 28).

4.2 The problem of human freedom

The idea of deliberately applying user guiding effects of technology appears to be a delicate issue. The recently proposed ideas by Thaler and Sunstein (2008) about how technology influences choices people make and how this could be used to 'nudge' people in the direction of desirable behavior, are very similar to Achterhuis' approach. Interestingly, Thaler and Sunstein are aware of the delicacy of behavior steering and accompany their proposal by a policy of good use. As a sort of principle they propose 'libertarian paternalism'. This concept combines the acknowledgment that design that nudges is paternalistic, tells people how to behave, but at the same time respects individual rights of freedom. Still, important questions remain. Who decides which shared values are so important that people may be nudged a little bit? And, even more pressing, how should the difference between manipulation and freedom be understood? What is a nudge that still leaves people free?

A fundamental ethical problem with product impact on human behavior is therefore the interference with human freedom. Moral philosophy has not traditionally paid much attention to the technical conditions of human existence, or at least not in a concrete way like in the philosophy of technical mediation. In common moral philosophy freedom is emphasized as a prerequisite for moral action. This renders constraining action via technical products per definition undesirable.
A more positive philosophical account of technology can be found in political, economical and legal analyses of technology. The issue then centers on whether the benefits and possible risks of technology are fairly distributed. In this approach technology is a concern for ethics but only in a somewhat indirect way. The philosophy of technical mediation and the proposals for applying user guiding effects, however, link technology and humans together in a more intricate way. Not only is the question of whether technology is well used and not just for the benefit of some at the cost of others who suffer from disadvantage. In addition it becomes a question of whether we humans are too dependant on technology, determined by it, and deprived of freedom.

4.3 The problem of too much convenience

Above I discussed reasons for conceiving of usability in the broad sense connected to technology accommodation in society and adaptation between humans and technology rather than only the narrowly specified technical standards definition. There is also a more ethical reason why the narrowing down of the notion of usability to quantifiable terms is not desirable. If it were possible that engineers specify and quantify precisely how humans and technology are best geared to each other, would that not imply a vision about the role of technology in society where chance, improvisation, playfulness are excluded? What would be the result if our wishes and preferences could be exactly measured

and technology would perfectly fit our profiled needs? Would that not be an impoverished way of addressing the adaptation between technology and users, where the active engagement with technologies would be taken away?

Albert Borgmann's 'device paradigm' may serve as an example of a philosophical analysis in this direction. In Borgmann's view modern technologies are progressively becoming easy and fast means to an end, and he refers to these as 'commodities'. The quality of structuring a social practice, or of establishing a meaningful relation between humans and nature is less evident in such technologies than in previous decades. An old fashioned fireplace structured human activities and social life, whereas a modern heating system hides itself and as such is just a device that provides warmth on demand, as a commodity (Borgmann 1984, 41). What is needed for a meaningful employment of technologies in our lives is active engagement with technologies, thinks Borgmann, and such engagement may be eliminated rather than enhanced if products always serve our needs perfectly.

This also has relevance for the project of applying user guiding design for improving usability. If one imagines a wide spread and successful application of behavior guiding technology for usability, then the adaptation of technologies for one's own purposes would be rendered unnecessary as well as impossible. This brings us back to the ethical objections, already mentioned, against the moralization of technology, where the issue was that our ideas about freedom and consequently moral responsibility are affected by behavior influencing technology. Borgmann's analysis adds that even if this influence of technology is meant to serve us and to guide us towards convenience and well–being, the question remains of whether this is how we want to live our lives and attach ourselves to technology.

5 Product impact, usability, and socially engaged design

There may be a need for a narrowly specified definition of usability in the design process, but such a definition would also obscure the social and political dimension of design. Usability is related to the broader phenomenon of the accommodation of technology in society and to the question of what constitutes a good relationship between humans and technology. This is as much a question of design theory as of philosophy and ethics. The combination with the theme of user guiding and changing design brings out this broader cultural dimension. On the one hand, it appears that the application of knowledge of technical mediation faces important political and ethical objections. On the other hand, the concept of technical mediation also shows how in the process of adaption of technology humans always give a twist to what the designers intended as the functions of their products.

If this investigation were to follow a narrow understanding of usability and product impact on user behavior, my aim could be limited to the gathering of knowledge in a kind of table: for realizing such and such behavior, we need to apply such and such technology. However, as has become clear in this introductory chapter, neither the notion of usability, nor the notion of product impact can be adequately understood in such a narrow way. While the use of a narrow definition of usability may have some merits in practices of design, it also obscures the broader processes of technology adoption that are equally important for the success or failure of products. The application of user guiding design will always raise broader questions of socially engaged design and the philosophy of the relations between humans and technology.

While the first conclusion is that exact and applicable knowledge of technical mediation for improving usability in a narrow sense is neither possible not desirable, the discussion of this first chapter is leading to another conclusion, namely of the importance and unavoidability of the social and political dimension of design. The terminology of usability in the narrow definition, leaning on the language of the exact sciences, obscures that the work of designers always interferes

with the way people live their lives. A cultural–historical approach could explicate this relation between the current emphasis on usability aspects in design and a tradition of socially engaged design where the interference of designers with the lives of people is more explicate and intended.

Indeed it is this direction that I wish to pursue further in this project. Around the notion of socially engaged design philosophy, ethics and design come together. The project of combining knowledge of technical mediation and design for usability is part of a tradition of design that is engaged with the social cause. Moreover, it appears that a program of applying user guiding design raises pressing philosophical and ethical questions. Design for usability and socially engaged design can be considered in the context of a general philosophical and ethical question of how technology and humans should be adapted to each other.

6 Thesis outline

To make the next step in my inquiry, in the next chapter I will investigate how the project of applying product impact on user behavior for improving usability compares to a tradition of socially engaged design, sometimes with utopian aspirations. This tradition of striving for social improvement by means of design will also provide examples of earlier attempts to apply user guiding and changing design. Even if not based in a well articulated body of knowledge about technical mediation, the attempt to change society by means of design implies that there must have been assumptions about the power of technology to guide and change people.

Chapter 3 is the beginning of the third and central step of my research where I will elaborate a philosophical framework for understanding the interrelations between humans and technology and the relevance for ethics. Chapter 3 discusses the relevance of Michel Foucault's work for the philosophy of technology, and I will outline how technology figures in Foucault's work. Additionally, I will introduce Foucault's work on ethics. In comparing different ethical systems Foucault studied the distinctive ways in which people consider themselves as subject of ethical principles and how they fashion themselves in practice. For analyzing this theme of 'subjectivation' Foucault uses a fourfold framework that I will employ in four subsequent chapters in my investigation of subjectivation and technology, as a contribution to a contemporary ethics of technology.

In chapter 4 will be discussed theories and figures of technical mediation which help our understanding of our hybrid mode of existence, mediated by technology. At the same time this understanding challenges most ethical theories, because the hybrid self seems in opposition with freedom as it is commonly assumed as a condition of ethics. Chapter 5 concerns the question of what kind of ethical principle could deal with the notion of a technically mediated self. I will discuss the modern moral theories of Bentham and Kant as well as Foucault's alternative of an aesthetics of existence. Chapter 6 is about ethical practices of people coping with technologies and thereby transforming their mode of being. In chapter 7 the discussion will focus on the kind of technically mediated mode of being that would be considered desirable.

In the concluding chapter, chapter 8, I will elaborate the results of the research on technical mediation and subjectivation for ethics as the accompaniment of user practices of accommodating technology and for the elaboration of a product impact design tool.

Chapter 2
The legacy of utopian design: History of social engagement in design

1 Introduction

In this chapter I will further explore the stakes of integrating user guiding and changing design in design methodology by sketching the larger historical background of socially engaged design. The chapter provides an introduction to the history of design, in such a way that the themes of technical mediation and user–centered design are paramount from the beginning. The theme of social engagement in design brings together philosophy and design. For philosophers and social scientists the chapter will serve as a sketch of the field of design, in a way that connects with their interests and concerns. For designers this will be an alternative to histories of design where historical aesthetical styles serve as the starting point.

Applying user–influencing effects in design implies that designers interfere with what users do with products. It means that designers affect the well–being of users and of society at large. Obviously it is good when designers care for the effects of their designs and the well–being of users. Still, interference of designers with what users do with products and how they live their lives also sounds problematic to modern ears. Is it desirable that designers can mingle in the personal lives of consumers? Should interfering with user behavior by design be avoided at all times, or is it a responsibility of designers? Is 'moralizing technology' (see chapter 1) a desirable and promising expression of socially engaged design, or is it a dangerous approach that threatens individual freedom and disrespects politics and ethics? When the influence of products on consumers is unavoidable, as the approach of technical mediation holds, should this aspect of design then be left to the individual designer's reasonability, or must it become a political issue? Where is the border between service and support on the one hand and paternalism or manipulation on the other hand?

To begin answering these questions, I will discuss to what degree the attempt to guide and change user behavior and society by means of design is new, and to what degree there are points of reference in the history and theory of design. This chapter therefore provides a review of some examples of strong social engagement in design and engineering. For this concise historical sketch it is necessary to choose a focus point. I have chosen to review utopian design

movements, because it is during these times that designers seem to have been explicitly concerned with improving people's way of living by means of design. I will also explore the 'legacy of utopian design' (a deliberate reference to *The legacy of utopia* by Hans Achterhuis, 1998). In what ways are the current approaches of *design for usability, user guiding and changing design,* and *moralizing technology* continuations of earlier approaches of socially engaged design?

1.1 Social engagement in design

The emergence of the design profession is closely related to industrialization and the changing manufacturing procedures (specialization and the division of labor). From the beginning, however, theory and education in design have also been informed by the social issues due to industrialization (working and living conditions of workers). In fact, theory and schools in industrial design have often been explicitly marked by social and political engagement. To make good, helpful products, and thus to contribute to improving life has always been an important inspiration and drive of engineers and designers. Technical experts, and society at large, have since the Scientific Revolution and the Enlightenment believed that progress in science and technology would inaugurate a new period in world history, solving scarcity and bringing richness and well–being for everybody. Engineers and designers believed that they, with their scientific and technical expertise, could lead society into this better future.

It is often said that the grand narratives have fallen apart since the advent of postmodernism. In this development, utopian beliefs and strivings have lost much of their attraction, or even have become suspicious. The postmodern breakdown of totalizing world pictures was a reaction to a growing awareness that modern, industrialized societies were full of rigid discipline and social repression. The emergence of enormous environmental problems brought a further shock to the belief in the wonders of technical progress. The end of utopian thinking is to be welcomed in so far as it means an end to paternalism and social repression. The equally evident and often regretted downside of the departure from utopia is that there is no longer a shared spirit that guides and nourishes social engagement.

If there still exists an ethical and political dimension to design practice, then it seems that the aims have been tempered very much. The ethical and political stakes of making technology better adapted to humans and society once meant the pursuit of a radical transformation of society. Today the interference of designers with users is limited to the concern for usability. Is this concern for usability really all that is left of social engagement in design? It seems so, if we understand usability in the narrow sense of the measure of successful use in specified circumstances. Design for usability can however also be interpreted more broadly as the care for the quality of our interactions and fusions with technology. When we become better aware of the scope of the unavoidable influences of technology on our existence (technical mediation), user research and user centered design should not be restricted to the measure of the match between existing users and technology, but should include awareness and care for how humans are changed by technology. Design is becoming the design of our own lives.

1.2 History of design

Industrial design today has many faces. Currently fashionable 'Dutch Design', famous around the world, is an example of design of utilitarian product as applied art. At the same time Industrial Design Engineering at the technical universities in the Netherlands is also flourishing. Whereas the artist designers exhibit in museums around the world, only some of their products make it to mass production for the consumer market. The industrial design engineers, less visible but larger in number, are mostly employed in industry. The field of design is therefore broad, from publically famous avant–garde design, displayed in museums, to the branch of engineering and innovation dealing with styling, human–product interaction and usability of consumer products.

This has always been the case. The historical roots of industrial design are multiple. [3]

Industrial design came into being as a distinct profession with the rise of industrial production in the eighteenth and nineteenth centuries. One root of the new profession of the industrial designer can be traced to the tradition in the decorative arts whereby courts employed artists, for example. Another root goes back to the craftspeople, who were responsible for both the design and manufacture of products. The move towards industrialization demanded a division of labor, which resulted in some people becoming specialized in design. From there, it can be argued that industrial design further developed over the last century along two interwoven lines. On the one hand industrial design sought to become a branch of engineering science, specializing in product styling and human–product interaction. On the other hand industrial design has been practiced and taught as applied art, concerned with utilitarian products.

The history of design has often been approached from the angle of art history, as a collection of emblematic designs, representing successive historical styles. The artistic avant–garde designs and designers occupy most of the space in that account of design history. In the following I would, however, like to do justice to the different historical roots and branches of design by shortly discussing both the traditions of design rooted in engineering and in the applied arts. This approach complies with the development in recent decennia to study design from the angle of the study of modern culture and the social history of technology (cf. Fallan 2010; Margolin 2002; De Rijk 1998). My research, focusing on social engagement in design and conceptions of the social agency of technology itself, contributes to this historico–cultural approach to design.

[3] This chapter focuses mainly on the history of design and engineering in the Netherlands and Europe. A comparison with developments elsewhere would show differences. For example, whereas in (twentieth century) Europe utopian design was almost always nourished by socialism, in the U.S.A. utopianism is also definitely important in design, but on a very different ideological basis. See for example the work of Buckminster Fuller (1969).

1.3 Technology and utopia/dystopia

As I refer to 'utopian design' in this chapter, I will begin by discussing my use of this term. 'Utopia' is the title of a book by Thomas More from 1516 about a new society built on an Island. The book started a genre that has produced many novels (from *New Atlantis* by Francis Bacon to *The possibility of an Island* by Michel Houellebecque) and later movies (*Blade Runner, The Matrix*) (there is clearly an overlap with *science fiction*). Thomas More coined the term 'utopia' himself. It was his pseudo–Greek rendering of the Latin term that he had used for an earlier draft, *Nusquama*, sounding like *not existing place or land* (nusquam means *nowhere, on no occasion*). More's construction 'utopia', was meant to refer to both *ou–topos* and *eu–topos,* so that utopia designates '*a land that doesn't exist on any map (outopia), and would be the best on the world (eutopia)'* (Paquot 2007, 6). For the purpose of relating utopia and design, it is important to note that I focus on a conception of utopian striving where actual realization by human contrivance and technological means is central, instead of mere dreaming of an impossible imaginary other world.

Views differ about the question of whether utopia concerns harmless dreaming or rather serious and also dangerous experimentation. A utopia is often referred to as an imaginary, ideal situation, worth striving for. In the same way one says that it is necessary to have ideals, many people say that it is necessary to cherish the picture of utopia. This is also for example the position held by the scholar of utopias Thierry Paquot (2007). By contrast, Hans Achterhuis, in his study on the legacy of utopia (1998) holds a much more suspicious and critical position. Beyond motivating people to improve societies, utopian thinking has also led to some of the crudest regimes on earth. The belief that a radically different world, purified from crime, laziness, inequality, etcetera could be constructed has made people engage in forcefully and cruelly purifying societies: the totalitarian aberrations of Nazism and communism.

My goal is not so much to decide if utopias should ultimately be considered as quintessentially inspiring and engaging or instead as dangerous. I do however want to follow Achterhuis when he (more so than

Paquot) distinguishes utopian thinking from the tradition of harmless dreams of the land of Cockayne. In the introduction to *The Utopia Reader* the editors affirm this focus when they emphasize that modern utopias are characterized by 'human contrivance'. This distinguishes utopias from 'myths', dreams of 'Arcadias' and 'earthly paradises', as well as from the temporal transformation of society during 'festivals'. Utopian thinking thus designates in particular the tradition that started with Thomas More which concerns not dreams of 'sensual gratification', but is about a radically different society, 'humanly contrived' and intended to be realized (Claeys & Sargent 1999, 2–3). Moreover, it is this activist utopian tradition that is very relevant for the philosophy of design, because it is especially in this tradition of utopian thinking that technology often plays an important role.

Technology has an ambivalent role in utopian thinking: a means of progress as well as a source of danger and malaise. Is technology with its ambivalent meaning a central element of utopian thinking or can it be left out? Paquot distinguishes between political, industrial and ecological utopias. The first type of utopia focuses on revolutionizing political systems and social relations, the second on employing industry to benefit society and the third on reestablishing a harmonious ecology. Comparable to Paquot's political and industrial utopias, Achterhuis distinguishes between social utopias and technical utopias (Achterhuis 1998, 361). Paquot somewhat downplays the relevance of industrial utopias, because while much technical progress has indeed been realized over recent centuries, the hoped for societal improvements did not always materialize. For Achterhuis, however, these disappointments, downsides and dangers of realizing utopian plans are the starting point of his research on utopias. He examines where and how utopian thinking is related to political strivings and social change and criticizes the dangerous aspects of utopia.

From Achterhuis' critical perspective the technical dimension of utopian projects is very relevant and deserves the greatest attention. The consumer societies of the West can to a large extent be seen as realizations of the technical utopia. Along with the success of the technical utopia, however, the downsides have also become apparent. The realization of some of the hopes associated with technical progress has also brought along the nuclear bomb, bureaucratization, social control and environmental problems. The striving for utopia by means of technology has become suspicious. Worse, it has led to a reversal, from hopes of utopia to fear of dystopia. In the genre of utopian novels the twentieth century has seen the rise of the counter–theme of dystopia (Aldous Huxley's *Brave new world* and George Orwell's *Nineteen Eighty–Four*). For example Orwell's famous novel *Nineteen Eighty–Four* sketches a world that is ruled by a technical system, 'Big Brother', which inspects and controls everybody.[4]

Following Achterhuis then, utopian thinking involves a blueprint for the construction of a new society, often involving a radical rupture with the old to install the newly designed society in its pure form (Achterhuis 1998, 14–15, 69, 77). The point of my research is however not to demarcate exactly what is, and what is not utopian thinking, nor if it is ultimately inspiring or dangerous. I will employ the term 'utopian design' as a marker for identifying some pertinent examples of technical design with the purpose of guiding people and changing society. The main medium for expressing utopian thought has been the novel, later joined by the movie. But also in the realm of technical projects (in a broad sense, from industrial design, architecture and engineering to urbanism) there are examples of plans and real experiments of employing technology for the radical transformation of society.

In the following paragraphs I will discuss movements of technological innovation aimed at transforming society, sometimes radical in the sense that one can speak of 'utopian design'. I will first

4 The collapse of utopia into dystopia has removed much of the shine of utopia. Unlike Paquot seems to wish, it is not possible to save utopia from critique by ascribing the negative aspects to the technical utopia and downplay its importance in favor of the social/political utopias. Achterhuis points out that under the guise of the social utopia, the crudest regimes have operated. Blinded by the higher goals of a harmonious society cruel facts of concrete reality were neglected, or justified. Compared to those aberrations, the adventures of the industrial, or technical utopia are actually rather peaceful.

discuss utopian aspirations in the engineering tradition (utopian social engineering) and secondly in the tradition of industrial design as applied art (utopian design movements).

2 Utopian social engineering

The term 'social engineering' is employed for denoting construction and government of society by means of technology and engineering knowledge, for example by Karl Popper (1945). He famously distinguished between 'utopian social engineering' and 'piecemeal social engineering', favoring the latter. Achterhuis, like Popper, explores the totalitarian aspects of utopian thinking. This section will serve to highlight some elements of the 'utopian' aspirations in 'social engineering'. How and when did the transformation of society become an engineering concern, how did it develop and what is its relevance today? What can be the legacy of utopian social engineering? I will start by discussing important examples from the tradition of technology in utopia's and next I will discuss the diffusion of utopian thinking about social engineering in actual technocratic government.

2.1 Technical utopia's: New Atlantis, Benthamism, Saint–Simonism

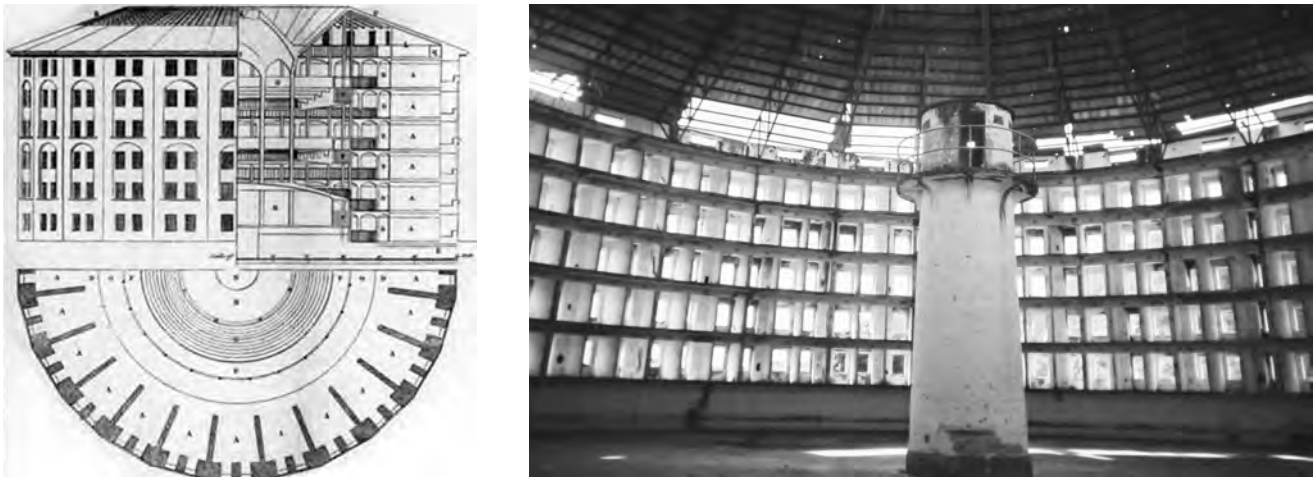
The tradition of utopian social engineering can even be traced as far back as Plato in ancient Greece, but Francis Bacon's *New Atlantis* from 1627 is the most archetypal technical utopia of the modern time. Two more examples, that I will refer to, are the utopian plans and strivings of Jeremy Bentham and Henri de Saint–Simon, both active in the decades around the turn of the nineteenth century.

Francis Bacon (1561–1626) was a famous English philosopher, statesman and natural scientist. He was an early advocate of the modern, empirical method of scientific research, at the time of the Scientific Revolution. His utopian novel *New Atlantis* tells about the adventures of the crew members of a ship who after a storm at sea find shelter on an island where a very advanced society exists. The novel first tells at great length how the shipwrecked visitors meet with the islanders, a virtuous people with a pious Christian faith. Ultimately they get the opportunity of hearing everything about Salomon's House, the state agency for scientific and technical research and state government. The technical inventions conceived in Salomon's House include: food conservation caves, industrial production of foods and beverages, health conservation and life prolongation centers, breeding of modified species, light from new sources in all possible colors, distant seeing devices, artificially produced materials, instruments that produce artificial sound and music, etcetera (Bacon 1999). Readers of today are often impressed to see how accurate many of Bacon's forecasts have proven to be. Our world has in many ways the appearance of being the realization of the utopia of *New Atlantis,* as depicted by Bacon (Lintsen 2005a, 15). It seems as if Bacon's plans have actually played a guiding role in the construction of the modern industrial world.

A second influential technical utopia, and one which will play an important role throughout this study, is Jeremy Bentham's Panopticon plan. English jurist, philosopher and social reformer Bentham (1748–1832) began to write about the Panopticon in a series of letters during a stay in Russia in the year 1787. A book edition of these letters appeared in 1791. Later the texts were republished together with extensive 'postscripts' in Bentham's collected works (Bentham 1843, IV). A concise French edition of the Panopticon letters also appeared for the first time in 1791 (Bentham 2002).[5] This was a translation in concise form of the English manuscript, including some ideas from the postscripts, edited by Étienne Dumont, a friend of Bentham. This French text was prepared for the French National Assembly (that was established after the French Revolution of 1789).

The Panopticon is a circular building which allows for continuous inspection (the combination 'pan–opticon' means 'all–seeing'). Bentham credits his brother for having originally conceived the idea of a Panopticon (Bentham 1843, IV, 40). The design consists of cells built in a circle around a central watch tower, the outer ring being made up of cells six floors high. With this configuration Bentham thought that in addition to the central

5 Cf. Bentham (1995) for a contemporary English edition of a selection of these texts.



Panopticon plan and prison built after Panopticon model on Isla de la Juventud, Cuba, 1926

watchtower there was a need for three lodges, each intended to watch out over two floors of cells. The lodges should be big enough for a guard and his family. On the inside, directed towards the lodge, the cells would be largely open; only a light iron grating was planned. The central watchtower itself would be covered with a transparent curtain 'that allows the gaze of the inspector to pierce into the cells, and that prevents him from being seen' (Bentham 2002, 12–13; cf. Bentham 1843, IV, 44).

This 'simple architectural invention' (Bentham 1843, IV, 39; cf. Bentham 2002, 11), would allow effective surveillance and control of people in prisons, asylums, schools and ultimately society at large. In a Panopticon people have no possibility of doing wrong, and as Bentham was convinced, they would even lose the wish of doing wrong. 'Benthamism' refers to a rationalist vision on ethics and government, based on the principle of 'utility', and the Panopticon plan is an integral part of it. If everything and everyone is always visible, people will act in accordance with the rational principle of maximizing happiness and preventing pain. Bentham's utopia is not cast in a novel but in letters and reports including detailed technical drawings (his brother, an architect provided help) directed at prison owners and national governors. Although it is a matter of debate to what degree Benthamism has become a reality, it is certain that this way of thinking has been influential. There are many examples of dome prisons. And the ideal of ubiquitous inspection has spread in our societies in the form of surveillance cameras, for example.

Definitely influenced by Bentham, and displaying a similar activist attitude of reform, is the third utopian thinker that I wish to address: Claude–Henri de Rouvroy, Comte de Saint–Simon (1760–1825), mostly referred to as Henri de Saint–Simon. He counts as the emblematic pioneer of technocratic government. Born into a Parisian aristocrat family, Saint–Simon became a philanthropic socialist thinker and political publicist. He proposed a reorganization of the state according to the principles of industry. He believed very much in the benefits of science and technology, properly employed, and called for 'industrialism': industry delivering the principle for the construction and government of society at large. After his efforts to convince the leading liberal political movement of his ideas about the 'industrialization of politics' failed, he radicalized his ideas and strived for a 'politicization of industry' (Musso 2010, 127): engineers were to enter politics, and the state should be transformed after the model of a factory to be managed according to principles of efficiency and economic profit (106). Saint–Simon proposed to reorganize parliament by the instauration of three chambers. A 'Chamber of Inventions' consisted of engineers that would design public works, complemented with chambers for control and execution (138).

Saint–Simon is widely recognized for his utopian ideals and his work is an emblematic example of utopian social engineering. The writings of Saint–Simon influenced the great socialist theorists Karl Marx and Friedrich Engels as well as the French philosopher and

sociologist Auguste Comte. This makes Saint–Simon a pioneer of sociology, the then new science of social relations and the arrangement of society. He asserted that society should be reorganized following the principles of technical design and production. The communist principle of work according to capacity and reward according to need, also stems from Saint–Simon. He had a large following of *Saint–Simoniens,* who after his death tried to 'Saint–Simonize' France (Paquot 2007, 41–42).

The musings about an industrial society not only concerned production and economy but included spiritual and religious life as well. Science was hailed by Saint–Simon as a new religion, the successor of traditional religion. This theme returns in the work of Auguste Comte who saw the emergence of a scientific phase in civilization after a mythical and a religious phase as earlier stages. Later in his life, however, Saint–Simon called for a 'new christianism', trying to associate himself with traditional religion that he would revolutionize from the inside. On the one hand this shows that for Saint–Simon technocratic government was connected to an ethics, and not just concerned cold economic computation. Saint–Simon's project was indeed driven by very strong social and humane, philanthropic values (Musso 2010, 151). On the other hand, it also shows again Saint–Simon's radical, utopian aspirations: after calling for radical state transformation he embarked on a project of even revolutionizing religion.

2.2 Regimes of engineering and government

Now I want to discuss how the tradition of technical utopia's described above has since marked the relations between engineering and government. In a study on the history of French technocratic government Paul Rabinow has traced elements of the 'genealogy', the historical assemblage of the 'technocratic' French state of the period after the Second World War, for example. He also points out that unlike the many followers of Saint–Simonism, other (French) 'social engineers' of the nineteenth century were motivated by a more conservative, often traditional religious morality. For them technology was a new means for realizing traditional moral ends. In this way the genealogy of technocratic government traces the different historical relations between 'forms and norms' (Rabinow 1989, 11), the forms produced by engineers and planners and the social norms they reflect, edify and diffuse.

A similar 'genealogy' is carried out for the Dutch case by Lintsen and Disco (2005). Characterizing technology's role in state government in the Netherlands, they distinguish periods with different 'regimes', largely correlating with Rabinow's account of the French case. The periods Lintsen and Disco (2005, 79) describe are:

- autocratic–military period (1800–1850)
- democratic–mechanic period (1850–1920)
- technocratic–scientific period (1920–1970)
- interactive–integral period (1970–present)

Following this scheme I will shortly describe how from the autocratic–military situation the 'revolution of the engineers' (democratic–mechanic period) started the tradition of social engineering in mainstream politics. Then, in the course of the twentieth century technocratic government took the form of technocratic–scientific planning where utopian thinking played a major role, before a crisis in this utopian technocratic style of government opened the way for the interactive–integral period.

2.3 The revolution of the engineers

When we think about the influence of technology on society, we may today think of all kinds of consumer products typically associated with the profession of industrial design. But not so long ago, the centre of gravity of shaping a 'human built world' lay in the domains of industrial and residential planning and building of the big infrastructural constructions, such as the railways (Hughes 2004). Industrial machinery and civil works brought about a demand for engineers. The great civil works gave rise to the emergence of a corpus of engineers and engineering schools that developed out of Military Engineering. This development differs from country to country. In France and in the Netherlands engineering schools rose in the context of the construction of these civil works, closely connected with the centralization of the state and the emancipation of engineering from the military. In the United Kingdom engineering schools developed in an industrial context, responding to the demand for expertise about industrial manufacturing (Lintsen 2005b, 318–319).

In this domain of engineering we find much delibera-

tion on the societal impact of technology and projects of governing society by means of technical design. The context of the emergence of the civil engineers was industrialization. Engineers did recognize the social impact of the process that they themselves played a role in. In the Netherlands engineering education was first provided by the Military Academy in Breda. From the 1860's the Polytechnic School in Delft developed into an exclusively civil, non military, engineering school, which later became a 'technical university'. This process meant the emancipation of a new type of knowledge and a new class of people, engineers, who attained a respectable and influential position in society: the 'revolution of the engineers' (Lintsen 2005b, 315).

When the education of engineers became detached from the military, the newly emerging 'civil' engineers almost immediately became heavily conscientious of a social, political task. For example, in 1904 an association for the advancement of 'social–technical engineering' was founded (325). Another typical phenomenon is that engineers became involved in politics. Cornelis Lely and Philip Willem van Sleyden are examples of engineer–ministers who contributed to social legislation in the Netherlands at the time when the 'social question', the poor working and living conditions of the 'working class', became a widely acknowledged political concern (326–328).

2.4 Technocratic government: Rise and fall

The period of technocratic government saw the realization, be it in a milder form, of many of the ideas of activist utopian thinkers like Bacon, Bentham or Saint–Simon. Technocratic reason, constituted by the utopian thinkers, but at their time not immediately successfully implemented, now gained considerable influence in actual government methods. In the Netherlands this style of reasoning and governing is exemplified in the person of Sicco Mansholt (cf. Westerman 2007). Mansholt was successively Dutch minister and European commissioner of agriculture. He devoted himself to the rationalization of food production, which for him meant planned and mechanized production adapted to the needs of the population. During the last winter of the Second World War the Netherlands, especially in the West, suffered from shortage and hunger. To ensure that never again such scarcity would occur, was an important motivation for Mansholt. The system he aimed for was one of extreme technocratic control over production and consumer needs. The principle means of government intervention was price regulation: fixed minimum prices and an extensive system of subsidies. Like French technocratic reasoning (as characterized by Rabinow), for Mansholt, technocratic reason in the mid–twentieth century functioned on the basis of a belief in universal human needs.

The modernization and mechanization of agriculture was very successful, at least with respect to the economic aspect of supply and distribution of food and goods. From the 1960's, the problem was no longer shortage, but surplus: large stocks of milk and butter. It then proved very difficult to adjust the system to the new situation. In France, the government as well as the farmers, for example, had long been opposed to the regulatory system of subsidies, which curtailed personal liberties and opportunities for entrepreneurship. But gradually the French did accept European price regulation and they soon became accustomed to and entangled in a system of fixed minimum prices. Ever since French farmers have been known for blocking highways with tractors to protest against any plans for a decrease in the subsidy system.

Mansholt, one of the prominent developers of the technocratic system did eventually acknowledge that the system had failed, or that its utility had ultimately reversed into a crisis. It was however only in the 1980's, at an old age, that he admitted that the subsidy system as a means for planned production tuned to the needs of the population had collapsed into a system that caused over–production and environmental problems (Westerman 2007, 196). This change of mind is a fascinating and moving episode in his biography. It was very hard for him to see and to accept that his dedication to the cause of overcoming scarcity and hunger was now out of place, that scarcity had made place for exhaustion of resources and environmental pollution. The utopian spirit was collapsing into dystopian despair. That human production would cause environmental problems was something that some decades before nobody could have imagined.

2.5 From paternalism to participation

Technocratic–scientific rationality failed to effectively govern the wealthy consumer society. Since the 1970's, the challenge has been to integrate awareness of changing conditions and multiple and plural needs and preferences into technocratic government. This is termed the 'interactive–integral period' by Lintsen and Disco (2005). The building of the water dam in the Oosterschelde is an exemplary case (see also Biesboer 2011). After a big flood in 1953 killed three thousand people in the Netherlands, the Dutch government embarked on the 'Delta–plan' to construct extensive protective dikes and dams. The dams had severe societal and environmental impacts. As a sign of new times, from the 1960's and 1970's, the technocratic governors of these water works were faced as never before with a critical public. Engineers and governors working on such projects as the Oosterschelde dam were branded as authoritarian, narrow minded, polluters and landscape annihilators (Lintsen and Disco 2005, 91). After years of controversy, a new plan for the Oosterschelde dam was made, an inventive movable dam that is only closed in the case of heavy storms, but which otherwise respects the environment and water milieu.

That technical experts could no longer decide on their own what was best for society, but that the concerns and interests of the public were finally taken into consideration, marked a new phase in the style of governance. Instead of simply assuming universal needs, from then on actual needs, preferences and opinions have come into focus and the subject of constant scientific research. Consumers no longer shared the view that technology is a miraculous means for relieving humans from the burdens of scarcity, inconvenience and the dangers of natural disasters. Individuals and interest groups stood up against the expertise and paternalism of technocratic government. They demanded acknowledgement of negative side–effects, such as environmental problems. And people claimed more space for differentiation, contesting exclusion and repression of specific groups by the one–dimensional style of technocratic government. This has led towards the integration in government methods of consultation and participation of users, citizens. Technology Assessment (TA), evaluative studies beforehand of possible negative effects became a requirement imposed by law. A Dutch example is the Milieu Effect Rapportage (assessment of environmental effects), which is required by law for every big civil construction work.

Also in design ideology and methodology user and customer research has been integrated more and more, for example with the growing importance of ergonomics and trends such as participatory design. An observation by historian of technology Edward Tenner illustrates very well this change from paternalism to participation. Considering the history of comfortable chairs, and more generally the history of ergonomics, he remarks: 'Today we expect our mechanically adjustable chairs to support the person; once it was the person who conformed to the chair' (Tenner 2003, 112). Today, when we think of the best match between technology and humans, we tend to think of adapting technology to the empirically observed needs and wishes of users. Those needs may be diverse and may change over time. What may count as real or relevant is personal and situated, like opinions. Until a few decades ago, the general conception was that needs were uniform and evident and technology was a miraculous means for satisfying those needs. The faster technological progress would go, the better. That science and technology were maybe dictating a certain image of humans, was not seen as problematic. People would accept that it was rational and therefore good to adapt to what technology had to offer. Techno–scientific expertise was allowed to be paternalistic, whereas the trend is now definitely towards evermore user and citizen participation.

3 Utopian design movements

In this section I turn from the engineering root of present day industrial design engineering to the root of applied art. The history of design (very much overlapping with architecture) shows some good examples of utopian design. The theme of utopian design is regularly mentioned in histories of design (for example Bürdek 2005), and it is the central notion in *Ideologie und Utopie des Design* by Gert Selle (1973). Selle provides an overview of design history explicitly from the perspective of social critique, and of what he terms the 'social agency'

of design. Beginning with the Arts and Craft movement in England in the nineteenth century, the relation between design and social issues was a main concern, asserts Selle. Dutch design historian JW Drukker (2004e) affirms this view that social engagement was a main driver of design theory from the emergence of the profession of designer in the context of industrialization.

The zenith of utopian design came later, with the rise of modernism in the 1920's and 1930's. Selle singles out the strong social program of modernist designers such as Mohoy–Nagy, Mart Stam, and Le Corbusier. Similarly, in *The struggle for utopia* (1997), Victor Margolin analyzes that a utopian program in design was a typical characteristic of modernist designers. Correspondingly, recent socio–historical studies of technology and culture also pay attention to modernist design as a showcase for technology being used as a driver for social change (Hughes 2004; Misa 2005).

Selle feared (in 1973) that the utopian design tradition was perishing. He himself, however, was strongly engaged in Marxist thought and utopian design, and his book is clearly an attempt to revitalize utopian design. Indeed Drukker observes that the period in which Selle estimated that utopian design was in crisis, was actually the time of the emergence of the consumer society. In this period for the first time society at large was to benefit from technical progress (2004a).

Drukker too, speaks of a 'crisis in design', but he associates this crisis with the advent, around 1980, of postmodern design. Postmodern design lacks the emphasis on improving society as main driver, but does this also mean that it has lost its utopian aspirations? Not according to José Gámez and Susan Rogers (2008), who claim that postmodern design does still bear the promise of utopia. They call for a renewed 'architecture of change'. The postmodern utopian hopes and strivings for a radically different society are however no longer directed at a unified world picture, but instead concern a society where individuals are totally free to pursue all kinds of different lifestyles.

Following this outline I will discuss four periods of utopian design. First I will discuss the *Arts and Crafts* with William Morris. Next follows *New Objectivism,* focusing on Le Corbusier. The third stage is the *Gute Form* with the related social design theory of Gert Selle. Last, I discuss *Postmodernism* and the relations it may still entertain with the social program of striving for utopia.

3.1 Arts and Crafts

The beginning of the development of industrial design as a discipline is strongly connected to the Industrial Revolution. As said, the emergence of the profession was related to the division of labor. Concerns about labor conditions in industrial production and the poor quality of industrial products were at the base of design theory and education. This critique is exemplified in the person of Henry Cole, chief organizer of The Great Exhibition of 1851, who was a long time promoter of design education in England. The concern for the quality of industrially produced products was widely shared and this gave rise to the Arts and Crafts movement, also beginning in England halfway through the nineteenth century. The movement is closely associated with the names of art and architecture critic John Ruskin and the designer, socialist and novelist William Morris (Drukker 2004e; Selle 1973, 47). Both of them were worried about the poor and dangerous working and living circumstances of factory workers as well as about the poor quality of industrial products.

To counter these problems the Arts and Crafts movement was suspicious about industrial production and called for a revaluation of handicrafts. It promoted good quality products, in a style more rural than industrial. Ruskin took inspiration from the gothic cathedral as an historical example and called for a neo gothic aesthetics (Ruskin 2003). The Arts and Crafts movement had a huge influence for several decades well into the twentieth century. Design theory and education in a way developed from the social and aesthetic concerns as articulated by the Arts and Craft movement. Designer associations and movements throughout Europe around the turn of the century were marked by the Arts and Crafts' appeal for high quality handy craft product design. An example is the Deutscher Werkbund, a German design association that from 1906 strived for the collaboration of art and industry. Selle notes, however, that despite these cries for social justice and well produced products for all, in the Jugendstil (or Art Nouveau) aesthetic style that flourished at the begin-

William Morris' utopian novel and his own house in Arts and Crafts style

ning of the twentieth century the social engagement, utopian aspirations, that marked the Arts and crafts were largely disregarded (Selle 1973, 56–57). The design theory and practice of the Art Nouveau was primarily aesthetic and bourgeois instead of socialist.

But returning to the Arts and Crafts movement, this movement's relation to politics and design is exemplified in the person of William Morris. He was actively engaged in politics and a supporter of socialism. Morris recognized that social improvement was connected with the quality of design. Promoting improvement in design was for him one element of his socialist politics.

The utopian aspect of the Arts and Crafts is exemplified in Morris' utopian novel *News from Nowhere,* from 1890. In contrast with the problems faced by the working class of England of his time, Morris imagines a utopia where the problems of labor have been solved. People are liberated from the need to work against their will; their deliberate contribution to the common good suffices. The result is that people continuously 'feel so happy'. This, by the way, makes *News from Nowhere* one of the most boring novels of the utopian genre in the opinion of Achterhuis (1998, 210).

Gert Selle emphasizes the social engagement that was part of the design theory of the Arts and Crafts. He further notices that the reaction of the members of the Arts and Crafts movement to industrialization consists in a rejection and call for a return to handicrafts. Therefore Selle characterizes the Arts and Crafts as a 'utopia of restoration' (Selle 1973, 48).

3.2 New Objectivity

The advent of modernism around the 1920's and 1930's meant a break with the Art Nouveau's esteem of handicraft and styling inspired by nature. Modernist movements under the names of 'New Objectivity' and 'Functionalism' have heavily marked theory and education in design architecture and design, explicitly and strongly emphasizing the association between social aims and design. These are the heydays of utopian design.

Around 1920 there was a confluence of modern art, technology and socialism. Avant–garde art movements such as Constructivism and De Stijl have strongly helped to define the functionalist architecture and design theory. Victor Margolin describes in the *The struggle for utopia* (2007) how artists such as Alexander Rodchenko, Laszlo Moholy–Nagy, and Theo van Doesburg began to ascribe political relevance to their art. With the purpose of serving their often strong socialist political goals, many artists made the choice to exchange pure art for the design of utilitarian objects.

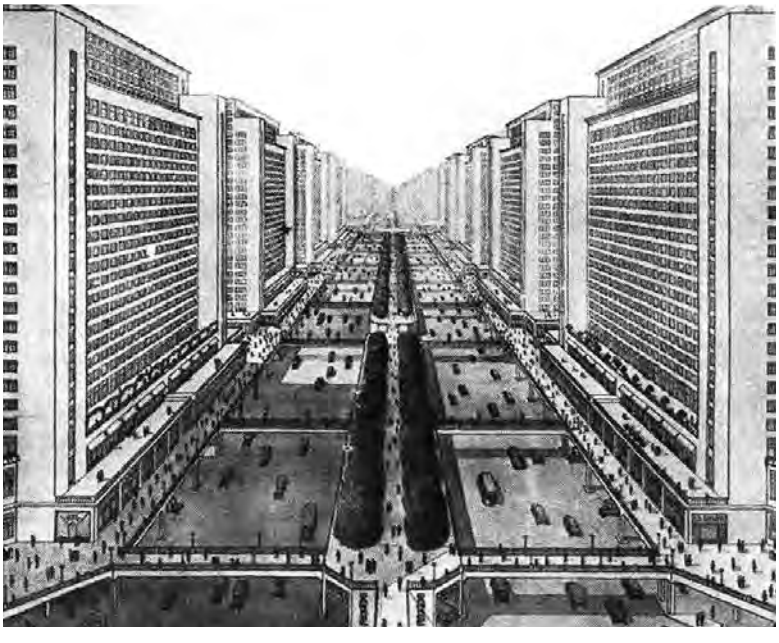
The utopian aspect of the New Objectivity movement is evident from the association of many architects and designers with the construction of the Russian socialist state. Margolin singles out Alexander Rodchenko, Moholy–Nagy and El Lissitzky. All three of them were formed and influenced by Marxism, and they dealt with the communist revolution in Russia in different ways. Rodchenko and Lissitzky worked in the service of the Russian communist state, 'struggling for utopia', whereas Moholy–Nagy worked at the Bauhaus

school in Germany and ended up after the second World War in the USA struggling to convey his ideals of 'design for life' in a business oriented environment.

Also many Western–European designers were radically socialist. A central place where people and ideas met was the famous Bauhaus. Selle admires Hannes Meyer, the most political of its directors for his radicalism (Selle 1973, 96–99). Dutch designer and architect Mart Stam was also acquainted with this circle of socialist designers (cf. Stam 1999). Together with Hannes Meyer he moved to the USSR to work on the planning of new cities. The developments in the communist Soviet Union also inspired the urbanism of Le Corbusier. One of his contributions to technology for a social cause is his utopian city project *Ville Radieuse* (Radiant City) conceived in the 1920's.Unlike the Arts and Crafts movement, New Objectivity (and modernism at large) embraced the technical possibilities of the industrial age for realizing social goals. Technology and industrial production are no longer a threat, as with Morris and Ruskin, but promise new ways of achieving a radically better society. The belief in technology is also expressed in the dictum that technology should replace style. The now famous minimalistic 'style', although inspired by basic colors and forms, originated just as much from the social ideal of low price mass production (even if in reality the modernist designs of that time never were cheap). This is why houses were built as blocks and chairs were constructed out of one–piece cantilever tubes.

Metal tube chairs by Mart Stam, an older and a newer version

Le Corbusier asserts in 1923 in *Vers une architecture* that new technological developments are fascinating and promising in many aspects. However, the problem was still that many people did not experience the promising benefits of technology while they did suffer



Le Corbusier, La Ville Radieuse (concept) and Unité d'Habitation, Marseille

from the negative impacts of industrialization on their working and living circumstances (Le Corbusier 2005, 227). For Le Corbusier technology is however also the means for repairing societal unrest. Architecture can and should be applied for the political cause of restoring equilibrium in society. For Le Corbusier this is an urgent matter, as becomes clear when he states that the choice is either 'architecture or revolution'.

It should be mentioned that not only socialist political movements sought to advance themselves by means of architecture and design. Albert Speer, architect of the Nazi regime could equally be discussed as an architect for societal transformation. And Le Corbusier, eager to have his ideas and grandioso projects realized, worked for the Vichy government in France during wartime and accepted an invitation by Mussolini to lecture on architecture (cf. Benton 2009, 272–273).

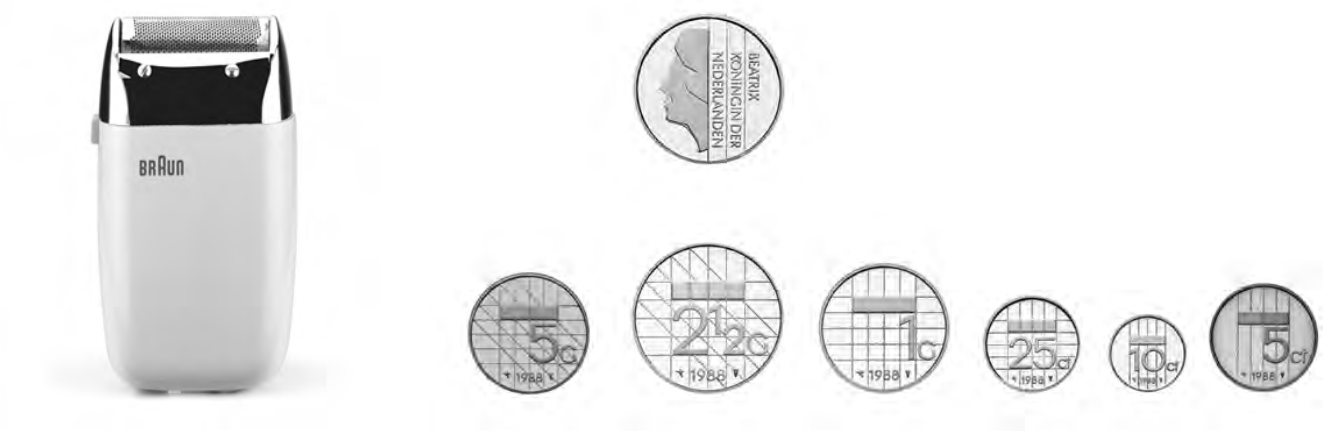
In the views of Le Corbusier and other designers and architects associated with New Objectivity, 'the social' can be influenced directly by means of architecture and design. Society is a function of design. Therefore Selle characterizes the utopian aspect of pre–World War II modernism as 'social–functionalist' utopian design (Selle 1973, 98–99).

3.3 Gute Form

A third design movement with utopian elements is the later modernism of the *Gute Form*. This movement is closely associated with the design school of Ulm, Germany, (Hochschule für Gestaltung), that dictated to a great extent what was to be called good form in the 1960's and 1970's (Drukker 2004e). The Ulm Hochschule für Gestaltung is often regarded as a successor to the Bauhaus, as it prolonged the search for a rigid functionalistic design method anchored in a strong engagement with the social cause.

The design of the Gute Form is in many ways a prolongation of the functionalist style of earlier modernism: design that honestly shows the product's function and the materials used, without useless decoration. World famous examples are the designs for Braun made by Hans Gugelot and Dieter Rams. Another example of functionalist design from the later modern period and a showcase of a more detailed, scientific approach to matching human needs and capacities is the series of Dutch coins designed by Ninaber van Eyben. The coins are designed in such a way that the shape, size and graphics serve the easy distinction between the coins with different values.

Gert Selle, whose work has been helpful in understanding the utopian aspects of earlier movements, is a clear example of the social engagement in the Gute Form. He tries to connect design theory with the critical theory of philosophers such as Herbert Marcuse and Jürgen Habermas. Technology is seen as an important element of societal development. It can and should help to liberate people, but can also dominate people when it is not embedded in a political system with democratic control. The difference compared to early modernism is that the rather naïve belief in obvious and



Braun shaver by Dieter Rams and Dutch coins by Bruno Ninaber van Eyben

universal needs, was replaced by an attempt for scientific research into 'real' user needs. Later critical thinkers like Ulrich Beck have introduced the notion of reflexive modernization for this transition of a 'paternalistic' form of modernism into a reflexive form where there is awareness of unintended consequences and the need of constant evaluations and corrections (Beck et. al. 1994).

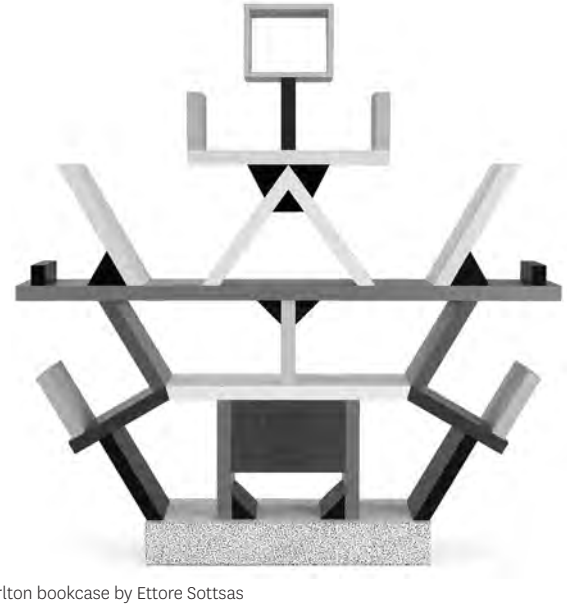
Drukker (2004c) points out that in the period of Gute Form for the first time functionalistic design principles where actually applied to mass produced products. Enterprises such as IKEA succeeded in making useful products at prices easily affordable for almost everybody. Before, the ideals of the socially engaged design movements had not been realized, as the results were mostly expensive avant–garde designs. Selle, however, criticized Gute Form for just this association with the consumer society, like in the collaboration of Braun and the Ulm design school. He feared that marketing and product image were becoming predominant, whereas attention to the 'social agency' of design was diminishing (Selle 1973, 108).

The utopian aspect of Gute Form appears in Gert Selle's work, when he asserts that consumerism threatens to eliminate the 'last rest of social utopianism in design, once prevailing in all design' (Selle 1973, 113). To reverse this trend Selle calls for a 'radical politicizing of design theory' (155). Selle's project could be characterized as a 'utopia of re–adaptation', because the aim is a re–adaptation of technology to the social cause.

3.4 Postmodernism

Writing some decades later than Selle, JW Drukker shares with Selle the concern for the decrease of social concerns in design. He estimates however that the movement of Gute Form, which was already suspect for Selle, rather exemplified the heydays of socially engaged design, because for the first time functionalistic principles actually resulted in products that were available to the masses. The real ending of social engagement in design came according to Drukker with the advent of postmodernism around 1980. Postmodern design brought the return of explicit decorative elements, a revival of historical styles in the form of reference and pastiche, and emphasis on often ironic or scandalous symbolic messages (for example Carlton bookcase, see picture). Products were made more to make a statement than to function in everyday life (cf. Eggink 2009).

Drukker asserts that the postmodern criticism to modernism was partly right. The modernistic worldview was confronted with the student's protests of 1968 and a series of technological disasters (Drukker 2004c). The belief in technology and the universalistic and paternalistic pretentions became very much contested. Drukker's concern is, however, that design theory has not



Carlton bookcase by Ettore Sottsas

Re–used drawers cabinet by Tejo Remy

been able to articulate the social importance of design in a new, appropriate way. Design education became centered around elitist, avant–garde artistic design again, as in the case of the now world famous Dutch Design (for example Tejo Remy's Re–used drawer cabinet, see picture).

Is it true that postmodern design is void of any utopian motives? José Gámez and Susan Rogers share many of the insights of Drukker, but think that it is still possible to revive the utopian design tradition. They call for an 'architecture of change'. This is not something new, they rightly assert, but 'it has fallen out of favor' (Gámez and Rogers 2008, 19). The emancipatory promise of liberation by rational progress of the modern period has become discredited. The modern project's utopian musings have proven to be easily subject to the whims of totalitarianism. However, Gámez and Rogers recognize *diversity* as a new emancipatory theme that has arisen in postmodern design and design critique: 'Freed at last from the hegemony of modernity, society would rise up to show its intrinsic diversity' (20). This entails a new 'utopian goal', namely of 'equity, fruitful diversity, and a critically engaged process of cultural production' (22).

The utopian aspirations of their project become evident when Gámez and Rogers claim that this project of an architecture of change, is in need of a 'foundational theory' (23), and should entail a 'complete reconstruction of the current system of education and practice' (24). Today's challenge would be 'to reconsider the power of utopian thinking as a way to form a unified front' (24), while avoiding the 'naivety' of early modernism to think that architectural practices comprised the necessary and sufficient mover of social change. Society should not be seen as a totality, but instead the plurality and diversity of society should be acknowledged. The proliferation of a plurality of lifestyles, surprisingly and paradoxically, appears to inspire a new shared vision and hope of a new 'united front'.

The call for an architecture of change is the introduction to the book *Expanding architecture: Design as activism* (Bell & Wakeford 2008). The book contains a large collection of socially engaged design projects. The projects are rubricated in sections such as: 'Social, economic and environmental design', 'Participatory design', 'Housing for the 98%: Mainstream good design in affordable housing', 'Meshing with market forces'. The propagated 'activist design' concerns no longer the design of one technological system that constitutes a new society, but differentiated technology that supports humans in different cultures and situations for their situated problems and concerns.

Thus, after all, postmodern metaphorical design and its critique of a unified world picture still can be seen as pursuing a social project, even of utopian grandeur. To the degree that there exists a postmodern utopian project it is characterized by the belief in the possibility of technology that supports people in the pursuit of their own ways of living. The postmodern design utopia could be referred to as the 'utopia of plurality', for the hope is that technology can support a diversity of personal lifestyles.

4 The legacy of utopian design

Are there historical precedents of designing for guiding and changing people? That was the question at the beginning of this chapter. Movements of strong, utopian social engagement in design seemed an obvious domain of finding such examples. This indeed appeared true, as the outlines of the histories of utopian social engineering and utopian design as two roots of today's design engineering attempt to demonstrate.

The emancipation of the engineering education and profession from the military meant a sort of revolution of the engineers. Engineering was attributed a strong political and social task. Inspiration for the application of engineering know–how for 'social engineering', the construction and government of society, was provided by utopian conceptions of the power of technology. Examples of technical utopias are Bacon's *New Atlantis,* Benthamism (the society as a Panopticon) and Saint–Simonism (the state managed as an industry). The heydays of the actual realization (to extensive, but not complete degree) of these utopian ideals of social engineering are the technocratic governments of the middle decades of the twentieth century. From the 1960's and 1970's onwards, discomfort with the paternalistic style of such government and the appearance of negative

effects of technology, caused a collapse of the status of engineering's role in governing society.

In the history of design as well as along the route of the history of aesthetic styles there has been a development of increasing and decreasing utopian belief in technology. Whereas the emergence of design as a profession was marked by the motive of restoration, the return to handicraft (Arts and Crafts), the modernist architects and designers embraced modern technology (New Objectivity). Later in the twentieth century the assumption of universalistic needs was replaced by a call for adaptation to real human needs (Gute Form). Postmodernism criticized and largely abandoned the technocratic rule of people's lives, and formulated the hope for a technology that could empower individual people in whatever individual lifestyle they choose to pursue.

It appears that the goals and expectations of social engagement in design greatly differ, from design for revolution to design for usability. Moreover, a relation seems to exist between the scope of social tasks engineers and designers have adopted, and their estimations of the power of technology for social change.

4.1 Between revolution and usability

To connect today's attention for usability to the history of the strong, sometimes utopian, tradition of social critique in engineering and design was a purpose of this chapter. Throughout the chapter a worry was mentioned that we have seen a decline of the strong social engagement present in the recent past of utopian design movements. At first sight it may seem that usability has few links with the discussed traditions of utopian design. Still, a general theme has however remained constant through time: a quest for a 'good fit between technology and humans' and for a form of 'technology that serves humans'.

Within these themes the differences clearly are huge. The utopian aspirations of the social engineers, from Bacon to Saint–Simon and technocrats like Mansholt, and the modernist designers like Le Corbusier and Stam advanced a 'strong program' of social reform. Remember that Le Corbusier affirmed technical progress as an alternative to social upheaval and 'revolution'. From this perspective designing for usability means that serving humanity has been downgraded from improving life conditions to pleasing consumers. By 'surrendering' to consumerism in capitalist society the concern for social reform has been lost, feared Selle. The adaptation to the consumer market can however also be evaluated in a much more positive way. For, the consumer societies have realized historically unequaled welfare for almost everybody in those societies, realizing much of the socialist utopian ideals of affordable products for the masses. Moreover, adaptation to consumers is also part of a trend from social and political paternalism to participation and progressive democratization.

Engineers started engineering 'the social' in the nineteenth century by applying new technology to social problems, partly caused by, or related to technology itself (industrialization). This universalist technocratic ideal originates from a utopian belief in technical capacities, as in Saint–Simonism. The moral ground was at first found in more or less traditional virtues, later science and technology themselves dictated a universalist conception of human life. Twentieth century technocratic planning is characterized by a belief in universal human needs. Le Corbusier emblematically expressed this conception of universal needs: 'All men have the same organism, the same functions. All men have the same needs' (Le Corbusier 2005, 108).

In the course of the twentieth century the belief that human needs are univocal has faded. The modernist technocrat government became progressively experienced as paternalistic and repressive, and deemed to be the cause of environmental problems. Modernization became suspect. Scientific and technical progress should not be seen as simply developing along 'the one best way' (cf. Ellul 1964), but instead the route should be adjustable. Whereas some began to dream about a radical turn away from technocratic modernization, the general trend was towards a gradually growing awareness of the ambiguities of modernization. Needs were no longer seen as evident, univocal and simple, but instead they had to be researched. Whereas some needs, like the need for water and food, are evidently universal and rather simple, a plurality of needs, preferences and lifestyles has proliferated, after the very basic needs were largely fulfilled.

Seen from the perspective of social engagement in design, the development from a technocratic–sci-

entific period (1920–1970) to an interactive–integral period (1970–present) as described by Lintsen and Disco (2005), marks a change that can be evaluated in different ways. To describe the change in rationale and practice of guiding and changing people by design, one could also say that there was a development from 'paternalism' to 'participation'. On the one hand the utopian spirit of revolution of engineers and designers was effectively silenced by the rather dystopian contestations of the public. On the other hand, societal concerns did become methodically integrated in innovation practices, from legal regulation around civil works by the government to design methodologies taught in engineering schools and the present day trends towards design for usability and user research.

4.2 The need for a philosophy of technical mediation

Social engagement in design may not be as outspoken as it was in the earlier periods of utopian design discussed here. But it hasn't disappeared either, as is shown from titles such as *Do good: How designers can change the world* (Berman 2009), or *Expanding architecture: Design as activism* (Bell & Wakeford 2008). Another example is the series of symposiums on 'What design can do' held in Amsterdam in 2011 and 2012. However, in both of these books, as well as in the symposiums, technical mediation in the sense of guiding and changing people by design does not play an important or precise role. Berman for example makes an appeal to 'not just do good design, but to do good'. The focus here is on the intention of designers. How products themselves guide and change people is not explicitly addressed. These initiatives could benefit from and become much more powerful from integration with recent work on the empirically oriented philosophy of technical mediation.

In the field of design it is design critic Victor Margolin who offers a good starting point for fruitful collaboration of design practitioners and design philosophers. He states that the focus of design should be broadened from 'products' to 'the way we organize possibilities for human action' (Margolin 2002, 228). The complementary task is to show how society and designers can cope with product impact. Margolin estimates: 'A greater awareness of how products contribute to personal experience will help everyone act more consciously and decisively within the product milieu as we seek to improve the quality of our lives' (55). Instead of ignoring the impact of the product milieu or trying to overcome it, the challenge is to employ it for the purpose of improving life quality.

Margolin's aim is to broaden the objective of design from products to 'action organizing product milieus'. This is exactly the kind of concern which the philosophy of technical mediation can help to address because it investigates how products play a role in the organization of action. Latour's concepts of 'script' and 'delegation' (Latour 1992) and the recently proposed terminology of the 'nudge' by Thaler & Sunstein (2008), are definitely important contributions to understanding the action organizing role of technology.

However, such a project of a renewal of socially engaged design, where the user guiding and changing effects of design are employed for the better integration of technology in our lives, brings up all the political and philosophical issues that surround Achterhuis' call for the 'moralization of technology'. For, if technology guides and changes people, who is responsible and accountable for this social and political dimension of design? Moreover, is it even possible to engage in research and application of user guiding and changing effects of design, without concluding that ultimately human action is nothing but the plaything of the technical environment?

Attention for the user guiding and changing effects of technology in the history of design has been very much connected to utopian plans of societal transformation. However, this utopian tradition has also appeared to be dangerous, and has become contested. Technical progress has proven not to be the self–evident highway to utopia it was believed to be. As a result of the dystopian counter–movement, and the new hope of technology that does not constrain, but supports any lifestyle people wish to pursue, in recent initiatives the user guiding and changing effects of technology have become rejected and neglected.

The question is now, if another, moderate understanding and application of the social power of technology would be possible. Instead of ignoring or rejecting the impact of technology, the challenge is to employ it

moderately and wisely for the purpose of improving the quality of life. Utopian aspirations of radical social transformation by means of technology assume great transformative power of technology. To avoid the utopian programs and dystopian fears, it would be necessary to employ and further develop a more precise and nuanced understanding of technical mediation.

4.3 The legacy of utopian design: The design of our own lives

If utopian design has had disappointing results overall, or at least has many dangerous sides, what does this mean for the project of trying to understand and apply user influencing design? Is the application of user influencing effects of technology simply not as effective as was hoped, or is it even suspect and dangerous? Must research on technical mediation be feared and abandoned, or rather advanced and improved for a better, moderate application? And, if the evaluation is neither totally negative nor positive, but rather ambivalent, what is then an adequate conception of the social agency of technology and the application of it? What can be the legacy of utopian design?

There are challenging possibilities of continuing the tradition of socially engaged design with moderated, non–utopian goals, but equipped with evermore precise tools for understanding and applying the social agency of technology. What is needed now is a more complete philosophical account of how our human ways of being are mediated by technology. How is our existence marked by technology and how do we transform our lives by integrating new technologies into our lives? Guiding and changing people by design should not only be associated with utopian plans of revolutionary societal transformation. Instead, the impact of technology should be analyzed from the general perspective of the interaction between users and technology. In the following chapters of my research, on technical mediation and subjectivation, I will undertake just that challenge of understanding the role of technical mediation in the formation and transformation of our existence.

A moderate social program for design would instead of aiming for revolution focus on the quality of the integration of mundane technologies in people's lives. A post–utopian social engagement would concern the tuning of technology and humans, that is, usability in the broad sense of convenient and meaningful accommodation of technology in people's way of living. In a narrow understanding usability means the measure of fit between technology and users under specified circumstances. Usability does not so much concern ethical and political questions. However, seen in the broader historico–cultural perspective revolution and usability do not have to be seen as two extremes, the first associated with utopian design, the second with a conception of design that is free of a political task, largely independent of social engagement in design. In a post–utopian perspective usability is the appropriate concept for thinking about the fusion and interaction with technology. If combined with a more detailed understanding of the social impacts of those fusions and interactions with technology, design for usability still is the design of society and the design of our own lives.

Chapter 3
Technical mediation and subjectivation: Philosophy of technology after Foucault

1 Introduction

In which ways and to what degree are human beings dependent of and influenced by technology? How should this influence be evaluated ethically? The next chapters are concerned with this third stage of my research and explore the philosophical dimension of user guiding and changing design.

In the opening chapter the project of employing user guiding and changing design for improving usability and product acceptance was introduced. The focus was on the question of what knowledge is available and how it could be integrated in design methodology (first stage). However, not only questions of knowledge and effectiveness are relevant to the project. User influencing design brings up questions about the role of design in society. In the second chapter the historico–cultural dimension of this project was explored (second stage). The changing roles and task of designers in society were addressed by discussing design for usability and product impact on behavior in the context of socially engaged design. Ultimately these themes of user guiding design for the purpose of improving usability and society bring up pertinent ethical and philosophical questions and it is these that frame the third stage of the discussion.

The perspective of user guiding and changing design offers promising possibilities for improving usability and the adaptation of design for society. The historico–cultural review of socially engaged design discussed earlier views of how design was thought to have a social and political task. The best examples of applying behavior influencing design can be found in traditions of utopian engineering and design. Achterhuis' proposal for 'moralizing technology' (Achterhuis 1998) was intended as a moderate follow up of design that takes into account the social and political effects of technology. Severe ethical issues however surround this perspective. Does moralizing technology not eliminate personal freedom and moral responsibility and accountability? Who will be in power to control the user steering effects of technology, and is it not a possibility that such a project of moralizing technology could lead straight to totalitarian technocratic rule? Moreover, is it even possible to control the effects of technology on people politically, or are humans becoming the playthings of technology itself?

The paternalistic and technocratic aspects of changing society by design have

become suspect. The recurrent theme is that technology accumulates into a system that takes command over humans. The old hope of employing science and technology for radically improving human life has reversed into a fear that technology encapsulates humans and that we now face the challenge to liberate ourselves from technology. Achterhuis speaks about a 'syndrome of utopia/dystopia' (309) that haunts thinking about creating a new world by means of technical invention. Following recent research on the technical mediation of human beings, Achterhuis affirms that technical mediation of human existence is fundamental. To become 'free', to be no longer in a fundamental way dependent on technology, is impossible. The challenge is to integrate an account for the fundamental importance of technology into our political considerations and interventions, while avoiding the utopia/dystopia syndrome.

For this reconciliation of politics and technology, Achterhuis suggests a conception of the transformative power of technology which is 'minimalistic' instead of 'maximalistic' (293, 299). From a maximalistic perspective the effects of technology are understood in the maximum repressive way: technology accumulated into a big, dystopian system opposed to humans. The fear of dystopia easily leads to an outright rejection of the application of any form of influencing technology. A minimalistic conception would acknowledge the transformative effects of technology, but consider them as one element, always important but not all–determining, of the broader context of human affairs and government.

The work of Michel Foucault on the history of ethics provides starting points for further elaboration of an ethics of technical mediation. In Foucault's work there was a remarkable shift of perspective from the study of 'disciplinary power' to an interest in ethics as 'care of the self'. For most of his career Foucault declared that the freedom so important in modern philosophy since the Enlightenment, is an illusion. The assumed 'autonomous subject' is in fact a 'docile body' produced by the disciplinary practices characteristic of modern society. Modernization is accompanied by subjection of people to ever more procedures and detailed surveillance. All in all, modern society looks like a big 'Panopticon' (Bentham's circular dome prison). Foucault's work on disciplinary power reads like a dramatic revelation of the impotence of ethics.

In his later work, however, Foucault approaches individuals no longer as mere 'victims of power', instead he focuses on how people themselves cope with external influences on them. As part of an extensive research into the history of sexual ethics, Foucault studied ancient Greek and Latin texts about the 'care of the self'. He discovered that ancient ethics was exactly about the efforts and exercises that everyone should carry out to make oneself a virtuous person, to pursue a successful life, to stylize one's own existence. Foucault's perspective thus changed from a critique of disciplinary power subjecting people towards practical arts of living whereby people have governed and fashioned themselves.

Exactly this tension in Foucault's work is relevant for the problems surrounding ethics and behavior influencing technology. The care of the self as an approach in ethics can offer an alternative perspective for the ethical analysis of the social effects of technology. Instead of guarding the frontier between

technology that still does and technology that does not respect human freedom, ethics takes on research into the specific forms of interaction and fusion that technologies allow. Such an analysis combines an exploration of the effects of technical mediation with research into the users' activities of accommodating these effects in their lives, and of transforming their existence.

The structure of the chapter is as follows. First I will provide a short presentation of Michel Foucault and his work. Then I will explore Foucault's work considering technology or directly relevant for the philosophy of technology, mainly his book *Discipline and punish.* Next, I will position Foucault's approach to technology among other philosophers in the field of the philosophy of technology. I will discuss how Foucault can be compared to 'critical theory' and Heidegger, but is ultimately best associated with the 'technical mediation' approach (Latour, Ihde, Verbeek). Lastly I will discuss Foucault's later work on ethics. This results in discussing his fourfold scheme of subjectivation that I introduce and propose as a framework for the elaboration in the coming chapters of a philosophy of 'technical mediation and subjectivation'.

2 Michel Foucault

As the work of French philosopher and historian Michel Foucault occupies a central role in my research, I will provide a short biographical introduction and overview of his oeuvre (cf. Eribon 1991; Macey 1993, Macey 2005). Foucault was born in Poitiers in 1926 and he died in Paris in 1984. Foucault was educated at the famous *École Normale Supérieure* in Paris. He became a lecturer in Paris and later in Lille. Between 1955 and 1960 Foucault left France to work as a cultural attaché, successively in Sweden, Poland and Germany. Back in France in 1961 he defended his doctoral research on the history of madness and on Kant's anthropology, which he had also worked on during his foreign stay. He had posts as a lecturer in the French city of Clermond–Ferrand and another foreign stay followed in 1968 in Tunis. In 1970 Foucault became elected professor in the 'history of systems of thought' at the prestigious *Collège de France* in Paris where he gave public lectures that attracted big (international) audiences. Foucault became a much–demanded lecturer around the world. The last years of his life he spent much time in the United States, especially in San Francisco, teaching at the University of Berkeley.

Foucault was a critical philosopher, and a public figure, known in France as well as elsewhere for his social engagement and activism. His research focused on the history of madness, of crime and punishment and of sexuality. His research themes and his engagement with the causes of repressed social groups and emancipatory movements were surely related to, but by no means exclusively determined by his own experiences as a homosexual (cf. Eribon 1994; Halperin 1995). Whereas in his early career Foucault tried to dissociate his personal life from his work as a philosopher, in the later years of his career his personal concerns were more openly connected to his work. He enjoyed the new liberties in such cities as San Francisco. His untimely death in 1984 at age 57 was due to AIDS.

As a philosopher Foucault was not searching for eternally valid, metaphysical answers to the question of what human beings and society are, but he investigated how conceptions of humans about their own existence develop in relation to specific historical and cultural contexts. In a beautiful personal portrait Paul Veyne (2010), described how his friend and colleague Foucault could be characterized as a contemporary 'Skeptic'. Indeed Foucault was critical and suspicious of the proclamation of general truths and ideologies. The purpose of this skepticism was to create space for societal change by showing that what seems necessary is often arbitrary. Foucault's activism was not in conflict with his skepticism about 'the truth', but was based in his belief that 'effort' and 'commitment' are required to give historical develop-

ments a turn for the better. Maybe this makes Foucault even more a contemporary 'Cynic', as he provoked established truths in such an activist way.

Foucault's career is characterized by changing perspectives. Looking back, he spoke himself about three periods, which he described as: 'knowledge', 'power' and 'subject' (roughly the 1960's, 1970's and 1980's). In addition, in the beginning of his career (1950's) Foucault published about psychology and psychopathology. [6]

In each of these periods (especially the three main periods) he has had much success and attracted a following, although the readers have rarely followed Foucault in his successive turns. Many have their favorite Foucault at the expense of the other 'Foucaults'. In his homeland France the reception long remained focused on his early work on the history of the (human) sciences, while in the United States Foucault became a star–philosopher with his work on power. During the past fifteen years Foucault's late work on the subject is gradually being discovered and becoming more influential. Foucault's late work has been an important inspiration for the current trend of attributing more importance to the practice of ethics, the practical arts of living. [7] The changes in reception of the work of Foucault are closely linked with new editions of writings that were less well–known during his lifetime. In 1994 the collected interviews and short texts (*Dits et écrits*) were published (cf. Foucault 2001, 2nd ed.). From 1997 on the lectures at the *Collège de France* are being published. These new texts shed new light on his already multifaceted oeuvre.

The later focus on ethics and the subject troubled many readers of Foucault, because this 'return of the subject' seemed at first sight a regression to notions Foucault had vehemently criticized earlier. I think however that by taking into account the shift in Foucault's later work from knowledge and power to ethics, Foucault's work is becoming all the more relevant for actual problems and discussions. One contemporary problem field where Foucault's approach is highly relevant is the influence of technology on our existence and on how we live our lives. I find his perspectives and insights very inspiring and helpful for elaborating a philosophy of technical mediation and subjectivation. However, for this project it has been necessary to revisit Foucault's work through the lens of the philosophy of technology, while at the same time combining his work on power with his later work on the subject.

My reading and interpretation of Foucault's work is thus distinct in two respects. Firstly, Foucault is read through the lens of the philosophy of technology. Secondly, his earlier work is reassessed from the perspective of his later work. In this way I will recombine ideas of Foucault in a way that he has not done to any great degree: I will show how the 'power of technology' [8] can be recombined with the 'aesthetics of existence' from his later work. The result is a new understanding of the human subject in relation to the influence of technology. The approach emphasizes how users of technology experience and operate transformations of their mode of existence by engaging with new technologies. This view on 'subjectivation through technology use' offers on the one hand an alternative to the opposition between a technical and a genuine human sphere that figures in most ethical evaluations of technology (critical theory, Heidegger). On the other hand, while it has proven difficult to recombine research on 'technical mediation' and 'hybridization' (Latour) with ethics, this is precisely where 'subjectivation and technical mediation' offers a new perspective.

6 The following are some of Foucault's major works. In the early period Foucault published *Maladie mentale et personalité* (1954) (translated as *Mental illness and psychology,* 1987).
The passage to the 'knowledge' period is marked by Foucault's doctoral thesis, *Folie et déraison. Histoire de la folie à l'âge classique* (1961) (*History of madness,* 2006). Then followed *Les mots et les choses* (1966) (*The order of things,* 1970) which is an absolute classic of twentieth century philosophy, and *L'archéologie du savoir* (1969) (*The archaeology of knowledge,* 1972).
In the period on power Foucault published another classic, *Surveiller et punir* (1975) (*Discipline and punish,* 1977), and *La volonté de savoir* (1976) (*The history of sexuality: Vol. 1. An introduction,* 1978).
The period on ethics is marked by *L'usage des plaisirs* (1984a) (*The use of pleasure,* 1992) and *Le souci de soi* (1984b) (*The care of the self,* 1990)

7 Some literature on this theme (that I wish to acknowledge for my study): Davidson (1994) Schmid (1998; 2000), Nehamas (1998), Kunneman (1998), Dohmen (2002), O'Leary (2002).

8 With a nicely coined expression (in the context of Foucault's work) borrowed from Peter–Paul Verbeek (2011, 67).

3 Foucault and technology

In this section I explore the role of technology in Foucault's work. I will start with a short discussion of other scholarly research on Foucault and Foucault's use of the term technology. Then I will proceed towards a review of relevant evocations of technology in Foucault's work.

3.1 Foucault's technology: Words and things

The question as to whether or not Foucault was a philosopher of technology was explicitly asked on at least two occasions, namely by Jim Gerry (2003) and Edouard Delruelle (2003). Both authors conclude that Foucault's work is indeed very relevant for scholars in the field of the philosophy of technology. Surprisingly, they both largely neglect Foucault's analysis of concrete technologies, an analysis which I consider to be of central importance. The reason for this oversight appears to lie in their search for the term 'technology' in Foucault's work rather than looking for references to concrete technical objects. When Foucault speaks of 'technology', he does not mean concrete tools or machines but instead he uses the term in a broader sense, also denoting skills and methods or rationalities that govern people's practices. Thus in *Discipline and punish* Foucault writes about 'disciplinary technologies' as methods of exercising disciplinary power. Similarly, the theme of 'technologies of the self' in his late work refers to practices by which people try to structure and stylize their way of living.

Studies which do recognize Foucault's analysis of concrete technologies have often remained fragmentary, not fully acknowledging the relevance of technology within Foucault's rich oeuvre as a whole. For example, when Ian Hacking or Don Ihde refer to Foucault and technology, they restrict themselves mostly to the 1966 book *Les mots et les choses* (*The order of things,* Foucault 1970), from Foucault's work focusing on *knowledge*. This early work of Foucault is used to support the argument that technology is not applied science, but instead, that technology often precedes science, since technical instruments are required for the production of knowledge (Ihde 1991). Instruments are often neglected but are essential material, concrete conditions of science. Whereas the philosophy of science often was directed at determining the transcendental, *a priori* conditions of true, scientific knowledge, technical instruments are part of the 'historical *a priori*' of knowledge (Hacking 2002, 20–23). These analyses are restricted to the role of technology in the adventures of science, and are not so much concerned with the user guiding and changing effects of technology in daily life.

Most scholars of technology who make use of Foucault's work refer to his work on *power,* especially *Surveiller et punir* from 1975 (*Discipline and punish,* Foucault 1977). Foucault's analysis of the link between technology and power in Jeremy Bentham's circular prison design, the Panopticon, has been widely noticed. Philosopher of technology Andrew Feenberg (2002), for example, has employed this analysis for better integrating technology into critical theory of the Frankfurt School tradition (see also further on: 'The struggle between spheres'). From the inspiration of Foucault's analysis of power and the Panopticon has grown a discipline of its own: *Surveillance Studies*. 'The Panopticon and beyond' is for example the subtitle of a book by David Lyon (2006), one of the most prominent scholars in the field (cf. Dubbeld 2004). Especially formative in the development of my approach has been Hans Achterhuis' attentiveness to the analysis of concrete technologies in Foucault's work (Achterhuis 1998) in the context of his call for an 'empirical turn' in the philosophy of technology (cf. Achterhuis 2002). Achterhuis attempted to find a way out of the tendency towards a dystopian interpretation of Foucault's account of the Panopticon. He called for a conception of the transformative power of technology which is 'minimalistic' instead of 'maximalistic' (Achterhuis 1998, 293; 299): still important but not all determining.

Foucault's later work dealt with a genealogy of the *subject*. As he then took sexual ethics in Antiquity as the domain for historical research, it is not surprising that there are fewer references by philosophers of technology to Foucault's late work. At the same time, the confrontation of Foucault's later work about the subject, freedom and ethics with his work on the seemingly all pervasive power of the Panopticon is a fascinating starting point for the research on the possibility of a minimalistic account of the power of technology. This route was pioneered by Hub Zwart. In his essays on

Foucault's ethics and the 'discontent with technocracy' (Zwart 1995) he explored Foucault's later work, and concluded that Foucault had rediscovered and maybe saved the subject and ethics. A remaining question, not definitively solved in the work of Zwart was however to what degree this subject is a subject saved against intruding technology, or a subject sustaining among and within technology.[9]

Because in his later work Foucault employs *technologies of the self* as a key concept, the confusion about the meaning of the term especially lurk there. Still, the two meanings that can be confused in this expression also point towards the most fruitful way of elaborating a philosophy of technology after Foucault, namely by recombining Foucault's earlier and later work. Such an account should acknowledge the importance of concrete technical objects, but frame them in relation to techniques in the sense of practices that constitute the subject. Very relevant is one of the rare explicit discussions of technology by Foucault himself during an interview with Paul Rabinow on architecture. On this occasion Foucault explained his conception of the term technology[10]:

> '(...) what interests me more is to focus on what the Greeks called the tekhnē, that is to say a practical rationality governed by a conscious goal. (...) The disadvantage of this word tekhnē, I realize, is its relation to the word "technology", which has a very specific meaning. A very narrow meaning is given to "technology": one thinks of hard technology, the technology of wood, of fire, of electricity. Whereas government is also a function of technology: the government of individuals, the government of souls, the government of the self by the self, the government of families, the government of children and so on. I believe that if one placed the history of architecture back in this general history of tekhnē, in this wide sense of the word, one would have a more interesting guiding concept than by the opposition between the exact sciences and the inexact ones' (Foucault 2002a, 364).

In the bulk of Foucault's work the focus is on government, and technology is touched upon in that context. In the cited excerpt, however, Foucault begins with 'hard technologies' and then explains the relation to 'government'. In doing so he defines an approach for a philosophy of technology: the study of hard technologies in relation to technology in the sense of government. The notable relevance of Foucault's work to the philosophy of technology is exactly this approach of revealing the role of (hard) technology for *governing and fashioning the subject.*[11]

This formula clearly resembles our theme of user guiding and changing technology. Foucault is not only interested in the effects that technologies bear in themselves and impose upon humans. The influences of technology are being linked to the theme of government in a general way: of governing and being governed, by others and by things. And importantly, Foucault also mentions the government of oneself (the self by the self) as part of this theme. This is where Foucault's rediscovery of the subject has its place. The subject is not seen as opposed to external influences, but as an experience of oneself which is produced, or that emerges within relations to others and to things. The existence of the subject is always related by Foucault to 'subjectivation'. It does not exist outside any historical and concrete situation, but has a history and is always developing.

The precise understanding of the relations between

9 Some other studies on technology referring to the late work of Foucault that I am aware of are: Munro (1999), Rabinow (1999), Warnier (2001), Willcocks (2006), Rose (2006), Stiegler (2008), Puech (2008), Revel (2009), Brenninkmeijer (2010), Verbeek (2011).

10 Acknowledgement to Grégoire Chamayou, for discussing this theme with me on the occasion of his (unpublished) lecture, 'Foucault, philosophe de la technique', Séminaire Philosophie et sciences humaines CNRS–EHESS–ENS, Paris, January 2006.

11 'Governing' is a recurrent term in Foucault's work from his 1978 lecture on 'Governmentality' onwards (Foucault 2002b). The term 'fashioning' occurs in *Discipline and Punish* when Foucault speaks of the human body as 'a formless clay' that is transformed — in the military — into a soldier: a 'body', therefore, 'that is manipulated, shaped, trained (...)' (Foucault 1997, pp. 135–136). In French it reads: 'corps qu'on manipule, qu'on façonne, qu'on dresse' (Foucault 1975, 138). Ian Hacking used the term in this sense in his lectures at the Collège de France from 2001 and 2005: 'Façonner les gens'.

the human subject and technology will be explored in further detail later on, when I discuss Foucault among other philosophers of technology. I will now first discuss the role of concrete technical objects in Foucault's work.

3.2 The technical details of disciplinary power

I will now turn to an analysis of the role technology plays in the way people are governed and fashioned in *Discipline and punish* (1977), the book in which Foucault dealt most explicitly with technology. In order to bring out the relevance of Foucault's work for analyzing technology, I will focus on his use of historical facts and details — especially the role of concrete technologies. The importance of historical and empirical details was emphasized by Foucault:

> 'A meticulous observation of detail, and at the same time a political awareness of these small things, for the control and the use of men, emerge through the classical age bearing with them a whole set of techniques, a whole corpus of methods and knowledge, descriptions, plans and data. And from such trifles, no doubt, the man of modern humanism was born' (141).

In the following I will discuss Foucault's history of the prison and of disciplinary institutions in general, and I will explicate the 'technical details' that support his philosophical claims about how the subject (the man of modern humanistic philosophy) has been governed and fashioned.

In *Discipline and punish,* with subtitle *The birth of the prison* Foucault analyses the emergence of the prison and of imprisonment as the general method of punishment in the early nineteenth century. The occurrence of prisons was according to Foucault the imperfect result of the efforts by Enlightenment philosophers and their discourse against the cruelties of torture. Moreover, the diffusion of the prison is being compared to developments of other institutions characteristic of modern society: schools, the military, the clinic and the factory. What is typical of these institutions of modernity is that progressively detailed procedures were imposed upon every individual.

Foucault brings to the fore that there was at the time a lively debate about punishment, about the inhumanity of torture and ideas for reform. There was a search going on for new models for understanding society, government and power. Torture had functioned in the context of a *monarchical system of law.* Now one attempted to replace this by a law system based on the idea of a *social contract.* In the reformed social order, the function of punishment should be to indicate that crime disturbs the social contract. And, at the same time, through punishment individuals who had broken the law would have the opportunity to become rehabilitated as legal subjects. Whereas the Enlightenment philosophers advocated liberation, progress, rationalisation and humanitarian reform, Foucault reveals how at the same time a new form of power, 'disciplinary power', was the unforeseen result. While liberation was the ideal, in fact individuals were only subjugated to constraints of a different kind.

> 'While jurists or philosophers were seeking in the pact a primal model for the constitution or reconstruction of the social body, the soldiers and with them the technicians of discipline were elaborating procedures for the individual and collective coercion of bodies' (169).

To better understand the nuances of Foucault's critique of the Panopticon and Bentham's ideas, it is important to see how Foucault makes a difference between the register of 'ideas' and of 'operativity'[12].

Foucault affirms that there are two separate registers for understanding man: the one anatomical and metaphysical, the other technical and political. These registers can also be referred to as the level of ideas and the level of operational practice. According to Foucault it is necessary to pay more attention to the practical government of individuals in modern institutions, such as clinics, school, barracks and factories. That is to say, a research approach that proceeds in the dimension of operativity. The result is an account that contrasts with some of the central concepts of modern philosophy:

> 'Historians of ideas usually attribute the dream of a perfect society to the philosophers and jurists of the eighteenth century; but there was also a military dream of society; its fundamental reference was not to the state of nature, but to the meticulously subor-

[12] This term from the philosophy of technology of Gilbert Hottois (1984) fits well to designate Foucault's approach.

dinated cogs of a machine, not to the primal social contract, but to permanent coercions, not to fundamental rights, but to indefinitely progressive forms of training, not to the general will, but to automatic docility' (169).

The fragment shows how Foucault confronts the modern philosophy of the Enlightenment with 'the military dream' in order to make clear the contrast between the operational and ideological perspectives. Foucault's critique of the Enlightenment consists of showing that liberation was preached on the level of ideas, but that on the ground level, the level of operativity, people were subjects of new regimes of power, this time of the disciplinary regimes in the modern society and its progressively intensive organization and institutionalization. The free, legal subject of modern philosophical *theory* is thus contrasted with the docile individual in *practice* that is being produced by disciplinary power.

'(...) out of a formless clay, an inapt body, the machine required can be constructed; posture is gradually corrected; a calculated constraint runs slowly through each part of the body, mastering it, making it pliable, ready at all times, turning silently into the automatisms of habit (...)' (135).

Discipline functions by monitoring, surveillance and by imposing order, prescribed procedures. Modern scientific medical and psychological knowledge with its divisions and ranks, is not neutral, but always at the same time implies a project of correction and improvement. Foucault thus speaks of 'disciplinary power' and of 'normalization'.

As Foucault emphasizes, disciplinary power must be understood as a formative, productive form of power. Foucault is interested in the workings, the operations of power and in the effects on the way of being of humans and things. As Foucault explicitly asserts himself, this distinguishes his analysis of power from other common understandings of power.

'We must cease once and for all to describe the effects of power in negative terms: it "excludes", it "represses", it "censors", it "abstracts", it "masks", it "conceals". In fact, power produces; it produces reality, it produces domains of objects and rituals of truth. The individual and the knowledge that may be gained of him belong to this production' (194).

The walls and procedures of the modern, disciplinary institutions are not only the boundaries that human freedom may collide with, but they are formative of the human subject in the first place. Foucault's critique of power is not directed at overcoming power, but it attempts to access the operational dimension of power to show by what practices the reality of humans (and things) is fashioned and transformed.

3.3 The Panopticon: Technical determination of power relations

Having unfolded his understanding of productive, disciplinary power, Foucault states: 'Bentham's Panopticon is the architectural figure of this composition' (200). Because of the efficiency and rationality of the functioning of the Panopticon for surveillance and correction, it serves Foucault as the ultimate example of the disciplinary system in general.

'Panopticism is the general principle of a new "political anatomy" whose object and end are not the relations of sovereignty but the relations of discipline. (...) These disciplines which the classical age had elaborated in specific, relatively enclosed places — barracks, schools, workshops — and whose total implementation had been imagined only at the limited and temporary scale of a plague–stricken town, Bentham dreamt of transforming into a network of mechanisms that would be everywhere and always alert, running through society without interruption in space or in time' (208).

It is in the discussion of the Panopticon that Foucault most evidently comes to speak about technology. The Panopticon is the most famous example of a technical object analyzed by Foucault. Foucault was attracted to it because it represented such an emblematic example of how modern institutions exercise power over people. Technology in the sense of a material object is not Foucault's main focus. Still, Foucault does himself explicitly single out the material aspect of the Panopticon and he makes explicit the figure of technical mediation that he sees at work. Even when Foucault approached the Panopticon from the broader perspective of the government of people, the remarkable architectural and material features pushed themselves to the fore. The following fragment is particularly illustrative:

> 'Power has its principle not so much in a person as in a certain concerted distribution of bodies, surfaces, lights, gazes; in an arrangement whose internal mechanisms produce the relation in which individuals are caught up' (202).

In the context of modern, disciplinary society, power does not mean having the authority to govern others. The effect of governing and influencing people has now become integrated into the material and procedural lay out of disciplinary institutions. This is particularly evident in the Panopticon, in which the configuration ensures that someone in the central tower can see everyone in the surrounding cells without being seen. Technical mediation here takes the form of strong compulsion, albeit not by direct mechanical force, but via an inescapable play of power relations. Once the panoptic configuration is installed, the specific power effect takes effect. This figure of technical mediation that appears here can be phrased as the *technical determination of power relations.*

3.4 Pencils and rifles: Training of technically mediated routines

The determination figure related to the Panopticon is appealing for reasons of clarity and strength. Interestingly, Foucault does not use the Panopticon to discover the structure of disciplinary power. The Panopticon only serves as the summit of his claims about disciplinary power. After fifty pages of historical description and analysis of discipline in the military, schools, factories, and hospitals, Foucault concludes by doubting that it may be 'somewhat excessive to derive such power from the petty machinations of discipline' (194). The Panopticon is introduced only then so as to remove any doubts about the importance and scope of the claims about disciplinary power. Prior to the turn to Bentham's Panopticon, the section on discipline is concerned with the structure of discipline in institutions. These pages are equally important for the philosophy of technology as the pages on the Panopticon, because Foucault develops another figure of technical mediation. The research is focused mainly on documents from the archives containing directives and instructions. One example of such an instruction concerns the training of writing at school:

> '(…) the part of the left arm from the elbow must be placed on the table. The right arm must be at a distance from the body of about three fingers and about three fingers from the table, on which it must rest lightly. The teacher will place the pupils in the posture that they should maintain when writing, and will correct it either by sign or otherwise, when they change this position' (152).

Another example concerns directives for shooting from the military:

> 'Bring the weapon forward. In three stages. Raise the rifle with the right hand, bringing it closer to the body so as to hold it perpendicular with the right knee, the end of the barrel at eye level, grasping it by striking it with the right hand, the arm held close to the body at waist height. At the second stage, bring the rifle in front of you with the left hand (…)' (153).

It is not the case in these examples that once the technical object is introduced, a certain effect of power is necessarily imposed. However, this is not to say that these practices and the technologies used do not have any impact on the subject. Foucault emphasizes the training of routines which are involved in the assembling of the human body and technologies:

> 'This is an example of what might be called the instrumental coding of the body. It consists of a breakdown of the total gesture into two parallel series: that of the parts of the body to be used (…) and that of the parts of the object' (153).

As practically all gestures of the body depend on some sort of association with technologies, these fusions or hybridizations of humans and technology structure our mode of existence.

Furthermore, what is specific to Foucault's analysis is that it becomes clear that these fusions between humans and technology are not just given, but have to be forged by training. The revelation of the aspect of training (drilling in the military context), facilitates awareness of the transformative mediations of such mundane technologies, the use of which seems very natural and not morally significant. The mediation effect in these examples does not have the form of an inescapable coercion, but takes the form of a structuring of routines. By drawing attention to the degree of training necessary for these routines to function, Foucault makes clear that the pencil and rifle are not just used,

but become integrated into the user's mode of existence. This is a second figure of technical mediation which can be described as the *training of technically mediated routines.*

4 Foucault among philosophers of technology

Now I have discussed in some detail how Foucault addressed technology as part of his research on disciplinary power, I will position Foucault among other philosophers of technology. How does Foucault's understanding and evaluation of the relation between the human being and technology compare to other approaches in the philosophy of technology? First, I will address similarities and differences between Foucault's approach and a line of thought that tries to maintain a human sphere free of intrusion from technology (critical theory). Next I will compare Foucault and Heidegger to find that a fundamental hybridization of technology and humans does not constitute the kind of greatest danger for Foucault as it does for Heidegger. Finally, I will show how Foucault's work on technology can be used to formulate a philosophy of 'technical mediation', in line with contemporary thinkers such as Bruno Latour and Don Ihde.

4.1 Struggle between spheres: Critical theory

In *Discipline and punish* Foucault confronts the ideal of modernization as liberation from irrational beliefs and power structures with a historical analysis that reveals instead the rise of a *disciplinary society made up of disciplined individuals* (Foucault 1977, 218). This thesis of the spread of disciplinary power clearly resembles other critiques of society and technology from the 1960's and 1970's.[13] Many of those critiques arose, in one way or another, from neo–Marxist thought and they often evoke metaphors of struggle and radical transformation. Typically, a genuine human sphere is seen as being threatened by a sphere in which power, consumerism and technology are prevalent. A 'struggle between spheres' can be found in the classic works of Marcuse (1964), and Habermas (1970), and also in more recent works (explicitly acknowledging Foucault) by Poster (1984), Feenberg (2002), Negri and Hardt (2000), and Stiegler (2008).[14]

Foucault's analysis of disciplinary power does demonstrate some resemblance to such a two spheres approach. His concept of 'discipline' as a quasi–autonomous system of power is similar to a rushing sphere of technology. What sets Foucault apart is that his moral stance towards the rise of discipline remains ambiguous. He neither explicitly rejected the rush of discipline, nor did he formulate a program for stopping it. This moral ambiguity confused and annoyed many readers.[15] In his following book, the first part of his *History of sexuality* (which appeared in 1976) Foucault stated: 'where there is power, there is resistance' (Foucault 1990, 95). This immediately became a popular reference for showing that Foucault did have some kind of critical political project.

However, in one of his last texts (from 1984), 'What is Enlightenment?' it becomes clear that Foucault's position is not (or at least is no longer) in accordance with the conception of a struggle between spheres. He distances himself from 'projects that claim to be global or radical', instead expressing his preference for 'specific transformations' like those he had witnessed taking place in the 1960's and 1970's, for example in the relation between the sexes (Foucault 2000a, 316). He also offers a reformulated account of the danger:

> 'And we have been able to see what forms of power relation were conveyed by various technologies (...). What is at stake, then, is this: How can the growth of capabilities [capacités] be disconnected from the

[13] For example Andrew Feenberg, for the purpose of his 'critical theory of technology', compares Foucault's disciplinary power with Marcuse's thesis of 'one dimensional man'. He considers Foucault's historical approach a 'useful corrective' to Marcuse's insights that remain 'very general' (Feenberg 2002, 67)

[14] Other critiques of technology, for example the call for a 'red line' as a limit to technical development by Fukuyama (2002), as well as the work of Ellul (1964) and Jonas (1984) employ a similar strict distinction between a human and technical sphere, however without sharing the neo–Marxist background. Remarkable about Stiegler is that he does extensively refer to Foucault's later work; however in the end he remains much closer to a Marxist scheme than Foucault does.

intensification of power relations?' (Foucault 2000a, 317).

The danger of 'discipline' as a quasi autonomous system has been replaced by critical attention to 'disciplinary tendencies'. The tone is clearly more optimistic than in *Discipline and punish*. This is not, however, due to a simple reversal of winning chances on the front line of the struggle between spheres. Instead, Foucault makes explicit that power relations are inescapable; however, this does not mean that humans are merely victims of power. I will further elaborate this point by comparing Foucault with Heidegger.

4.2 Ontological deception: Heidegger

Martin Heidegger's philosophy of technology offers the most substantial example of an analysis where the relation between humans and technology tends to be fixed at a fundamental, ontological level. In *The question concerning technology* (1977) Heidegger asserts that our world is not only full of technical objects; but moreover on a deeper level our way of perceiving and interpreting the world has been reduced to framing everything in technical terms. The contemporary understanding of Being, termed Enframing, makes the world appear as a stock of resources at the command of man.

Heidegger's position is beyond the model of a struggle between spheres, because there is no place for a human sphere which is not yet affected by technology. In a similar way, Foucault affirms in *Discipline and punish* that the human subject is fundamentally marked by disciplinary power.

> 'The man described for us, whom we are invited to free, is already in himself the effect of a subjection much more profound than himself. (…) The soul is the effect and instrument of a political anatomy; the soul is the prison of the body' (Foucault 1977, 30). [16]

Moreover, in 'What is Enlightenment?', following his position against radical transformations, Foucault formulates a doubt that sounds like Heidegger's 'gloomy view':

> '(…) if we limit ourselves to this type of always partial and local inquiry or test, do we not run the risk of letting ourselves be determined by more general structures of which we may well not be conscious, and over which we may have no control?' (Foucault 2000a, 316).

Ultimately however, Foucault's evaluation following this insight differs from Heidegger's. While affirming the deep, ontological connection that Heidegger draws between humans and technology, Foucault nonetheless rejects the gloomy conclusion and asserts that humans have to accept the impossibility of a sovereign position. In a note in his working papers, written when he was working on his final books, Foucault explicitly sets out the difference between himself and Heidegger.

> 'For Heidegger, it was on the basis of Western tekhnē that knowledge of the object sealed the forgetting of Being. Let's turn the question around and ask ourselves on the basis of what tekhnai was the Western subject formed and were the games of truth and error, freedom and constraint, which characterize this subject, opened up' (cited in Gros 2005, 523). [17]

Foucault emphasizes another time that technology is undeniably part of the human mode of existence. In 'What is Enlightenment?' Foucault asserts that, for him, the discovery of the historical conditions of the subject is a problem that characterizes the stakes of modern philosophy. What he calls the 'attitude of modernity' is the will to address the history of how the human subject has been governed and fashioned. Foucault then unfolds an approach to philosophy that he terms 'critical ontology of ourselves', which he conceives as being:

> 'an attitude (…) in which the critique of what we are is at one and the same time the historical analysis of the limits imposed on us and an experiment with the possibility of going beyond them' (Foucault 2000a, 319).

Thus Foucault advocates philosophical research following a double–sided formula: on the one hand promoting

15 Among them most notably: Jürgen Habermas, Charles Taylor and Nancy Fraser; see O'Leary (2002, 160).

16 While Plato has Socrates argue in the *Phaedo* for the existence of a 'soul' to be liberated from imprisonment by the 'body', Foucault suggests that the soul is only constructed in the imprisonment. The soul is produced by discipline on the body, and then also serves discipline by monitoring the body.

17 Cf. Foucault 1999, 161, n.4. (from the 1980 'Howinson Lectures', Berkeley).

historical investigations into the ways in which modes of existence have been conditioned so far, and on the other hand, suggesting practical and experimental activities aimed at changing one's mode of existence.

4.3 Hybrid relations: Philosophy of technical mediation

Foucault's critical ontology of the self distinguishes itself in its attentiveness to the emergence and constitution of new modes of human existence. This corresponds with the approach of 'technical mediation' in recent philosophy of technology. Reacting to the abstract and gloomy views of Ellul and Heidegger, scholars such as Don Ihde and Bruno Latour have promoted a more empirically orientated philosophy of technology. Their work is interdisciplinary, incorporating empirical and historical research, and is associated as much with the field of Science and Technology Studies as with Philosophy. Building on the work of Ihde and Latour, Peter–Paul Verbeek (2005) has outlined a practice oriented philosophy of technology with 'technical mediation' as its main theme. He endorses research into 'what things do': the role of concrete technologies as mediators of human experience and action.

A basic notion in the mediation approach is that human existence is always influenced by technology. There is no original, and certainly not a clear–cut distinction between humans and technology. Instead, what is of interest are the different kinds of human–technology relations (Ihde 1990). Humans are always *hybrids* of supposedly human and technical aspects (Latour 1993). A problematic point of this account of humans as hybrids is that it undermines the ethical stakes that inspired much of the philosophy of technology. Or, as Langdon Winner complained, research on technology in the style of Science and Technology Studies had become 'depoliticized' (Winner 1993).

Paraphrasing the form of Winner's conclusions, the following could be said with respect to ethics in relation to technical mediation. While the approach of critical theory was directed towards confining the sphere of technology in order to protect a core human sphere, this attempt now appears infeasible, as the presupposition of clear boundaries and limits is deemed illusory. Next, in an approach like Heidegger's, hybridization was at least still recognized as the greatest danger, but mediation theory just emphasizes the inevitability of it. In conclusion, it seems that a more detailed account of technical mediations and the hybrid form of human existence comes at the cost of losing any solid ground for ethical claims.

Bruno Latour's position is very interesting in this respect, as he has endeavored to bridge the gap between his descriptive analysis of technical mediation and ethics. Latour asserts that technologies often guide or constrain human action. Car drivers' slowing down for a speed bump does not occur as a result of their willingness to obey the law but is the result of the intervention of a technical object. According to Latour's analysis the action was 'delegated' from humans to technology. This does not mean the end of ethics, he thinks. Instead, he claims that those (from the human sciences) who see a decline of morality (under postmodern conditions) would find the 'missing masses of morality' by recognizing that action is often delegated from humans to artifacts (Latour 1992).

Usually, human agency and freedom are seen as necessary preconditions for ethics. Only free subjects can respond to the call of a moral principle or law. Latour's approach does not frame ethics in this way; indeed his approach implies quite the opposite. Latour suggests that morality can also operate through the user guiding effects of technology. Considered from the common framework that fundamentally distinguishes deliberate, moral action from coerced behavior, it would seem that Latour does not discover the 'missing masses of morality', but rather reveals the 'missing masses of disciplinary power'. Foucault had criticized the understanding of the autonomous subject by revealing the history of disciplinary power in governing and fashioning human beings. Latour's research extends Foucault's historical method with a method to reveal how the mundane technologies of today govern and fashion humans.[18]

[18] A similar case is made by Soren Riis (2008) for Heidegger and Latour. In his exploration of the similarities between the two, he affirms that Latour does not depart from Heidegger, but instead, that Latour's *actor–networks* can be interpreted very much in line with Heidegger's *Enframing*.

Thus far an understanding of the subject and of freedom and agency in relation to technical mediation is lacking. As long as this understanding is lacking, every instance of the influence of technology on human action can only appear as an infringement of freedom and thereby a negation of ethics. Foucault's turn from the analysis of power to ethics helps to address this problem. While Foucault's earlier work is rightly seen as a dramatic attack on the autonomous subject as it is presupposed in modern ethics, his later work is concerned with developing an alternative ethical framework wherein 'the subject' is not suppressed by revealing external conditions that guide and change it. Foucault begins to understand ethics as the active engagement of people with governing and fashioning their own way of being in relation to conditioning circumstances. An extension of that framework to the problem of technical mediation opens up a new perspective for ethics in relation to technical mediation.

4.4 Figures of technical mediation

Although the similarities between Foucault's analysis of modern society and the analysis of critical theory or Heidegger have been often observed, I claim that a more important and lasting contribution centers on the relation between Foucault's work and the mediation approach in the philosophy of technology. Foucault's work complements the work of other researchers with original examples and an analysis of the transformative power of technology. His particular contribution, explored here, is visible in the distinction between two different 'figures of mediation', two 'exemplary effects' of how technology can guide and change people (using terminology that will be further explicated in the next chapter). The first, elaborated in the context of Bentham's utopian project of the Panopticon, can be characterized as the *determination of power relations.* Looking closely at Foucault's analysis of concrete, existing disciplinary institutions leads to the discovery of a second mediation figure, where the impact is less coercive and imposed by *training of technically mediated gestures.*

In the aforementioned interview on architecture Foucault stresses that the determination figure of technical mediation should not be seen as the ultimate one. In the discussion, he refers to a study on the social effects of the emergence of the chimney in houses:

> 'It is certain, and of capital importance that this technique [the chimney] was a formative influence on new human relations, but it is impossible to think that it would have been developed and adapted had there not been in the play and strategy of human relations something which tended in that direction. What is interesting is always interconnection, not the primacy of this over that, which has never any meaning' (Foucault 2002a, 362).

As discussed before, Foucault's analysis of disciplinary power and the Panopticon does show similarities with the figure of a struggle between spheres that can still be triumphed (critical theory) or appears to be lost (Heidegger). However, here Foucault clearly advances an understanding of the importance of technology in line with the approach of technical mediation: affirming that interconnections are important, and not the primacy of either a technological or a human sphere.

In *Discipline and punish* I identified two figures of technical mediation that are explicitly entertained by Foucault. These are only the principle figures; a more detailed account would show more variations. For example, using the approach of analyzing technical mediation figures, it is possible to follow in *Discipline and punish* the references and sources that enabled Foucault to learn to acknowledge the importance of technology. Foucault (1977, 141) refers to Phillipe Ariès (1960) who analyzed the relation between the emergence of childhood as a distinctive period in the human lifespan and the emergence of houses with separate bedrooms for adults and children. What Foucault could have taken from this is that *social and technical change accompany each other*. Foucault also acknowledges Georges Canguilhem (1966) (Foucault 1977, 184), who affirms that *normalization processes as found in technology development also effectuate normalization of social relations.* Finally, Bentham's Panopticon allowed Foucault to elaborate on the notion that the influence of *technology can be all pervasive and determining* (Cf. Foucault 1980).

In my interpretation then, Foucault does not offer one ultimate theory about technology. Instead, I take it as a suggestion that after the acknowledgement of hybridization the appropriate continuation of research

encompasses the exploration of the multiple figures of technical mediation.

However, I think that the relevance of Foucault's work to a philosophy of technical mediation goes further. His contribution is twofold, following the double–sided approach of his critical ontology of the self. First, as shown here, his historical analysis of disciplinary power addresses the role of technical mediation in how the subject is governed and fashioned, the historical conditions of the subject. Second, Foucault's call to complement historical analysis with experimentation on the transformation of ourselves, points towards an *ethics* of technical mediation. In this broadened framework the analysis of how technologies govern and fashion humans becomes integrated into a broader philosophy of *subjectivation.* The influences of technology no longer appear by definition as a negation of human agency and freedom, but technical mediations become a concern and what is at stake are the human practices of governing and fashioning oneself and others. With this Foucault's ethical perspective brings something new which has so far been largely absent from the approach of mediation theory.

5 Technical mediation and subjectivation

With the double–sided formula of a critical ontology of the self, Foucault promoted historical research into the conditions of the subject and a reflection on and experimentation with new forms of existence. Until *Discipline and punish,* Foucault's work was concerned with how the subject had been governed and fashioned. The second part, of governing and fashioning one's own existence, was largely absent. Moreover, if it was present, it was treated in a biased way, as the formation of modes of existence was presented as resulting exclusively from disciplinary power. Only in his later work did Foucault begin to take into consideration people's own concerns about the conditions of their existence. Research into ancient arts of existence provided inspiration to Foucault with respect to how to give expression to this theme and to develop it in relation to moral philosophy. In this section I will introduce Foucault's turn to ethics and the theme of subjectivation. I will then, in the coming chapters apply Foucault's framework of subjectivation to the domain of technology, in order to work towards a philosophy and ethics of technical mediation, or what I will call the study of 'technical mediation and subjectivation'.

5.1 Ethics as subjectivation

Foucault unfolded his 'turn to ethics' in the second and third part of *L'histoire de la sexualité,* published in 1984: *L'usage des plaisirs* (1984a) and *Le souci de soi* (1984b) (*The use of pleasure,* 1992; and *The care of the self,* 1990). Foucault's work on a series of books on the history of sexuality spanned decades. The first part from 1976, *The will to knowledge,* provides a programmatic outline of the project, very much in line with the approach followed in *Discipline and punish.* However, the project took a very different direction. In the books from 1984, after years of redirecting his research, the focus is no longer on modernity but on ancient Greece and Rome. And rather than studying the mechanisms of power that subjugate people, Foucault focuses on how people govern and fashion themselves.

Foucault explains the changed perspective himself in the 'Introduction' to *The use of pleasure.* Together with the aforementioned essay 'What is Enlightenment?' this 'Introduction' is a key text of the later Foucault. Foucault gives an account of his turn to the subject, after his research had earlier turned towards a focus on knowledge, and then to power.

> 'It appeared that I now had to undertake a third shift, in order to analyze what is termed 'the subject.' It seemed appropriate to look for the forms and modalities of the relation to self by which the individual constitutes and recognizes himself *qua* subject' (Foucault 1992, 6).

Although the resulting books are still about the history of sexuality, these works have much wider philosophical relevance. Foucault's study is also an attempt to describe a genealogy of the subject in the history of ethics, aiming at the same time to contribute to the renewal of contemporary ethics.

Foucault's earlier research into power seemed incompatible with ethics. Indeed, it was from beginning to end a vehement critique of that basic assumption in modern

philosophy which is the notion of the free, autonomous subject. In Antiquity, Foucault found, ethics was less focused on the law, but rather concerned with the 'arts of existence' (10). This ethics did not employ the figure of a free subject called to respond to the duty of moral law. Morality can be assessed by the question of the moral codes and their foundation, but also by the question why and how people actually orientate themselves towards a code. For, as Foucault remarks: 'the interdiction is one thing, the moral problematization is another' (10). By problematization, Foucault means human thinking, not in the sense of true theories, but in the sense of people's concerns and questions about their existence, and the way of living to pursue.

While the codes were less important in ancient ethics, there was more emphasis on the practical skills and exercises of governing and fashioning oneself. This practical knowledge was concerned with how one achieves mastery over one's own course of action and way of living. In this framework, the subject does not function as a necessary presupposition, but is itself the issue at stake.

> '(...) all moral action involves a relationship with the reality in which it is carried out, and a relationship with the self. The latter is not simply "self–awareness" but self–formation as an "ethical subject" (...)' (28).

Thus, Foucault discovered a conception of ethics where the central concern is with the 'constitution of the subject', the emergence or formation of a self with self–reflexive experience and the competence of self–conduct. Foucault uses the term *subjectivation,* denoting the process of 'becoming a subject'.

In this perspective, Foucault is interested in practices as much as in theories, and therefore his study focuses on practical texts, books in which something can be traced of how people actually lived their lives.

> 'These texts thus served as functional devices that would enable individuals to question their own conduct, to watch over and give shape to it, and to shape themselves as ethical subjects' (13).

The framework which Foucault elaborates in the 'Introduction' is strongly convergent with the approach of a 'critical ontology of ourselves' advanced in 'What is Enlightenment?'. 'Problematization' now becomes the term for tracing and criticizing one's own historical and empirical conditions of existence. The efforts of people to adapt and stylize their own mode of existence are now approached from the notion of 'practices' or 'technologies of the self'.

Besides this general conceptual convergence, there are also differences. In 'What is Enlightenment?' Foucault was intervening in the debate about progress and rationality in modernity, whereas *The use of pleasure* and *The care of the self* are dealing with sexual ethics in Antiquity. For this reason, obviously, references to (modern) technology are absent. Still, the *History of Sexuality,* and especially the philosophical and methodical contextualization of the project in the 'Introduction', have much to contribute to the analysis of modernity and technology. This is because *The use of pleasure* and *The care of the self* contain a much more profound elaboration of what Foucault meant by transforming one's mode of existence and the relation to the history of moral philosophy.

This extension of moral theory, from reflection on free subjects responding to law ('code–based ethics'), to the formation of specific instances of subjectivity, makes it possible to link Foucault's work on power to ethics. In retrospect, subjectivation can also be seen as the main theme in Foucault's earlier work. In fact, Foucault showed that disciplinary practices *shape* the kind of subject that modern philosophy takes for granted. (Similarly, Foucault's work on knowledge was implicitly concerned with the kinds of subjects that are evoked when people *define* themselves and others as subjects through everyday and scientific discourse.) This earlier research is now being reconsidered and complemented by research into how people engage in shaping their own mode of being. As noted before, Foucault expressed this himself with the double–sided formula of a critical ontology of the self (exploring historical conditions and experimenting with changing the conditions). This formula can therefore be seen as an attempt to integrate the discovery of the ancient ethics of subjectivation with a contemporary critical philosophical approach. The experimental approach to transforming one's own conditioned mode of existence converges with Foucault's call for a new 'aesthetics of existence'.

5.2 Four dimensions of subjectivation

Foucault asserts that subjectivation is fundamental to moral action, but its mode is historically and culturally variable. His genealogy of ethics reveals how, during the course of history different understandings of the subject and different experiences of being a subject have prevailed. In structuring this genealogy, Foucault distinguished four dimensions of subjectivation and investigated how different ethical systems differ along these dimensions (see Foucault 1992, 25–32; and 2000b, 262–269). The scheme of subjectivation comprises ethical substance, subjection mode, ethical elaboration, and telos.

With the *ethical substance,* Foucault designates the part of the self where people's concern and efforts of improvement are directed, the substance that is being fashioned. Foucault's genealogical research addresses how different ethical systems operate with different conceptions of the self. In the case of sexual ethics, the point for the Greeks was to make appropriate use of the range of possible acts of pleasure, thereby fashioning one's moral character in confrontation with the opinion of others. Later, in Christianity, the self was identified with intentions that had to remain free of inappropriate desires, or seductions by an evil power. The will is also at the center of Kantian ethics. In ancient sexual ethics acts of pleasure and their social consequences functioned as the ethical substance, while in Christian and modern ethics this shifted to the will which must be adjusted to God's will or to universal reason. Ancient ethics functioned without this notion of a will, just focusing on actual acts and their consequences for a person's virtuous, respectable moral character.

The second aspect which Foucault discerns as part of the structure of subjectivation is the *subjectivation mode.* It denotes the way in which people feel forced, invited, or encouraged to engage in ethics. For centuries, the main motive for ethical engagement was the acknowledgement of a duty, stemming from divine or rational moral laws. In Antiquity, Foucault finds, the motivation for moral behavior rather had an aesthetical character, a will to style. With respect to sexual ethics, the ancients hardly acknowledged absolute codes, but felt that they had to make proper, moderate use of acts of pleasure, because their behavior would establish a style of living and their publically visible character. The modern configuration of the subject as free will called to obey absolute law is confronted here with the ancient alternative of a moral character to be configured from multiple possible behaviors where the motive to do so is to attain style.

Moral laws or aesthetic choices of style may define a mode of existence, but effort and exercise are required to adjust one's way of being to this form. Foucault calls this *ethical elaboration.* This aspect of ethics has been neglected in theories of ethics which focus on compelling codes, but was at the forefront of the ancient aesthetics of existence. In his historical research Foucault singled out the importance of what he called *practices* or *technologies of the self* (technology here in the meaning of method or exercise). Examples of technologies of the self in ancient ethics are: meditation, diet, and consultation with a mentor. In the modern, institutionalized society, ethical practices have become separated from ethics. The care of the self has become progressively replaced by procedures that individuals are expected to follow and accept because they are rational and scientific.

The last aspect of the subjectivation scheme is the *telos.* In any configuration of ethics, subjectivation proceeds in the light of a goal. This is especially clear in Christianity, where the hope for an afterlife serves as a telos for ethics. Kant, who attempted to make ethics independent of religious belief, left the telos merely implicit as he emphasized duty regardless of any reward. Foucault's view is that the telos of (sexual) ethics in antiquity was self–mastery, as opposed to being slave to one's passions. The point was not to be independent of external powers, but to achieve the attitude and skills to actively cope with those influences, so that one conducted oneself. This capacity is what Foucault came to understand as freedom: not a state of independence, but a 'practice' of conducting oneself by actively coping with external powers. The ethics of Antiquity thus had a telos inside this world and inside the lives of people, a vision about what kind of subject one wanted to be.

All moral actions imply the constitution of oneself as ethical subject. This process can be described by the four dimensions of subjectivation. To wrap up the meaning of subjectivation and the fourfold scheme, Foucault writes:

> 'self–formation as an "ethical subject" [is] a process in which the individual delimits that part of himself that will form the object of his moral practice [ethical substance], defines his position relative to the precept he will follow [mode of subjection], and decides on a certain mode of being that will serve as his moral goal [telos]. And this requires him to act upon himself, to monitor, test, improve, and transform himself [ethical elaboration]' (Foucault 1992, 28).

As Deleuze (1988, 112) first noticed, Foucault's scheme retrieves the Aristotelian fourfold of material, formal, efficient and teleological causation. The exact importance for Foucault of his reference to Aristotle is unclear. Foucault has, to my knowledge, nowhere explained how and why he conceived of this 'Aristotelian' framework. Foucault just introduces the four terms and explains what they designate for him. He employs the scheme for his genealogy of ethics, for structuring the description of the different experiences people have had throughout history of the meaning and practice of ethics, self–conduct, self–improvement, moral laws etcetera. The content of the historical developments Foucault articulated with help of the scheme were fascinating enough, so that apparently nobody has asked the question why he used that framework and not any other. It can however be concluded that Foucault employed the scheme to give full and general importance to the perspective of subjectivation. In an earlier account of his changing research approach, Foucault distinguished between the 'mode of objectivation' and the 'mode of subjectivation' as two aspects involved in the phenomenon of thinking, the formation of knowledge (Foucault 2001a, II, 1451). This formulation entertains the same duality as the double–sided formula of a critical ontology of ourselves. The advanced fourfold scheme of subjectivation can be seen as an attempt to further overcome the duality between subject and object.

5.3 Subjectivation and technical mediation

Foucault's scheme of subjectivation can be employed for tracing and articulating shifting ethical experiences of today. Foucault himself suggests — particularly in interviews — that a contemporary renewal in ethics could be inspired by the ancient aesthetics of existence. Two prominent commentators of the late work of Foucault have indeed reconstructed Foucault's own ethics as art of existence by using his scheme of subjectivation. Paul Rabinow used it in this way in his introduction to the *Ethics* volume of an anthology, *Essential works* (Rabinow 2000, XXVII and onwards). And Timothy O'Leary used it for structuring his book *The Art of Ethics* (2002). Both works have been very important in the scholarship of Foucault's later work on ethics.

In the following chapters, I will also follow up on Foucault's suggestions and use the four dimensions of subjectivation for analyzing contemporary ethical problems, namely of the relation between humans and technology. I will reconsider the influence of technology on humans from the perspective of subjectivation. How have humans perceived the influences of technology and accommodated them in elaborating themselves as hybrid beings, attached in many ways to technologies? I will thus recombine the analysis of figures of technical mediation in a broader approach, that is, an ethics of technical mediation.

This employment of Foucault's fourfold scheme of subjectivation allows for an intriguing comparison with Heidegger. For, in Heidegger's essay *The question concerning technology* (1977), the same causality scheme structures the argument. Foucault's ethics, as combined with technology in this chapter, and Heidegger's approach to technology thus share the reference to the Aristotelian modes of causation. For Heidegger, engaging with technology implies reducing the multiplicity of causation to efficient cause alone, which, he thinks, means the 'forgetting of Being'. Foucault's late work implicitly is an extensive reply to Heidegger. Foucault made this explicit only in passing remarks such as I quoted before (from Gros, 2005), about turning Heidegger's question around and considering techné implied in any form of subject. Foucault claims that by turning one's attention to how the subject engages in the causation of itself (subjectivation), the various dimensions of causation can still be found. This means that technology is indeed always involved in the constitution of the subject like Heidegger feared, but at the same time it means that technology is not as one–dimensional as Heidegger asserted. In Foucault's thought there is less the sentiment of an original, authentic awareness now lost, and more of an estimation that improvement is

possible simultaneously with further modernization and technical development.[19]

In the following I will indeed investigate how the multiple dimensions of subjectivation are relevant for understanding how human existence is being mediated by technology and how coping with these influences is relevant for 'becoming subject'. The four dimensions of subjectivation provide the occasion for four essays, addressing different aspects of the issue of technology and subjectivation. First, the ethical substance aspect allows me to investigate into theories of how humans and technologies are merged, hybrid beings. Chapter 4 about the hybrid self discusses theories and figures of technical mediation from history and philosophy of technology and associated fields. Second, the aspect of the mode of subjection is the occasion to discuss moral philosophical theories, especially concerning the use and status of rational principles (chapter 5). Third, the dimension of the ethical elaboration gives opportunity to turn to the practice of ethics and towards anthropological research of humans coping with influencing technologies (chapter 6). Fourth and last, the aspect of teleology forms the starting point for a chapter on what are the goals of the care for our hybrid existence. Chapter 7 discusses what can still be the meaning of freedom when it cannot be independence of technology.

6 Conclusion

Foucault's work is relevant for thinking about technology because he considered the role of technology in the way in which the human subject is fashioned and governed. At first sight, his work on power seems the most relevant. In his later work on subjectivation and ethics, technology is absent. However, by recombining Foucault's work on power with his work on subjectivation, his work contributes to solving pertinent problems in current approaches to the ethics of technology. This recombination results in my approach of 'technical mediation and subjectivation'.

In order to do this, Foucault's earlier work must be reassessed from the perspective of his later work. The focus is no longer exclusively on disciplinary power that produces the human subject. Instead, the focus is on how people are themselves involved in becoming subjects. Foucault advocates philosophical research that is a critical ontology of ourselves: simultaneously investigations into the historical conditions of ourselves as subjects, and practical experiments of transforming one's existence. The work on power, including the role of technologies, appears to have dealt only with the first half. In *Discipline and punish,* I identified two principal figures of technical mediation: the determination of power relations and the training of mediated gestures. Next, I showed how the analysis of figures of technical mediation can be extended and complemented by research into how people govern and fashion themselves through their engagements with technologies.

The result is a framework in which research on the influences of technology do not necessarily appear opposed to the human subject and ethics. Instead the formation of the subject can be studied as a process in which humans explore the influences of technology on themselves, cope with those influences and achieve a certain degree and style of mastery over themselves as hybrid beings. In order to further elaborate this, I proposed to employ the four–dimensional scheme that Foucault used to study subjectivation. The next four chapters develop the approach of 'technical mediation and subjectivation' by separately treating the four dimensions of subjectivation: ethical substance, mode of subjection, ethical elaboration, telos. In the approach hybridization is not opposed to ethics, but is explicitly addressed as a theme that deserves the greatest care in the sense of an ethics as care of the self.

[19] See also the earlier quotation from Foucault about the sealing of Being by techné in Gros (2005). See Revel (2009) for a comparison between Heidegger and Foucault with a very similar conclusion, although she does not use the Aristotelian causations as basis of her analysis.

Chapter 4
Our hybrid selves: Figures of technical mediation (Ethical substance)

1 Introduction

In this and the coming chapters I treat the four different dimensions of subjectivation. In this chapter I will start by discussing the ethical substance. In Foucault's framework of subjectivation ethical substance designates the 'substance', or the 'material' of the self at which people's concerns and efforts of ethical improvement and self–fashioning are directed. In the context of an ethics of technology the ethical substance concerns the question of how we think our existence is dependent on and transformed by technology. We sense that technologies are part of us and transform us, and we worry if these influences of technologies on us are desirable or undesirable. With regard to the ethics of technology, the substance of our self that concerns us ethically is our existence as it is interwoven with technologies, our technically mediated way of being. The ethical substance thus can be termed the hybrid self. The question in this chapter of reflection about the ethical substance and technology is how people experience and conceptualize the influence of technology on them. How do we explore the mediating effects of technology on us?

This theme of how our mode of being is related to technology is obviously a central question in the philosophy of technology. An important question is however if this merger between humans and technology must be welcomed and exploited, as in the case of behavior guiding and changing design, or should be avoided as much as possible. In positioning Foucault among philosophers of technology I discussed already some different strands of thinking about the relation between technology and humans: a struggle between a human and a technical sphere, deception of genuine human existence by technology, and hybrid relations. In this chapter I want to extend this philosophical research about the relation between technology and humans. In accordance with the last chapter, my point of departure will be that technology should not be seen as an external entity, fundamentally different and separated from humans. Instead humans and technology should be seen as mixed and mutually dependent. The question is not if we should acknowledge a profound merger of ourselves with technology but how we can best understand ourselves as hybrid beings and how we can cope with the influences of technology. The challenge is to consider the guiding and

changing effects of technology more explicitly as part of practices of fashioning and governing ourselves (of subjectivation).

In the field of the philosophy of technology the approach of 'technical mediation' (Verbeek 2005), where the merger of humans and technology figures as a central notion, offers a valid starting point for exploring our *hybrid selves.* My purpose is not to define one approach that could be called an ultimate, explanatory theory of technical mediation. The emphasis is not on providing an ontology that accounts for and explains our mode of hybrid being. Rather, motivated by the research purpose of contributing to the design and ethics of user guiding and changing technology, I intend to collect some of the most relevant explorations of our hybrid self from different research approaches. This chapter, therefore, provides a survey of research concerning technical mediation from fields as diverse as philosophy, history, media theory, anthropology and behavioral sciences.

Further extending the approach I followed in the chapter about Foucault and technology I will focus on different figures of technical mediation. A figure of technical mediation is an answer to the question: what do technologies do to us? In order to categorize different effects of technology on us, an additional question that can be asked is: if technologies influence us, how do the effects of technology reach us, where do technologies make contact with us? Following these questions, my work of combining and comparing different approaches will result in a *repertoire of figures of technical mediation* organized in a *model of interaction modes.* The resulting model and repertoire of effects are intended to be useful as a tool for exploring the mediation effects of technology. In the last chapter of this study the model that I develop here will be revisited as part of a design tool.

The outline of the chapter is as follows. First I will further define and discuss my approach in relation to other approaches to technical mediation. Next, I introduce and explain the modes of interaction model. Finally, the most extensive part of the chapter consists of an overview of theories and exemplary figures of technical mediation, in sections following from the model (above–the–head, before–the–eye, to–the–hand, and behind–the–back).

2 Theories and figures of technical mediation

In this section I will discuss my approach to the theme of technical mediation. An overview and synthesis of some significant theoretical approaches of technical mediation can be found in *What things do* by Peter–Paul Verbeek (2005). The overall theme of Verbeek's work could be described as the elaboration of a *philosophy of technical mediation.* However, other approaches (such as the classical philosophy of technology and approaches from other scientific disciplines) have also resulted in theories of technical mediation, or at least have discovered and analyzed examples of effects of mediation. In this section I will start by introducing the philosophy of technical mediation (after Verbeek) before I explain my approach of a *repertoire* and the *model* that I will use for reviewing exemplary *figures of technical mediation.*

2.1 Towards a philosophy of technical mediation

In *What things do* Peter–Paul Verbeek employs the concept of *technical mediation* for denoting that human existence is always intertwined with technology. Our being in the world, our perceptions and our actions,

are always to a smaller or larger degree constituted and transformed by technologies. Verbeek elaborates a 'post-phenomenological vocabulary' that describes the phenomenon of technical mediation along two dimensions. The one dimension is termed 'hermeneutic' and is about 'how the world appears to humans', or our 'perception of the world'. The other dimension is termed 'existential' and is about 'how humans appear in the world', or 'our action in the world' (Verbeek 2005, 196).[20]

Verbeek's practice oriented philosophy of technical mediation was framed as an alternative to the rather hostile critiques of technology by scholars such as Karl Jaspers (1931), Martin Heidegger (1977), and Jacques Ellul (1964). These proponents of what has been called the 'classical philosophy of technology' (Achterhuis 2001) aimed to reach beyond the adventures with concrete technologies to reveal a more profound essence of technology. The result was the discovery that technology, as a whole, in general, had a profound and very threatening impact on human culture. Verbeek, like other contemporary philosophers of technology (e.g. Feenberg 2002; Ihde 1990; Achterhuis 2001), appreciates that the classical philosophers of technology have recognized technology as a pertinent topic of philosophical study, but he doesn't want to follow their almost univocal rejection of (modern) technology.

In order to achieve a more nuanced perspective on technology Verbeek criticizes the aim of revealing the essence of technology. Verbeek terms this approach *transcendentalist* or *backward–looking*. In such a backward–looking approach, Verbeek claims, phenomena and events are investigated by revealing the conditions of possibility behind the diversity of phenomena of the sensible world. As a result, according to Verbeek, too often new technological phenomena are identified with the conditions already revealed. A new technology and its effects on humans then appears too easily as yet another confirmation of the theory about the essence of technology. This approach is blind towards effects that differ from the assumed essence of technology and often (as in the cases of Jaspers and Heidegger) the result is a biased (univocal and too exclusively negative) view of concrete technologies.

By contrast, a forward–looking approach aims to describe phenomena at face value, without in first instance, looking for a confirmation of existing theory. Verbeek adopts Don Ihde's *postphenomenological* method and also finds inspiration in the *anthropological* approach of Bruno Latour. After Ihde, Verbeek aims at the revitalization of the phenomenological dictum, formulated by Edmund Husserl, of going back to the things themselves. In the case of a contemporary philosophy of technology this means, as before, a 'bracketing' of theory in order to study anew the structure of the perception of reality. As by coincidence, Husserl's dictum already expressed a special focus on things, technologies. As Ihde's work emphasizes, this is not altogether coincidence, however. Everywhere and always technologies mediate our relation to the world. Therefore, practice oriented research into our relation to the world cannot ignore the importance of technical things.

The postphenomenological perspective makes it possible to see how technologies and humans exist together and acquire their characteristics from mutual interdependency. This methodological shift enhances sensibility for effects of technology that add new themes to the known repertoire of existing theories. Verbeek's forward–looking philosophy of technical mediation is not hostile to technology, but interested in the effects of technology that have shaped and keep transforming human existence, for better or worse.

2.2 Repertoire of figures of technical mediation

Verbeek frames the mediation approach in opposition to dominant approaches in the history of philosophical thinking about technology that he rejected for being backward–looking. Still, it is also possible to employ today's concept of technical mediation for reassessing the history of research into technology. It is not necessary to reject negative, abstract accounts of technology because they are methodically not in line with the contemporary insights about mediation. Instead, through the mediation lens of today, we can investigate and appreciate the effects of technology on humans which were discovered and articulated by

[20] This scheme draws on Ihde and Latour for the overall approach, and is elaborated on in the existential dimension with Latour's work on 'delegation' and in the hermeneutic dimension with Albert Borgman's notion of 'engaging technologies'.

earlier research approaches. The question then becomes what *figures of technical mediation* or which *exemplary technical mediation effects* have been discovered or acknowledged by scholars of technology from whatever tradition.

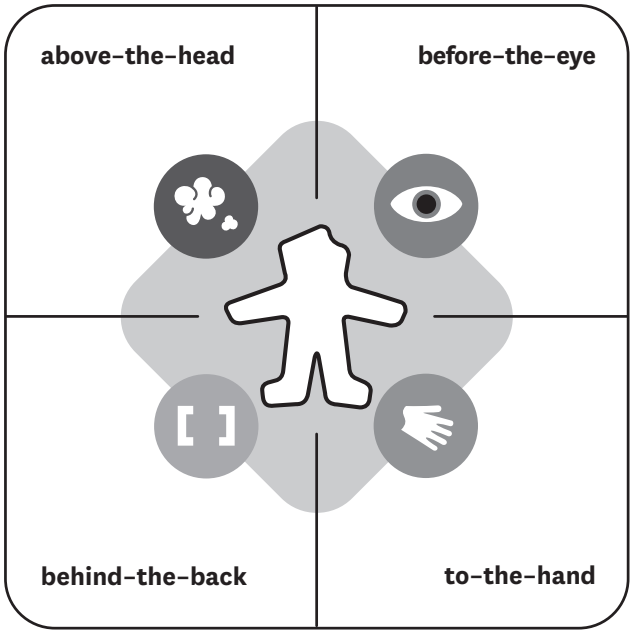
I do not set the mediation approach and earlier approaches in opposition as if they were different positions concerning technology, and where only one can be true. I will treat essentialist and negative theories of technology at face value as one possible account of how technology mediates human existence: an approach that at times has been the dominant view.

Thus collecting and articulating figures of technical mediation is surely not at odds with the approaches of Verbeek, Latour or Ihde. The approach appreciates and follows up on how Latour discerns different *meanings of technical mediation* (Latour 1999: 178–190), or how Ihde (1990: 31–41) reviews exemplary conceptualizations (such as Heidegger's hammer or Merleau–Ponty's feather). Indeed, favoring explorations of examples over building a theory could be seen as responding to Verbeek's call for a forward–looking instead of a backward–looking approach.

2.3 Modes of interaction

For presenting my review of exemplary mediation effects I will use a simple model. The model reflects my approach of investigating 'what technologies do to us': how people (be it users, designers or scientific scholars) have explored and conceived the influence of technology on their existence. The model takes its structure from the following notion: If our existence is mediated by technology, then one can ask the question what is the effect, but also: How does the effect reach the human? What is the contact point? Where does the effect affect the humans? This question, in whatever version, provides an ordering principle. When a body is drawn, the following quadrants can be distinguished which stand for four modes of interaction:

- Above–the–head (abstract): Generalizing claims about technology and humans.
- Before–the–eye: (cognitive): Cues to the mind that can change decision making.
- To–the–hand (physical): Changing gestures through bodily contact.



- Behind–the–back (environment): Influences on humans without direct contact.

A general inspiration for drawing this model comes from the remarkable works of Vilém Flusser, especially his posthumous book on 'Becoming human', *Vom Subjekt zum Projekt: Menschwerdung* (1994). Flusser reconstructs through historical anthropological findings, etymological traces, and admirable philosophical imagination how humans first became humans by learning to use their hands and feet (*vorderhand*), and in a later stage by casting an eye (*Augenblick*), this later mode eventually covering up the awareness of the earlier way of being. Flusser's *Menschwerdung* evidently refers to the phenomenological analysis of 'being in the world'. Because it adds the evolutionary aspect to it, 'becoming' human instead of 'being' human, it is a perfect starting point for studying subjectivation (also meaning becoming human), through different modes of interaction with our milieu.

This categorization also reflects different notions from Don Ihde's phenomenology of human–technology relations, and thereby the whole phenomenological history that Ihde synthesizes (Ihde 1990, 72). To–the–hand reflects Ihde's 'embodiment relation' with technology (and Merleau–Ponty's 'embodiment' as well as Heidegger's 'readiness–to–hand'). The term before–the–eye is indebted to McLuhan's notion of 'an eye for an

ear' which is his abbreviation of his analysis of tactile–acoustic space and visual space (cf. McLuhan 2003, 115). It equally reflects Ihde's 'alterity' and 'hermeneutic' relations and Heidegger's analysis of 'presence–at–hand'. The behind–the–back category resembles Ihde's 'background relation', and refers to McLuhan's notion of mediation by our technical environments. The 'above–the–head' quadrant brings the non–empirical, generalizing philosophical conceptions of how technology influences us within the scope of the model of interaction modes.

3 Above–the–head

The review of figures of technical mediation starts with a look at the above–the–head quadrant where mainly philosophical theories of technology can be found. Typical of many classic philosophical investigations into technology, such as Martin Heidegger's famous essay *The question concerning technology* (1977), is that the *essence* of technology is sought beyond particular, concrete technologies. Philosophy of technology of this kind is about technology *in general* and the influence on humanity *in general*. In such an abstract philosophical approach there is no demonstrable contact point between technology and humans. The effects occur *above–the–head*. Technical mediation is here considered on an abstract level, beyond concrete reality.

As noted earlier, contemporary practice oriented philosophy of technology focuses on the three concrete quadrants and stresses the need for integration of historical and anthropological research. Still, the theoretical philosophical approach remains important too. To begin, philosophy of technology deserves credit for having first discovered and revealed the importance of technology's transformative effects on humans. Moreover, figures of technical mediation in the above–the–head quadrant remain relevant for understanding and criticizing today's visions about technology that inform attitudes towards technology (of designers, policy makers, and users as well).

It is clear that is not possible to apply abstract figures of mediation in design, because there is no direct point of contact, no concrete interaction. Still, 'abstract' conceptions of how technology mediates human existence do have relevance in our every day concrete reality.

The first reason for this is that ideas inform human action and thereby reality. Conceptions of the relation between humans and technology on a transcendental level, beyond what can be empirically observed, reflect people's general vision on technology and their ethical position. These conceptions of the power of technology do inform the attitudes of designers, of policy makers, and of users as well. In this way, abstract ideas, not directly derived from actual empirical observations, do have influence on the course of human action and have an impact on concrete reality. The realization of ideas, or values, is what is being actively strived after in the modern western understanding of morality. The self–conscious capacity of envisioning ideas and acting in order to manipulate things in the world according to those ideas, is called the 'will', or 'practical reason'. Ideas with claims about reality which are not factually true, or not yet, are common and essential in the domain of ethics. The point is that abstract ideas serve as orientation for concrete human action.

Secondly, abstract ideas can also have an impact on concrete reality when people are less, or not at all aware of the effect. One instance of such an effect is for example what is known as the 'self fulfilling prophesy' (Merton 1995), and has also been nicely termed 'looping effect' (Hacking 1999). The terms and concepts that people use in the endeavor to describe the world, also have the effect of contributing to the construction of the world following that description. The revelation of this effect of discourse has been an important method of critical philosophical analysis in the twentieth century, and Michel Foucault was one of the pioneers. The procedure is to reveal how discourses which are not overtly normative but make a claim to scientific neutrality do in a largely unnoticed way produce as much as describe reality. The formation and use of concepts for describing the world are entangled with human action that is transforming and constructing the world, as Foucault affirmed in his work from the 1960's and 1970's which eventually culminated in his affirmation of the old dictum by Hobbes' that 'knowledge is power'. After putting this method mainly to work for debunking the neutrality of scientific discourses, in his later work

Foucault analyzes that statements are mixtures of a claim about a factual state of affairs and a task that still requires commitment and effort to become true.

While it is true that above–the–head figures of technical mediation can be criticized for the lack of contact with concrete practices, they remain important for understanding and for debunking the visions about technology that are underlying people's sentiments, engagements and actions. Those generalized claims about the relations between humans and technology, structuring discourse and thinking, often tend to the extremes of altogether positive or negative evaluations. Hans Achterhuis (1998) termed this the 'utopia/dystopia syndrome', and this is a helpful concept for analyzing controversies about new technologies. Today's discussions about privacy in relation to ICT's, for example, very often get bogged down in an opposition between the irreconcilable utopian/dystopian positions. The tendency of thinking in utopian/dystopian extremes is, in Verbeek's terms, a characteristic of backward thinking. Forward thinking, including empirical research of concrete technologies and appreciating the surprising effects they render, is an important step for resolving the apparent trap of the extreme positions. This means adding the more concrete influences to the repertoire of mediation effects. Still, the general philosophical figures of mediation are valuable both for understanding and possibly for debunking the views about technology that nourish people's sentiments and evaluations and which heavily mark debates about technology.

Three main figures of technical mediation can be discerned which together constitute a very concise summary of the history of the philosophy of technology: *utopian* and *dystopian* conceptions of technology and the ambivalent conception of unavoidable and ambivalent *hybridity*. (There are certainly links to the history of utopian design of chapter 2 which I will explicate in the last chapter). Although all three views of technology are present at any time, striving for dominance, each of these positions prevailed at a certain historical period. 'Early philosophy of technology' tended towards a utopian conception of technology, in 'classical philosophy of technology' a dystopian conception about technology prevailed, while in contemporary practice oriented philosophy of technology an ambivalent conception of hybridity is becoming dominant.

3.1 Utopian technology: Miraculous technology for human completion

From the Enlightenment until well into the twentieth century the dominant conception of technology in general was very positive, sometimes 'utopian', as we have seen in the discussion of utopian design in chapter 2. Technology was seen as a panacea, ready and waiting to be discovered and developed by humanity. Scientific reason and technical progress would bring humanity to a next stage, progressively overcoming the precarious state of human existence, thus moving towards perfection and completion. Scarcity and unequal distribution of technology were the only hindrances to the full benefit of the wonders of technology.

The role of technology as a necessary mediator of human progress was first systematically developed by Ernst Kapp. He was the first to explicitly use the phrase 'philosophy of technology', in his book *Grundlinien einer Philosophie der Technik* from 1877 (Kapp 1877; 2007). Kapp was interested in understanding what technology is and how it develops. For this he employed a dialectical scheme, in the tradition of Hegel. He asserted, firstly, that all technologies are projections of human organs. Whether or not human inventors are aware of it, all technologies, Kapp thinks, are exteriorizations of functions of the human body. The hammer extends the fist; the wheel is an extension of the human walking movement; the telegraph is a projection of the nervous system, etcetera. The projection of human organs into external tools is the first movement of a dialectical process. To this Kapp adds, that in a return movement, humans start understanding themselves in terms of the technologies they have produced. The skeleton became to be seen as a mechanism; the heart was defined as a pump; and nowadays the brain is compared to a computer. Humans only gain self–understanding after they have reproduced themselves in technological extensions, through technical activity. The predominant figure of technical mediation that can be revealed from this analysis is that technology is a necessary means for the completion or perfection of man: 'technology for human completion'.

Early philosophy of technology discovered how technology mediates human existence, following the fairly broad and abstract figure that the existence of 'humans' is interwoven with the development of 'technology'. Although the analysis concerned the relation of technology to humans, it rather focused on what technology is and how it evolves than on the ethical implications. Reflecting on Kapp's insights, the French philosopher Georges Canguilhem, remarked that this view of technology implies that it is a matter of course that 'machine' and 'organism' will proceed to merge, thereby mutually contributing to the completion or perfection of both. Only as an epilogue Canguilhem remarks that the question whether this development is ethically desirable would be 'still a totally different question' (Canguilhem 1965, 127).

More so than Kapp, Karl Marx did consider political and ethical questions in relation to technology. However, for Marx too, technology itself is not the problem, but the fact that not everybody benefits from it. Marx analyzed that industrialization caused self–alienation for working class people who had to make products that they themselves could not benefit from. It appears that the understanding of technical mediation and the ethical concern about technology mirror each other. In early philosophy of technology the main figure of technical mediation is that technology is a (miraculous) means to human perfection. The accompanying ethical concern is that scarcity and uneven distribution of technology need to be overcome, to remove those obstacles to the miracles of technology.

The utopianism of Saint–Simon (1760–1825), as discussed in the second chapter, can serve as an example. This French engineer and pioneering socialist theorist admired the wonders of technology and thought that engineering reason should be applied in the domain of politics as well. He therefore proposed a political reform, introducing a Chamber of Inventions where an elite of engineers designed projects to move society into the industrial and scientific phase (Musso 2010, 138; Rabinow 1995, 28). Whereas for many engineers in the eighteenth and nineteenth centuries the technocratic approach to social problems was motivated by traditional and religious virtues, Saint–Simon hailed science itself as a new religion.

The belief in universal human needs which can be scientifically, rationally determined, and which can serve as a secular, modern base for morals became dominant in twentieth century technocratic planning (Rabinow 1995). Le Corbusier's utopian visions of urbanisation from around 1925 are an example of this vision. He believed that technical progress demanded that ancient cities were demolished and replaced by modern, technically advanced cities.

A contemporary example of technical utopianism is the movement of 'transhumanists', who believe that the next step in human evolution is to enhance the human being to become a cyborg, a kind of post–human being (Bostrom 2009; cf. Lecourt 2003; Fuller 2011). For transhumanists, in a very literal sense, the merger of humans and technology is the natural way to completion of the hitherto poor form of human existence. Verbeek (2011b) asserts that transhumanists only have an instrumental understanding of technology, neglecting mediation effects. I think however, that the point is not that acknowledgment of the importance of mediation is missing. A comparison with the utopian vision of technology, typical of the early philosophy of technology, shows how transhumanists do acknowledge a profound interdependency between humans and technology. Remarkable is rather their strong belief in the miracles of technology and the absence of a sensibility for the ambivalences of the transformation of human existence by technology. Transhumanists follow up on the utopian tradition, where technology in itself is always good and the obvious way to completion of the human being, and where the biggest problem is inequality in the availability of technology.

3.2 Dystopian technology: Accumulating technology takes command

In the course of the twentieth century belief in the miracles of technology was undermined by the shocking experiences of the advent of the atomic bomb, environmental problems, and bureaucracy getting out of hand. The shocking discovery was that technological progress came at a price. Technology that just enhances and liberates people does not exist; instead people get dependent of technology and technical developments are not entirely controllable. The overall conception

of technology reversed from utopian to dystopian. The 'dystopian' exemplary mediation effect is that all technology is accumulating into a system that dominates humanity. The ethical problem now concerned technology itself, the dangerous values embedded in it, and not just the scarcity and unequal distribution of an otherwise miraculous means. The corresponding ethical challenge became to put limits on the rushing technical developments, or to re–humanize technology.

Whereas in the period of early philosophy of technology the reflection on technology was only a marginal topic in philosophy, halfway through the twentieth century many major philosophers devoted attention to reflection on technology: the era of the 'classical philosophy of technology' (Achterhuis 2001; Verbeek 2005). Characteristic of these classical reflections on technology is a collapse from an optimistic, utopian view about technology into a very pessimistic, dystopian evaluation of technology. In the last chapter, when I positioned Foucault among philosophers of technology I already had come across the classical philosophy of technology. In critical theory the relation between humans and technology could be represented by the metaphor of a struggle between spheres. And Heidegger's philosophy of technology was characterized by the metaphor of an ontological deception of human existence. The recurring theme in classical philosophy of technology is that 'technology is accumulating into a system that takes command'. This phrase refers to '*Mechanization takes command*' which is the title of a famous history of architecture and design by Siegfried Giedeon (1948). Comparable themes are addressed by Jacques Ellul (1964) who analyzed that technology was becoming 'autonomous' at the cost of human autonomy and by Lewis Mumford (1970) who estimated that humans are absorbed as parts of a 'megamachine'.

The change of conception of technical mediation is accompanied by a corresponding change in the ethical concerns about technology. This can be illustrated by reactions to Kapp's analysis of technology as organ projection. I described how Canguilhem estimated that following Kapp's perspective a progressive merger between humans and technology is only natural, and that an ethical questioning of technology had not yet started. However, a later commentator of Kapp, Benoît Timmermans, does think that there is an ethical message to be derived from Kapp's work, namely that 'everything has to be done to prevent technological projection (…) to become alienation, mechanical dependency, resistless subjection to what we have produced, but what has become irretrievable foreign to us' (Timmermans 2003, 105). I think that Timmermans does not actually represent Kapp's thought here, but he does express the more recent ethical concern that emerged in the era of the classical philosophy of technology. In early philosophy of technology the ethical concern only referenced technology indirectly, namely from the economical perspective of scarcity and distribution. In itself the accumulation of technology was welcomed. This changed with the reversal towards a dystopian view of technology. Technology, or modern technology, accumulated beyond a certain point into a big system, does itself contain dangerous values that threaten human values.

Michel Foucault's analysis of Jeremy Bentham's Panopticon plan, discussed in previous chapters, is an emblematic illustration of the reversal from utopian to dystopian visions on technology. Bentham had claimed that his idea (the circular design of the Panopticon that allows for ubiquitous surveillance) was a great invention that can be used wherever a number of people have to be inspected. He excitedly deliberated on the idea of ubiquitous surveillance as a general model for society: everybody inspecting everybody else. Foucault was equally excited as Bentham about the idea, but for him, as for other critical thinkers, Bentham's utopian image of a panoptic society rather represented a dystopian nightmare. The image is similar to the famous theme of 'Big Brother is watching you' from the well known novel *Nineteen Eighty–Four* by George Orwell. Foucault's analysis brings to the fore that the institutions, procedures and technologies of the modern time do not simply liberate people, but do instead constrain and discipline people. Modernization is accompanied by subjection of people to ever more procedures and detailed surveillance.

In some cases, as in Heidegger's or Ellul's, the command of technology seems almost unconquerable and a saving of the human sphere seems hardly possible. The only way out Heidegger (1977) imagines is an

attitude of 'resignation', that would make possible the 'clearing' of another mode of thinking, following which people would again let appear the world to them instead of conceiving the world only in technical terms as a stock of resources to be exploited. He also famously said that 'only a god can save us', expressing a similar mood, that a saving power has to come from outside (Heidegger 1981). Most classical philosophers of technology do however still seek a way out. The typical form of the ethical care of classical philosophy of technology is 'to put limits to the rush of technology', or to 're–humanize technology' so that humanity is again served instead of commanded by technology. An example is the thesis by Jürgen Habermas that the 'lifeworld' must be protected against 'colonization' by the 'system' (Habermas 1984). The lifeworld is the sphere where human communication is the structuring principle. In the sphere of the 'system' money exchange, procedures, and technology have replaced human communication.

A contemporary example of putting limits on technology is the answer to the transhumanist movement by the 'bio–catastrophists' (so called by Lecourt 2003) or 'bio–conservatists' (so called by Verbeek 2010). What the utopian transhumanists see as the natural course towards becoming better humans/cyborgs is for bioconservatists an ultimate threat to human dignity. An unambiguous example of a call for limits is Francis Fukuyama's demand for a 'red line' to defend human dignity against human enhancement technologies that he considers affections of human dignity (Fukuyama 2002, 207). Habermas too has called for limits to the application of human enhancement. To define the limit, Habermas asserts that the autonomy of individuals must always be respected. Prenatal therapies (aimed at enhancement, beyond healing disorders) do not allow for deliberation, choice and consent by the patient and are on that ground not ethically legitimate technologies (Habermas 2003, 13; cf. Verbeek 2011b, 21). The problem with defining limits is however the assumption that there is a border between technological interventions that do affect the kernel of what is human and others that still respect the core of human existence.

3.3 Ambivalent hybridity: We are hybrids for better or worse

Since the 1970's and 1980's the philosophy of technology has taken an 'empirical turn' (Achterhuis 2001; Verbeek 2005). Philosophy of technology has become more practice oriented, integrating empirical studies of concrete cases from neighboring disciplines such as history, sociology and anthropology (also resulting in an interdisciplinary field of Science and Technology Studies). In contemporary 'practice oriented' philosophy of technology the idea has come to prevail that humanity has long been knitted together with technologies: hand–axe, clothing, housing, cars, smartphones. There is no genuine form of the human being that precedes the influence of technology, but humans have in fact always been 'hybrids' (Latour 1993), or 'cyborgs' (Haraway 1985). As Bernard Stiegler emphasized, the origin of human existence is linked directly with the history of technologies. He calls this the 'originary technicity' of human existence (Stiegler 1998). The understanding of the mediation of our existence by technology in today's practice oriented philosophy of technology is that 'we are hybrids, for better or worse'.

An example of the ambivalent mediation figure concerns what could be called 'ironic technology' (cf. Ihde 2008). While the classical philosophers of technology were concerned with defending genuine forms of human existence against any serious interference with technology, detailed historical research shows that, ironically, even the elaboration of such claims is itself dependant on technical mediations. For example, Don Ihde (2010) studied the technologies that Heidegger used for writing his technophobic analysis of technology. Whereas Heidegger romanticized hand writing, he did still allow his manuscripts to be typed out and printed into books. The greatest Irony, Ihde thinks, is that Heidegger later in his life sold his manuscripts for good money, thereby in one gesture harming all of his own claims about authenticity. The romantic conception of a way of still remaining independent of technology can only be sustained thanks to a self–deceiving account of one's own use of technologies.

Whereas Heidegger's views about a life without (modern) technology are so romanticized that they may today look almost purposefully deceptive, in other

cases the irony is that it is indeed very hard to see how profound the influences of technology are. Friedrich Kittler's analysis of the technically mediated origin of Foucault's research method is an example. In his early work Foucault developed what he called an archeological method. Like an archeologist digs into the ground to reveal the remainders of successive historical periods in different layers, the philosophical archeologist scrutinizes 'discursive formations' of different periods in history (Foucault 1972). In this way Foucault analyzed that all knowledge of a certain age is interconnected, but there is no linear accumulation of knowledge. Foucault investigated the historical conditions of the knowledge that is held to be true at a certain historical period. This type of historico–philosophical approach constituted an important research step in the discovery or wider acknowledgement of the mediated form of human existence. Still Kittler could show that even to Foucault, as a pioneering scholar of mediation, a deeper layer of mediation remained altogether concealed. Kittler asserts that Foucault's research and discovery itself also was dependent on specific historical conditions, namely of the library. The nicely ordered rows of books in a library have allowed and induced the theoretical approach of comparing the knowledge systems of different epochs, a fact which Foucault did not acknowledge. Kittler finds that every theory has its technical *a priori* (Kittler 1986, 28); theories like discourse analysis have been determined by the technical *a priori* of the media in which they are expressed (180).

3.4 Interlude: Does hybridity mean the end of ethics?

In relation to utopian and dystopian technology I could identify the ethical concern that mirrored the conception of technical mediation. There is not such a clear answer to the question what is the ethical concern mirroring ambivalent hybridity. The empirical turn in the study of technology (towards the three quadrants of concrete human–technology interactions) confuses moral philosophy. Does the conception of hybridity mean the end of ethics? Or can ethics follow the empirical turn? This interlude especially addresses these questions.

The conception of 'ourselves as hybrids for better or worse' is a generalizing claim about the interdependencies between humans and technologies and as such it belongs in the above–the–head quadrant of my model. At the same time this mediation figure marks the passage from generalized ideas about mediation to figures of technical mediation which refer to concrete cases. The general claim that mediation cannot be escaped and has an ambivalent value, encourages delving deeper and addressing the different figures and details of concrete influences of technology. Whereas the figures of utopian and dystopian technology can be criticized for neglecting the nuances and surprising effects of concrete cases (as Verbeek has done), the general claim of ambivalent hybridity contains and incites research in the quadrants of concrete human technology interactions.

The overall point here is that there is no end to mediation, no way of overcoming it, or of stepping out of it. Contemporary empirically orientated philosophy of technology stresses that human action and existence are always technically mediated. The influence of technology on people is understood in terms of progressive hybridization. In a way the philosophy of technology has returned to the perspective of Canguilhem, who in line with Kapp asserted that an extensive merger of humans and technology is only natural. The important difference is however that technology itself does not provide the direction for improvement of human existence. The ethical problem that Canguilhem deliberately postponed came to dominate the debate for decennia after him and took the form of an attempt to avert hybridization and push back technology (or resulted in resignation as with Heidegger). Today, leading scholars of technical mediation, including Ihde, Kittler and Latour, seem to celebrate the discovery of endless mediation. So, what is today's ethical concern that corresponds to this conception of endless mediation of ambivalent meaning?

The ironic attitude celebrates endless mediation and at the same time suggests an equally endless striving for 'awareness' as the corresponding ethical challenge. Such a call for more awareness of the mediating effects of technology seems to be the over all message from the work of McLuhan (1964). Complete awareness will never be achievable, however. The early utopian philos-

ophy of technology naively believed to be able to see through the history and future of hybrid human–technology co–evolution. In contrast, classical philosophy of technology feared that human experience cannot keep up with technical developments: an experience that Günther Anders (1980) analyzed as the 'outdatedness of human beings'. In *Remediation,* Bolter & Grusin (1999), articulate a contemporary vision: in inventing and using new devices an unattainable ideal of 'immediacy' is always at work, but at the same time the opposite occurs, a celebration of the media, the technologies themselves (what they call 'hypermediation').

A further step is to strive not only for awareness of hybridization, but also to start caring actively for the quality of the interactions and fusions with technology. This is a step beyond the ironic attitude; it implies taking a more activist, involved stance. It still remains impossible to attain complete mastery of mediation. That was the assumption expressed in the figure of utopian technology in the early philosophy of technology. The challenge of classical philosophy of technology was, to the contrary, to defend a genuine human sphere against threats of intrusion and determination by technology. This is however impossible when humans are considered to be hybrids from the beginning. We cannot possibly exist without technology. Many people may have a nostalgic longing for the material culture and technologies from their childhood or the time of their parents and grandparents. But that is still very different from becoming independent, liberated from the influence of technology. To safeguard humanity from the dangers of technology cannot mean that humans remain free from being influenced by technology. That would mean to deny the history of humanity and to give up the possibility of human existence altogether.

The difference between the attitudes of ironic awareness and of care is that the ironic attitude finds that getting involved always comes at the cost of awareness, whereas the attitude of care rather values involvement over disengaged awareness. The ethical challenge responding to the conception of ourselves as hybrid beings must be to start practicing care for the fusions and interactions with technology. 'Ironic distancing' turns into 'involved play' which is in turn an artful activity that requires practice.

4 Before–the–eye

The before–the–eye quadrant denotes interaction where technology makes contact to the human decision making faculty. The more common design term of *cognitive interaction* may also be used (with reference to *cognitive* and *physical* ergonomics). In this quadrant, products can influence behavior by giving signs (arrows, texts, light signals, beeps) which are input in the decision making process of users. The quadrant is named after the eye, because for our cognition the eye is typically the dominant sense for communicating with the world. (Hearing, touch or even smell can do this too, but typically these senses function rather by tuning subconsciously with the world.) The point is that in the before the eye category cognition and conscious decision making play a role in the determination of action.

When we think about how we use technologies, before–the–eye is the standard mode of interaction. We think that we use technologies deliberately: choosing, making and employing tools that serve us to reach already existing purposes more effectively. In designing products that guide users, adding signs for guidance, signs that interfere in our action deliberations, may be what first comes to mind. However, before–the–eye influences are here considered as only the beginning of an array of influences in all four quadrants. Still, guiding users by design by giving information to their cognition can indeed be very effective. The model distinguishes three variations of influence in this category: *guidance, persuasion* and *expression of lifestyle and self.*

4.1 Guidance

One type of technical mediation is technology that 'guides' the user towards a certain way of using, of behaving. A well known concept that helps to understanding impacts on behavior through guidance to our cognition is 'affordance'. In *The psychology of every day things,* Donald Norman (1988), pioneering scholar in cognitive ergonomics, took the notion of affordance from the work of Gibson's 'environmental psychology', and elaborated it in the context of design. In the applied sense of Norman, affordances are buttons, grips, displays, meters, ribs, etcetera — all physical features which are cognitively associated with possible use actions.

Many examples by Norman concern doors and switches. For example, Norman tells about somebody who got caught between the two rows of doors in a European post office. He thought that the doors had been locked, while actually he only had pushed on the wrong side of the door because the handle conveyed the wrong signal. In another example, Norman notes how people stumble into the train when just as they want to open the door, it opens automatically. Again, according to Norman, an affordance in the sense of a guiding cue towards successful use was missing. Norman was, however, very pleased at the time with the performance of the door handles of cars. Such a handle was and is often a hole in the door that fits your hand. The unlocking and opening of the door then proceeds in one motion that is accurately suggested by the design of the grip.

Another equally witty as helpful example from Norman concerns the operation handles in an airplane. As there are three identical sticks, the placement was the only cue for remembering their different functions. The crew of an airliner themselves improved this poor design by replacing the sticks with beer tap handles and their knobs indicating three different brands of beer. This improvised innovation means a great improvement from the perspective of usability. As one can imagine, it is much easier to remember which function belongs with which beer brand than with which of the three identical handles in a row.

4.2 Persuasion

Besides acting as guides towards appropriate use, products can also 'persuade' people to change their behavior. This effect is typically denoted by B.J. Fogg by the concept of 'persuasive technology' (Fogg 2003; cf. Tromp, Hekkert & Verbeek 2011). The term of persuasion as taken from rhetoric, is meant to express that just like with discursive arguments, technologies also can persuade people to change their behavior and attitudes. One example is the speedometer on the side of the road that displays the speed of approaching cars. This road sign does not just provide neutral feedback about the speed, but it tries to convince drivers to change their behavior, namely to keep to the speed limit. Central in the approach of Fogg is the 'captivation of attention'. Together with the element of persuasion, this makes this an exemplary mediation effect that belongs in the quadrant of cognitive interaction.

Another example of a concept that falls mainly in the category of cognitive interaction is 'nudge', advanced in the recent and very successful book with that title by Richard Thaler and Cass Sunstein (2008). Despite the fact that 'nudge' literally means little push and is thus reminiscent of physical interaction, the examples provided in the book concern the role of technologies in 'pre–structuring choices' for actions. One such example is the display of foods in a school cafeteria. Thaler and Sunstein suggest that the way in which foods are displayed does affect the students' choices. Are healthy foods placed centrally in the display or is it fast food? When this is being acknowledged, it must become a design consideration, Thaler and Sunstein affirm, especially when it concerns commonly shared values such as health.

The effect of choice architecture is underestimated or neglected. People often show behavior in practice that differs from the values they hold. Actual behavior is to a large degree regulated by what Thaler and Sunstein call the automatic system of our cognition, instead of by the reflexive system with which we can consciously deliberate about our actions. If the automatic system makes us follow pre–structured choices in the material environment, then it would be wise to deliberately design those 'nudges'. In this way design becomes paternalistic, telling users how to act. Aware of the fact that this could lead to manipulation and domination, Thaler and Sunstein define good nudges as choice advisors that however should never be coercive. This policy or ethics of nudge application they term 'libertarian paternalism'.

4.3 Expression of lifestyle and self

Products can contribute to fashioning users by representing or expressing *lifestyle and self*. This exemplary mediation effect can best be categorized in the cognitive interaction quadrant. Daniel Miller's approach of Material Culture Studies, offers the best example of self–representation as technical mediation. Miller claims, that by using technology people express themselves. They do not just represent what was already there, for in the act and interaction with technology they also create themselves. He asserts that 'objects make us,

in the very same process that we make them' (Miller 2010, 60). Following up on Hegel's and Marx' dialectical philosophy, he uses the rather abstract concepts of 'self–alienation' and 'objectification'. His theoretical explanation of the influence of technology on humans would fit better in the category of above–the–head. His case studies, however, are much more concrete. (Miller terms himself an extremist for combining the quite abstract theoretical frameworks with very concrete examples). Appropriating products for expressing and creating a certain lifestyle is one form of technical mediation in the quadrant of cognitive interaction (before–the–eye).

One of the examples by Miller is a case study on the way cars had become means for self–expression in Trinidad. In the 1980's car upholstery firms and tuning services dominated the Trinidad commercial business listings. Trinidadians were often known and referred to by their cars. Cars were not just vehicles for transportation of people, but also 'vehicles for transporting values' (Miller 2010, 104). This effect has been widely acknowledged in marketing as well. Recently, an advertisement slogan for cars (Renault Twingo) stated: 'customize the car to your own style'. Renzo Rosso, owner of Diesel jeans, said: 'We don't sell a product, we sell a style of life. I think we have created a movement... The Diesel concept is everything. It's the way to live, it's the way to wear, it's the way to do something'.[21] Also in the postmodernist era design theory, after the functionalism of 'less is more' (Ludwig Mies van der Rohe) was parodied as 'less is a bore' (Robert Venturi), the effect of products as conveyors of an image, a lifestyle, seemed to become the predominant meaning of technology.[22]

[21] www.a–life.nl/pdf/case_Diesel.pdf

[22] Peter–Paul Verbeek and Petran Kockelkoren (Verbeek & Kockelkoren 1998) claim that this 'symbolic' approach to design neglects the 'materiality' of things. This approach would only consider what things 'signify' and thereby neglect their materiality and 'what things do'. However, instead of assuming that only the material and not the symbolic approach accounts for mediation it is also possible to see self–representation (lifestyle expression by means of identifying oneself with certain products) as one of many figures of technical mediation.

5 To–the–hand

After having discussed the above–the–head and before–the–eye quadrants I now turn to mediation figures in the to–the–hand quadrant. The most direct influences of technologies on humans are those with physical behavior steering effects. Typically these cut short the decision making process. The behavior guiding effect occurs to–the–hand, where the hand represents the body, its gestures and affects. Influences by physical interaction are obvious and widely applied in the form of technical obstructions such as fences, locks, etcetera. 'Designing is throwing obstacles in other people's way', affirms Vilém Flusser (1999, 59). The application is widespread and uncontroversial where there is a broad consensus about the need for behavior correction as in the case of safety. In less obvious cases designers and policy makers would naturally go for influencing user *decisions* and not their *bodily gestures*. The interference in gestures seems to be perceived as being more intrusive. This is however not necessarily the case from the perspective of a philosophy of technical mediation. The dimensions of gesturing and affection are gaining attention and are promising fields of study. Exemplary effects in the category to–the–hand vary from physical 'coercion' to 'technically mediated gestural routines' and 'subliminal affects'.

5.3 Coercion

A concept that helps for exploring effects of more or less coercive physical influences, is *delegation* as elaborated by Latour (1992). Many everyday products enforce a certain behaviour on humans. Technologies carry *scripts* with them, which tell users what to do rather like a movie script helps actors. When products guide humans, Latour thinks this implies the *delegation* of morality from people to products. Clearly, when action is being delegated from humans to things, decision–making is overruled, or short–cut by physical interference. The exemplary mediation effect is that technology may direct people by harder or softer forms of physical *coercion* (cf. Tromp, Hekkert & Verbeek 2011).

Latour wittily discusses speed bumps making car drivers slow down and door grooms ensuring that doors are being closed. Another of Latour's examples is the well–known hotel key with a big, heavy key fob. Hotel

owners like the guests in the hotel to leave the keys back at the hotel desk when they are making their touristic trips. The guests may find this less practical and difficult to remember, so many of them would often — intentionally or not — forget about the instruction and keep the keys in their pockets. A small invention changes this: the heavy weight attached to hotel keys. The result is that hardly any guests will want to keep this kind of key with them. And it is almost impossible for the guests to accidentally leave keys in their pocket.

Technical mediation in general links together designer–product–user. Especially with this coercive figure of mediation it is relevant on which of the two linkages one puts emphasis. The focus can be on the figure of 'products forcing users', like most of Latour's examples, or on the figure of how 'people govern other people by means of behavior–steering technology' (designers or policy makers directing users, the population). A good example of the figure of people directing people by means of technology is Langdon Winner's analysis of the overpasses on Long Island. Winner found that they were intentionally designed very low by the New York city planner Robert Moses to keep away busses. In this way the overpasses were a vehicle for Moses' political intentions of keeping away poor, black people. Winner used this as an example to show that 'artifacts have politics' (Winner 1986).

Winner's example has been criticized on the grounds that Moses' intentions didn't succeed, because buses still drive on Long Island. This makes clear exactly the difference between the two variations of this mediation effect: '*technology* coercing *people*' and '*people* governing other *people* (by means of technology)'. In many cases both figures do apply. In the case of 'the politics of artifacts', and also in relation to the concept of 'nudge', many philosophers and social scientists tend to find the question of 'who may govern who' the most important. This implies however a return to questions of traditional philosophy and social science where the importance of technology itself in mediating human existence and social relations is being neglected or underestimated. The distinctive contribution of the approach of technical mediation is to point out the important role of technology itself in the relations between people and things and other people.

5.2 Mediated gestures

Products can coerce physical gestures, but they can also structure gestural routines in more subtle ways. Products such as pencils or bikes are used without much thought. And if one does think about it, they are rather experienced as comfortably integrated and empowering, rather than as constraining. Still, these technologies do constrain, or structure human activities. Historical studies into discipline (Foucault 1977), discussed before in chapter 3, concerning learning to write at school for example, bring to the fore that many everyday skills depend on training that is afterwards mostly forgotten. Through training, technologies become embodied, as if they were members of our own. At the same time, the technologies fashion and mark the user's gestural routines that develop. Body technique (the skilled use of one's own bodily members) and technology (artificial quasi–members) mutually influence each other (Tenner 2003). This is a very important figure of technical mediation in my research. It was discussed in the last chapter as the forgotten complement to the figure of total panoptic control in Foucault's work. In chapter 6 it will also play an important role for today's practice of ethics of technology.

In a study about *zori,* Japanese sandals, Tenner (2003, 51–74) points out that footwear does not simply make walking easier, but that the specific type of footwear can transform people's walking gait and even their physical foot shape. It can be hard to imagine for western shoe–walkers that in other regions people easily walk long distances barefoot. Much practice and habituation is necessary to change from shoe walking to bare foot walking, or the other way around. Moreover, the kind of footwear also marks the style of walking. Japanese people are often recognizable for striking the tip of their feet over the floor. Tenner affirms that this walking technique can be associated with the tradition of walking on *zori:* children having to wear *zori* at school seems at least partly responsible for the formation and transmission of this particular walking technique.

Gestural routines of use develop in interaction with the products we use. This is an important addition to the influence from scripts. While in the examples of products with a script, users experience a feeling of physical coercion, this is less the case with technically

mediated use gestures. The influence of technology on users occurs during an exercising process in which the technology is being 'embodied', and gestural routines are being learned. An example can be drawn from Foucault. Whereas the Panopticon imposes certain power relations, Foucault analyses other disciplining practices, such as learning to write (Foucault 1977, 152). Through training, people acquire skillful routines in which the human body and technologies function as one assembled unity. Revealing how much training effort, drill, is necessary, reveals that what may feel natural and truly our self, is actually an assemblage, a hybrid self.

The training process revealed by Foucault shows that, although often forgotten, every day technologies do influence humans. Still, it is important to note that users in the case of mediated gestures do not have the sense that technology is taking over their agency most of the time. Instead they may have the experience of acquiring new action possibilities. Contrary to Foucault's analysis of discipline as constraining people, William McNeill has for example investigated in *Keeping together in time* (1995) the history of drill and dance as a necessary driver of the process of civilization. For understanding human freedom and agency in relation to the guiding and changing effects of technology the figure of mediated gesture is particularly important. (I will return to this in chapter 6 and 7.)

5.3 Subliminal affect

Subliminal affect denotes behavior steering effects of technology (such as attraction or dislike) by smells, noise or by images that work at a subconscious level. A related concept is 'emotional design' by which Donald Norman indicates the 'visceral' dimension of interaction with products (Norman 2004). Likewise 'seduction' as a type of influence of technology that is 'weak' and 'hidden' (Tromp, Hekkert & Verbeek 2011) resembles subliminal affect. Even if there is no physical contact, this effect is still best categorized in the to the–hand–quadrant. There is a resemblance to interaction before–the–eye in the sense that cues are conveyed. Unlike interaction in the before–the–eye quadrant conscious cognition is however not involved. Instead, affection occurs by subliminal tuning to the triggers from the environment. There is also resemblance with indirect behind–the–back influences, because direct interaction is hardly perceived. However, in the case of subliminal affect people are actually being 'touched' and directed by technology through direct contact with their senses (as opposed to the case of environmental effects). Only the awareness of this direct contact is largely absent.

An example of subliminal affect is the attraction or aversion that products evoke on a visceral level. Forms, color, texture, smell or sound do attract or avert. In supermarkets effects of subliminal affect are exploited by baking in the shop. The pleasant smell of freshly baked bread and cakes is pleasing to the senses on a subconscious level. Products can also be overtly seductive, attempting to arouse emotions of liking in (prospective) users. Playing on humor and sensuality are two effective ways of arousing attraction. Ample examples can be found in advertizing. However, when the sensual shape and color of a bottle of perfume is accentuated in an advertisement by depicting a sensual lady, it is just as much an example of symbolic expression of lifestyle. Still, such additions make something visible that is otherwise at work on a more subconscious level.

The clearest possible example of behavior steering design by way of subliminal affect is the Mosquito.[23] This is a device that emits a tone of so high a frequency that it can only be heard by young people (until age 25 typically). While hardly able to describe exactly what the tone is like, young interviewees all agree that it is very irritating, and makes them want to go away. The company claims that their product has been described as the most effective tool in the fight against anti–social behavior.

[23] See: www.compoundsecurity.co.uk/security–information/mosquito–devices. Acknowledgement to Tjebbe van Eemeren for this example.

6 Behind–the–back

The category of environmental influences concerns exemplary technical mediation effects that do not contact users directly, either their body or their mind, but the effect reaches people, as it were, behind their back. It concerns indirect effects from the material, technical environment. In this case technology does not influence the decisions or bodily gestures, by direct contact, but has an implicit influence by determining environmental conditions. Changing and designing the environmental setting is only possible to some degree, but an exploration of the effects of technology behind–the–back does help to grasp trends that may converge or conflict. And it may help to see how the meaning that people give to concepts like privacy and freedom is related to how the technical environment configures their self–awareness.

6.1 Technical determinism of human history

Zooming out to look back in history makes ever more irrelevant the intentions and efforts of people. Instead the environmental factors, including material and technical conditions appear as determinants of human action and the course of history. An example of the mediation figure of technical determination of human history is the analysis by Jared Diamond (1997) of the difference in developmental speed of the civilizations in Eurasia and America. Eurasia is stretched in the east–west direction while America is stretched along a north–south axis. This difference has had huge implications for the possibilities of contact and exchange between people. People living on the same degree of latitude share the same climate and therefore way of living, housing, crops they can grow, and animals they can domesticate. This is why in Eurasia it has been easier for people and civilizations at large to move over the continent (to the east or the west) than it has been for peoples in America (having to conquer climate differences in going south or north). In pre–historic and pre–modern times Eurasia allowed for easier moving of peoples and therefore intercultural exchange and learning than America.

William McNeil's account of world history also deals with the technical determination of human history, for example the case of the spread of Islam in his essay on the implications of transportation means (McNeill 1987). Normally the study of the transmission of religions and the competition between them looks at the persuasiveness of the belief content. Instead, McNeill points to the relation between the environmental conditions and transportation means for the spread of Islam and competition with other religions. The landscape and vegetation characteristics of the Middle East long favored the use of camel caravan transport over the employment of wheels (wagons and roads) as well as over transport by water. The success of caravan transport depended also on an institutional system of caravanserais (night shelter and forage) and protection (police and law). As it happened, an expanded caravanserai system was constituted by Islamic rulers. The spread of the caravan transport system and conversion to Islam appear to largely coincide. The example shows that the history of humanity with respect to the competition between religions is in this case determined by environmental, material and technical conditions rather than by conscious deliberation about belief contents.

Historical accounts that lay bare technical determinism on the scale of world history may fascinate or discomfort, but they seem not to have directly practical relevance in the sense that one could alter the environment on a world scale to put the determination figure to use. However, utopian city planning, as discussed before, and in general technocratic planning can be seen exactly as attempts at grasping and controlling these coarse processes of mediation behind our backs. On a smaller scale environmental effects are put to use, either to govern innovation and diffusion, or otherwise to understand and forecast why some technologies fail, and to find and identify niches for successful introduction for innovations. Thus, in approaches as 'system innovation', 'constructive technology assessment', or 'product service design' the purpose is to consider the wider technical context, and to innovate arrangements of technologies and services instead of single products.

6.2 Trends in socio–technical evolution

Understanding the course of technical evolution has been an important theme right from the early period in the philosophy of technology. For example, an internal

logic of evolution with regard to the theme of technology extensions of humans was formulated: mechanical tools as extending bodily members; machines as exteriorizing nutrition and blood circulation; information technology as projecting the nervous system (Coolen 1992). Other scholars have preferred to describe patterns and trends in the evolution of technologies by focusing on the concrete adventures of the mutual adaptation which occurs when new technologies and existing cultural habits clash and have to be reconciled. Bolter and Grusin (1999) describe recurring patterns of 'remediation'. By this they mean the succession of media, but with special attention to the adventures of mutual adaptation of technology and culture that occur with the transference of activities to newly invented media. An understanding of such trends allows for prediction of the chances of acceptance of new technologies.

When new media replace older media they are often first used simply for serving the same old purpose, and the new technology is often being styled to look like the medium it replaces, like the way early automobiles looked like horse carriages. Similarly Internet websites replaced and imitated newspapers and books. It appeared that the newspaper and book were 'original', more 'immediate', less mediated forms that the website had to imitate in order to function as a good replacement. However, 'remediation', the follow up of a technology by another often highlights the technically mediated character of former practices, revealing that 'immediacy' is an illusion. The striving for immediacy can flip over into what Bolter and Grusin call 'hypermediacy'. This is when the characteristics of a new medium get fully explored and wildly celebrated. In websites this is the excessive use of hyperlinks, flash animation, so that it doesn't resemble a paper or book anymore. The patterns in remediation occur outside communication media as well. When electric lighting was introduced, switches were first styled like gas light taps (Schivelbusch 1988, 67), and the lamps (bulbs) often looked like candles. Electric light has also seen periods of hypermediacy with disco lights and today's proliferation of playful LED light design.[24]

This figure of 're–mediation' facilitates an understanding of the difficulties and challenges for design and diffusion of new technologies. The mechanism of new media emerging in disguise in a way hinders the exploitation of new functions that are more characteristic of the new medium. However, people need this analogy of the newer with the older technology to be persuaded and trained to recognize and use new technologies.

Another effect of technologies on humans in the realm of technical evolution, besides patterns in the succession of technologies, is the co–existence and interdependence of different technologies. Different technologies in an environmental arrangement can form congruent trends or, the opposite, cause a conflict of trends. One example is the connection between the inventions of printing and glasses (Friedel 2007, 92). The printing press is often considered as an important step that offered the chance of literacy not only to a learned elite, but to society at large. The printing press could however not have achieved this success without the simultaneous spread of spectacles. Without glasses a very large proportion of the population is not able to read, especially in old age (due to presbyopia). The availability of glasses is an environmental factor without which the printing press could never have been as successful and could not have had such a significant impact on society. Both technologies are part of the same trend towards a greater role of the sense of vision (for reading information) in daily life. This is an exemplary mediation effect that could be termed 'trend reinforcement'.

In the case of printing and spectacles two processes reinforce each other, but also the reverse effect occurs: a 'conflict of trend'. One example is the 'rebound effect'. Low–energy light bulbs are intended to effectuate energy saving, but because people have increased their use of electrical lighting since the introduction, for example to illuminate the garden, the effect has been less important than anticipated (Verbeek and Slob 2006b, 3–4). The history of the automobile offers two more sample effects of a similar kind. The car promises

[24] Schivelbusch (1988) notes another element of remediation, namely that in the process of a follow up of technologies the older technology often gets an update inspired by the successor technology, so that it can still prolong its use for some time. The current redesign of newspapers in more portable formats and layouts that better allow skim reading is an example of this effect.

quick transportation for everyone. One result of the success of the car is however the problem of traffic jams. This effect, where the profit of a technology (rapid transportation) beyond a certain point turns into its opposite (traffic jam), was called 'overheating' or 'reversal' by McLuhan (McLuhan 2003, 51; cf. McLuhan & McLuhan 1988). The second example related to the automobile is the 'jogging effect', named by Regis Debray (2000, 59). The car means that people no longer have to walk, with the effects that many people have taken up jogging in their leisure time. Here too there are two conflicting trends: there is a desire for speed and convenience, but when fulfilled too much it appears opposed to another desire, namely of being fit and healthy.

6.3 Environmental conditioning of subjectivity

A third environmental effect of technology is how the technical environment implicitly conditions people's subjectivity. In modern western societies human self–understanding has emphasized self–consciousness, individuality and autonomy. In modern philosophy the autonomous subject was often considered as an *a priori* that should be necessarily assumed. Technical mediation theory is one of the strands in research which claim that the autonomous subject of modern thought is not a universal and eternal given. The experience of humans of themselves as autonomous subjects is typical only for the modern time. Material conditions, alongside language, are important determinants of specific historical instances of experiences of subjectivity. The figure of 'environmental conditioning of subjectivity' designates the effects that people's points of view regarding the world and themselves are implicated by the technologies and material setting of our environment.

Marshall McLuhan (2003) and others (Havelock 1986; Ong 1982) have revealed the importance of the invention of the script and especially the phonetic alphabet for the coming about of an autonomous subject, having the experience of being an individual being apart from other things, the outside world (unlike 'lower animals', humans imagine). Through an analysis of shifting 'sense–ratios', McLuhan showed how technologies used by humans have shaped their mode of being subject. With the advent of the script and reading, vision became much more important, at the cost of the senses of hearing and touch. Electrical media, foreboding today's networked ICT's, would induce a new change. The earlier shift accompanied the rise of 'civilizations', whereas networked technologies would bring about a process of 'retribalization'. In the era of the script and the eye a subject became constituted that detached itself from the objective world to 'analyze' it. In the coming era of network technologies, and of a revaluation of hearing and touch, the subject will again immerse itself in the world and 'grope' around in it.

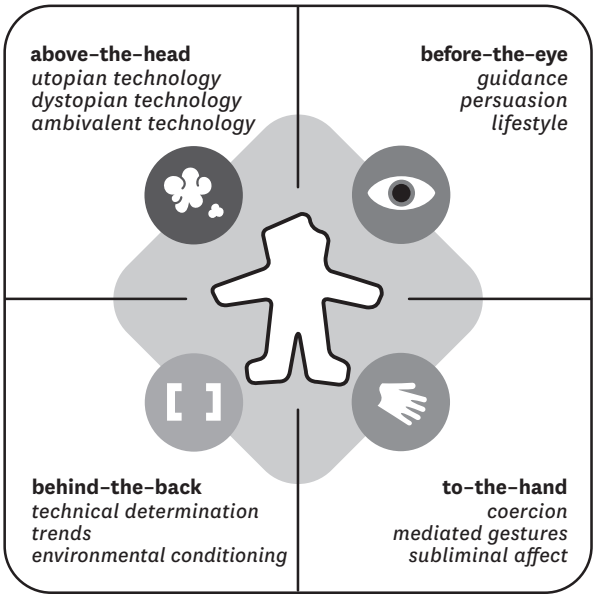
Not just the alphabet, but other technologies also have configured the subject. As Petran Kockelkoren (2003) explained (after Panofsky), technologies such as the *camera obscura* and the development of linear perspective in painting, have played a role in the conception that humans have developed of themselves as an independent observer that perceives and manipulates the outside world. The modern philosophers (Descartes, Kant) searched for the unalienable kernel of the subject, not dependant of anything outside itself. Research into the historical, technical conditions, reveals that such a conception of the self as opposed to the outside world of things, is not so much a universal structure of the subject but an experience that has only emerged after a process of mediation. Kockelkoren concludes that autonomy is an experience emerging in an on–going quest, not of freeing oneself from mediation by technologies, but of making them one's own.

Another example can be derived from Michel Foucault's analysis of how the Panopticon conditions moral consciousness. Next to determining power relations and disciplining gestures, Foucault's research on disciplinary power offers one more exemplary effect. Following Bentham, its inventor, the technically supported regime of continuous inspection would have an effect comparable to a strong form of moral conscience. It would make a prisoner 'lose the power to do evil and almost the thought of wishing it' (Bentham 2002, 14). Foucault analyzes that the surveillance in the Panopticon is not just similar to self–inspection by conscience, but the Panopticon produces moral self–inspection. Technologies and practices of surveillance such as the Panopticon, form a material environment that has conditioned a typical configuration of experience of the self. Moral consciousness is surveillance

internalized, applied by people upon themselves (cf. Foucault 1995, 203). The subject as configured through ubiquitous surveillance sees itself as inclined to vice and called to watch over itself.

7 Conclusion

The repertoire of technical mediation effects discussed above can be summarized in a model. The model and repertoire give account of how people conceive their hybrid mode of being. In this way it is an elaboration of the *ethical substance* dimension in the framework of technical mediation and subjectivation. The model and repertoire are not meant as a comprehensive explanatory theory. The repertoire is a collection of conceptualizations by humans of their experience of how technology influences them. The distinguished interaction modes and figures of technical mediation were chosen because they seemed relevant from the perspective of design and ethics of user guiding and changing technology. The model intends to express that effects of technology may affect us from all sides and that exploring our hybrid selves means asking what technologies do to us and how these effects reach us.



These conceptualizations were collected from the philosophy and history of technology and related fields, where I focused on examples and articulated the figures of technical mediation contained in the theories and examples. Collecting and articulating figures of technical mediation in this way can definitely be seen as a radical follow up on Verbeek's call for a post–phenomenological approach. For, the interdependency between technology and humans is the central theme and the approach acknowledges that technologies can and will always have surprising effects that differ from established conceptualizations. As a contribution to the philosophy of technical mediation, this approach highlights three points.

The first point is that I do not identify technical mediation exclusively with contemporary practice oriented philosophy of technology, but I consider it a theme that can be explicated in any approach to the study of technology in society. The approach of tracing figures of technical mediation allows for the combination of the various discoveries in different periods and approaches. I have attempted to bring together and appreciate both the generalizing claims about technology often found in the philosophy of technology with the more detailed analysis common in historical and anthropological research, and the operational concepts from design for usability. The different concepts thus collected do not have to be considered as pieces of a puzzle that can be nicely put together, and where sometimes pieces must be abandoned because they don't fit in the puzzle. Instead, I allow different perspectives to remain in competition or to show overlap. As a result, philosophical analysis of technology above the head does not have to be dismissed, but it does have to be complemented by investigations into more concrete interactions (in the three other quadrants).

The second, related, point concerns the theme of technical mediation in the history of the philosophy of technology. In comparison to the twofold periodization employed by Verbeek (2005) and Achterhuis (2001), of 'classical philosophy of technology' and the 'empirical turn', I think it is helpful to include 'early philosophy of technology'. The early philosophy of technology focused more on what technology is than on its ethical evaluation. As such my period of 'early philosophy of technology' converges with what Carl Mitcham (1995, 19) has termed the tradition of 'engineering philosophy

of technology': an attempt to understand the nature and evolution of technology. If 'early' philosophy of technology considered the effects of technology it was rather in terms of the distribution of technology than in terms of the effects of technology itself. As such my early phase combines Mitcham's 'engineering' tradition with what Tim Dant (2005, 11) has singled out as the sociological–economical approach to 'material civilization' (referring mainly to Karl Marx, George Simmel and for the term material civilization to Fernand Braudel). The inclusion of early philosophy of technology is useful for understanding that the idea of technical mediation was not absent, but rather was evaluated only in naively positive terms (human completion). Instead of an opposition between a too abstract and negative 'classical' approach and a practice oriented approach that has come to acknowledge technical mediation, the threefold scheme shows positive, negative and ambivalent stances to the notions of hybridization and technical mediation.

The third contribution to the philosophy of technical mediation is a shift from focus of 'what things do' to 'what things do to us', or even to 'what we think that things do to us'. The repertoire of exemplary effects presents how humans have explored and conceptualized the influences of technology while coping with those influences. The focus on 'what things do' has been a useful approach for correcting the common assumption that humans employ technology to their ends. Instead things do something too. Things contribute to action, and not just as supports but as mediators that guide and also change humans. The purpose was to overcome a too strict *a priori* separation between subjects and objects. The attribution of agency to things is not an end in itself. A danger of a literal interpretation of the notion that things act too, is that personhood and intrinsic value are attributed to things too. Taken this far, the original problem has been lost, however. The starting point was not a concern about the intrinsic value of things, but a concern for the way technologies affect our way of being. This concern can be expressed as the exploration of our hybrid self (ethical substance) as part of subjectivation in Foucault's terms. 'What we think that things do to us' is therefore a refinement and explication of the notion of 'what things do' that gives account of its place in a framework of technical mediation and subjectivation. 'What things do' should not be misunderstood as separated from or opposed to us humans, but as a theme of concern in the care of ourselves, our hybrid selves.

Chapter 5
Ethics between law and style
(Mode of subjection)

1 Introduction

This chapter elaborates the dimension of the 'mode of subjection' from Foucault's subjectivation scheme in the context of the ethics of technology. The mode of subjection is the principle, rule or guideline that people conform to. The mode of subjection denotes the 'ethical form' to which the 'ethical material, substance' should conform. The question that can be asked is: What principle do people recognize themselves to be subject of? In the history of the modern west this principle was a law, either the specific laws of divine revelation, or general principles of rationality that would be recognized by anybody prepared to think rationally. Morality is the recognition of principles to which humans should conform their behavior. Modern moral theory has set itself the task of clarifying the rational principles underlying the sense of moral justness and duty. Part of this project is insistence on the capacity of humans to act in accordance to rational principles. In short, humans must be free in order to be able to respond to the demands of a rational principle.

In this chapter I will also continue the discussion in the last chapter of the relation between conceptions of the power of technology and the forms of ethical concern that appeared as mirror images. In the early philosophy of technology with the utopian image of miraculous technology for human completion the ethical concern was identified as the challenge of overcoming scarcity and accomplishing equal distribution. Classical philosophy of technology conceived of technology as an accumulating system that takes command (dystopian technology), mirrored by the ethical challenge to put limits on this rush of technology and protect the human sphere of freedom. Contemporary practice oriented studies of technology promote the conception of hybridity for better or worse, and I suggested that the care for the interactions and fusions with technology would become the ethical challenge. I will now further investigate how these different conceptions of technology and related ethical concerns compare to moral theories. The aim is to explicate what sort of moral principle we can and do still recognize ourselves subject to when we acknowledge our hybrid way of being.

The conception of humans as hybrids, governed and fashioned by technologies, is very challenging to ethics. Does not acknowledgement and use of

behavior guiding effects of technology mean the negation of the freedom that is required in ethics? Does technical mediation not mean surrendering to the power of technology, and as such a negation of ethics? A quick introduction to the issue is offered by the controversy in the Netherlands over Achterhuis' call for 'moralizing technology'. If human behavior is determined for a good part by the products that surround them, then good behavior can be promoted by applying behavior guiding technologies. Is this the much needed new ethics for the technological culture of today? How, if everything is mediated by technology, is critique still possible? Moralizing technology seems to imply the subjection of humans to technology, the installation at last of technocracy, or at least these were the accusations Achterhuis faced (cf. Achterhuis 1998, 28). If this would be the new ethics of technology, would this not mean the deterioration of ethics into a totalitarian rule over people by the technological system itself, or technology in the hands of a ruling few?

Moral philosophers have almost without exception claimed that moralizing technology would mean not a contribution to ethics but, instead, the end of ethics. The tendency to conceive of the influence of technology as opposed to ethics is also prevalent among philosophers with a strong interest in technology. Even among contemporary philosophers of technology, convinced of the unavoidability of the influence of technology on human existence, there is hesitance about the possibility and desirability of integration of technical mediation in ethics. The empirical turn in the philosophy of technology, advancing the study of effects of concrete products is seen as a deterioration of a more critical, ethical approach. For example, Langdon Winner expressed a general regret that the approach of mediation seemed to be accompanied by a loss of the critical attitude that inspired much of the philosophy of technology before (Winner 1993). Similarly, in *Moralicide* ('the extinction of morality') Marli Huijer and Martijntje Smits, take as a starting point the doubt that ethics may not survive the mediation approach, or at least 'new ethical vocabularies' are needed (Huijer & Smits 2010).

Two such new vocabularies, both related to the approach of 'moralizing technology', are the notion of 'delegation of morality to artifacts' (Latour 1992) and the framework of 'libertarian paternalism' and 'nudge' by Thaler and Sunstein (2008). Latour's point is that behavior influencing by technologies need not be seen as the ruling out of ethics, if only one is prepared to acknowledge that moral action is not a privileged human capacity but technical objects also contribute to the determination of actions. The delegation of tasks, decisions and of morality to technology has always been an implication of making and employing technology, Latour thinks. Thaler and Sunstein too affirm that technologies nudge people's decisions and actions. As they also think this is unavoidably the case they propose a criterion, or a best practice, of applying technologies that nudge people. The concept of libertarian paternalism is intended as a reconciliation or a balancing between behavior influencing and respect of personal liberty. There should always be the possibility to 'opt out'.

Whereas these approaches are valuable attempts at new moral vocabu-

laries which try to acknowledge technical mediation, they have far from been embraced by moral philosophers. The reason seems to be that these vocabularies have not been able to escape from the structure of modern ethics as rational principle that requires a free subject. The option of libertarian paternalism seems ultimately philosophically naïve concerning technical mediation, for is it really possible to nudge but still let people be free? Latour's notion of delegation, on the other hand, fully acknowledges technical mediation, but to most moral philosophers this means that ultimately ethics is given up. Latour's claim, repeated by Verbeek (2005), that action is not purely reserved for humans but stems from things too, has raised much confusion and contestation. For, it would mean that either morality is no longer about recognizing a rational principle but simply being subject to the power of technology. Or, otherwise it would lead to even more confusing consequences, namely that things should also be considered as moral agents, with rights, responsibilities and susceptible to moral appraisal and blame (Swierstra 1999; Kroes 2012). 'Nothing is gained but much is lost' by the way Verbeek confuses and mixes up the different statuses of objects and subjects, assert Illies and Mijers (2009, 425). In a review of *Moralizing Technology* (Verbeek 2011a) Martin Peterson goes as far as to assert that Verbeek's views are 'either false or misleading' (Selinger et al., forthcoming).

This problem of recombining research into our technical conditions and moral theory is the topic of this chapter. How is it that technical mediation challenges the principles of ethics and is reconciliation possible? To answer these questions I will discuss the ethical theories of Jeremy Bentham and Immanuel Kant, as two authors of reference in modern moral philosophy. Although both thinkers are also important for Foucault, he has hardly commented explicitly on their moral 'theories'. An extensive comparison between the principles of ethics in Kant, Bentham and Foucault is needed as a contribution to the further elaboration of an ethics of care for our hybrid selves, and especially for answering the question if this is a renewal of ethics or the end of ethics.

What are the principles of reason at the base of the moral theories of Bentham and Kant? And how can the problem of technical mediation be considered in their frameworks? It appears that Bentham actually provides a utopian blueprint for 'moralizing technology', the application of technology in support of rational moral principles. Kant, instead, emphasizes freedom of the human subject as a necessary condition for morality, which prepares the critique of 'moralizing technology' as a negation of ethics in theory, and a dystopian nightmare in practice. As an alternative, a way out, I will then discuss Foucault's proposal for a reorientation of ethics on the ancient 'arts of living', or 'aesthetics of existence'. In this ethics the function of reason is not that of a universally valid 'law' but of a call to give 'style' to one's existence. In this framework it becomes possible to see how the interactions and fusions with technology no longer mean a negation of ethics, but how instead giving style to one's hybrid self can be an altogether ethical activity.

The chapter has the following structure. First I will outline the problem of technical mediation and the ethics of a universally valid principle. In subsequent

sections I then discuss the ethics of Kant and Bentham. Lastly follows an elaboration of Foucault's ethics as aesthetics of existence which will allow for a better articulation of the challenges and difficulties related to such ethical perspectives as moralizing technology, delegation and libertarian paternalism.

2 The principles of ethics and the mediated self

Foucault asserted that in the Christian West, the meaning of ethics was altogether identified with the moral law that demands recognition and obedience: a 'code oriented' morality as opposed to ancient ethics as arts of existence which were 'ethics–oriented', where practices of subjectivation were more articulate (Foucault 1992, 30). Modern philosophy attempted to base ethics without reference to religious revelation. Modern moral theories aim to clarify principles of universal reason, meaning principles which every reasonable being would recognize him or herself subjected to (cf. Foucault 2000b, 266, 280). Modern ethics is also 'law–oriented', in my words. The reference to a law reminds in the first place of the moral philosophy of Immanuel Kant, often referred to as 'duty ethics'. The competing theory in modern moral philosophy is 'utilitarianism', as advanced by Jeremy Bentham and John Stuart Mill. Although in this tradition the term of a moral law is not central, the objective truth of ethical principles, provided by universally valid reason, is equally important. Law here has the sense of a general principle, not the sense of specific rules.

The attempt to formulate an ethics based on a single rational principle was critical and innovative at the time of Bentham and Kant. To base ethics in reason meant a change of perspective from a rather descriptive position to one that was normative, prescriptive. According to Bentham 'utility' was the fundamental principle of ethics; Kant thought it was the 'autonomy of the will', or the 'categorical imperative'. These principles have in common, that they 'disputed against the arbitrariness of the passions and egoistic personal interests' (Audard 1999, 18). An inborn moral sense, then a popular notion, could not provide such a rational principle. Neither should moral criteria depend on social customs and opinion, like in the case of ancient virtues. At the same time, the projected rational foundation should also overcome dogmas that were not based sufficiently on reason, but based in religious belief, scholastic philosophy, or speculative metaphysics. Humans can and must elevate themselves from, or at least consider themselves free from physical and social coercions and use rational moral principles to determine their actions. Thus, Bentham promotes a 'radical' understanding of the moral principle of utility, and Kant 'purifies' moral theory from all empirical considerations.

This can be seen as a defining characteristic of moral philosophy in its modern sense and has remained of key importance ever since. The 'science of behavior' from then on was divided into two: on the one hand the *prescriptive* science of morality, and on the other hand the *descriptive,* empirical study of human behavior and its causes (sociology, anthropology and psychology). The absolute moral law requires that subjects are fundamentally free so that they can respond to the demand of law. The modern ethics of the rational principle thus has the structure of an absolute true, rational principle, and fundamental freedom of the subject. This structure is most clearly explicated in Kant's moral philosophy, and marks the modern understanding of ethics. 'For perhaps the majority of later philosophical writers, including many who are self–consciously anti–Kantian, ethics is defined as a subject in Kantian terms', remarks Alidair MacIntyre (1967, 190). Indeed, also people who do for example not affirm the emphasis on duty in Kant's ethics do commonly still hold that individual liberties, right of self–determination, intentions, motives, responsibility and accountability are important moral categories. This shows that they do indeed think about ethics in the framework of 'free subjects recognizing a universally valid rational principle'.

As noted above, serious difficulties appear with regard to the notion of ourselves as hybrid beings, because technical mediation seems to imply the negation of the free subject of modern, rationalist ethics. It

appears that the distinction between the natural world of objects and the sphere of human moral subjects is fundamental to our common understanding of ethics. A scientific perspective on reality reveals the natural and material world of things in the form of 'facts'. However apart from the perspective of facts there is another perspective on reality where statements have the form of 'values'. This distinction between facts and values safeguards ethics from the view that ethics would be powerless against the determinations of the natural world, equally at work in human behavior and social interaction. It would safeguard ethics, at least, if the distinction were true.

The approach of technical mediation challenges just this distinction. The issue is nicely illustrated when Latour in an interview comes to talk about facts and values and contests this distinction (Latour 2005a). His interlocutor is left confused and annoyed. He doubts if Latour is not deliberately mixing up the two, in an act of sabotage, rendering ethics altogether ineffective. Latour responds by once more accentuating his position. He claims that the 'separation' between facts and values 'makes no sense from a conceptual point of view' and even is 'catastrophic' with respect to understanding our situation 'today' (Latour 2005, 51–52).[25]

One aim of the mediation philosophies was to try to overcome the subject–object dichotomy in modern philosophy. The assumption of separate object and subject domains was replaced by empirical research into the multiple and concrete forms of relations between human and technology/nature. The merit of this starting point is that it resulted in rich and important accounts of the role of artifacts in shaping scientific knowledge and human praxis. At the same time, the approach of technical mediation seriously challenges the notion of the moral subject, which is foundational in ethical theory. The assumed freedom of the rational subject appears hard to combine with the mediation effects of technology on the subject. This, in turn, raises doubts about the status of universal reason for delivering an unquestionable base for ethics.

To investigate in more detail the relations between technology and the rational principles of modern ethics, I will now consider the ethics of Bentham and Kant. How was universal validity attributed to moral principles of reason. And what is the relation to technology? Apart from the question if Kant and Bentham themselves considered technology in any detail, how could we reconstruct the place of contemporary insights into technical mediation in their theories?

3 Bentham's ethics: Everything illuminated

If Bentham is today famous for the invention of the Panopticon, this is in large part because of Foucault. In 1977 J.–P. Barrou could state in an interview with Foucault accompanying a re–edition of Bentham's Panopticon text: 'Jeremy Bentham's *Panopticon* is a work published at the end of the eighteenth century and since then fallen into oblivion' (Foucault 1980, 146). Twenty–five years later however, in the postscript to yet another edition of Bentham's text, the editor assured: 'The English legal scholar and philosopher Jeremy Bentham (1748–1832) is known in France in particular for the invention of the Panopticon' (Laval 2002, 59).

If the two observations are adequate, notoriety of Bentham as the propagator of the Panopticon (at least in France) has enormously increased between 1977 and 2002. This is evidently due to the appearance of Foucault's famous book *Surveiller et punir* (1975) (*Discipline and punish*, 1977). Ever since the Panopticon has become a key concept in critiques of the dangers of modern technocratic government (comparable to George Orwell's even more famous image of *Big Brother*). Foucault's

[25] Bruno Latour: Je ne dis pas qu'il faut mélanger les faits et les valeurs, je dis que cette séparation n'a pas de sens du vue conceptuel.
François Ewald: Je comprends tout à fait que vous la contestiez aujourd'hui, mais admettez qu'elle a eu des fonctionnements fondamentaux !
Bruno Latour: Oui, mais je ne suis pas historien ! Ce n'est pas la conservation du passé qui m'intéresse, c'est de penser l'époque. À l'époque où nous sommes, qu'est–ce qu'une philosophie incapable de penser son temps ? Cette obsession pour la séparation des faits et des valeurs est–elle positive ou négative ? Je dis qu'elle est délétère, catastrophique et n'amène à rien puisqu'elle est impossible. À la limite, je veux bien qu'on dise qu'elle a été utile historiquement, mais sans plus.

analysis has given rise to a research discipline called 'surveillance studies', where surveillance and privacy are being studied, for example in the field of computer technology. Thus, it is because of Foucault that today one may first hear about Bentham as the *evil genius* behind the invention of the Panopticon.

Otherwise, Bentham is mainly known in the history of ethical and legal theory for being the *father of utilitarianism.* In the utilitarian doctrine the promotion of 'happiness' is the goal of ethics and of government. Utility is the general principle of ethics. Good is that what advances the greatest happiness for the greatest number. To Bentham the Panopticon was a means to promote moral behavior by imposing the rational principle of utility on humans in society. Foucault was overtly critical of Bentham's ideas about government by means of Panoptic surveillance. He has however nowhere explicitly discussed or criticized the moral theories that accompanied Bentham's ideas about the Panopticon. In the context of my inquiry of the ethical mode of subjection in relation to technology, I will discuss the utilitarian doctrine by Bentham in relation to his Panopticon.

What one recognized oneself subject of and how technology was brought into play in Bentham's ethics are the questions of this section. I will investigate the links between Bentham and Foucault regarding utilitarianism and the plan of the Panopticon. How are we to understand the criticism of Bentham's Panopticon by Foucault? Is it also a denunciation of utilitarianism? I start by introducing Bentham's thoughts on utilitarianism and the Panopticon. Next I turn to Foucault's discussion and employment of the Panopticon. Then follows a more in depth analysis of Foucault's thoughts on utilitarianism and the Panopticon, before I finally reach the conclusions.

3.1 Utility as the rational principle of ethics

The principle that Bentham proposed as a criterion for moral judgments is the 'principle of utility'. Bentham did not invent this concept, but did stress the 'radical' use of this rational principle (cf. Audard 1999, 18). By this he means that the concept of utility not only helps to give a descriptive explanation of human behavior, but it can serve as a rational principle for moral evaluation and justification of action. Moreover, utility should be used as a principle both for the determination and evaluation of individual conduct and for the right constitution of social and political institutions.

In the system of Bentham's thought the principle of utility is divided into three modes:

> 'The first declares, what *ought to be*, the next, what *is*, the last, the *means* of bringing what is into accordance with what ought to be' (Bentham 1843, IX, 6).

Firstly, utility is the criterion for what should be. Good is that which has the effect of spreading pleasure or happiness. To avoid a too narrow conception that would put utilitarianism side by side with egoistic hedonism, Bentham often preferred to use the broader formula: the principle of 'the greatest happiness for the greatest number' (5).

Secondly, the principle of utility constitutes what actually is. According to the anthropological and psychological conception of Bentham, humans effectively determine their actions by a mechanical calculation of pleasures and pains. Humans always try to increase pleasure and decrease pain. People act in accordance with the principle of utility, be it deliberately or unconsciously. Vicious action, Bentham holds, results from flaws, miscalculations, in the psychology processes of utilitarian reasoning.

Finally, Bentham holds that utility indicates a means for improving government. Governments must determine just laws based on the principle of utility. But also, the natural inclination to seek pleasure can be used to direct people's behavior. To do this we must ensure that laws and other sanctions match with the natural inclinations of citizens to seek pleasure. In actual societies the relationship between good behavior and the reward of happiness is not always clear enough. Bentham aims at reforming society in such a way that virtuous conduct will always be rewarded by an increase in pleasure (and vice will always lead to disadvantage). The project of the Panopticon is a practical elaboration of these ideas on ethics and government.

3.2 Panopticon as an excellent model for society

In the writings on the Panopticon, as we have seen, Bentham presents his project of an inspection house designed for effectively watching over a large number of people. This simple idea in architecture, Bentham

believes, allows for ubiquitous surveillance and total control over prisoners, which would mean a fundamental prison reform. The first proposed application is for new prisons, but other applications are considered as well. The application of this single principle could contribute to many causes: 'whether it be that of *punishing the incorrigible, guarding the insane, reforming the vicious, confining the suspected, employing the idle, maintaining the helpless, curing the sick, instructing the willing* in any branch of industry, or *training the rising race* in the path of education' (Bentham 1843, IV, 40).

In earlier chapters I have already analyzed how the submission of prisoners to the guards was effectuated by the architectural design of the Panopticon. Bentham considered this a great accomplishment. It is important to note that submission of the prisoners to the guards by means of power inequality is not the ultimate goal. Bentham insisted that the prison should be a house of correction to 'reform the morals of those detained', 'so that their return to freedom is not a misfortune, nor to society nor to themselves' (Bentham 2002, 11). The principle of 'continuous visibility' helps to implement this reform, Bentham thought: 'Being constantly under the eyes of an inspector, is in fact loosing the power to do evil, and almost the thought of wanting to do it' (14).[26]

In still another way it becomes clear that the inequality of power between the observer and observed is not the ultimate goal. Bentham envisions that the inspectors themselves could also be put under surveillance. In the end there would be hardly any inequality, because sub–inspectors will be inspected by chief inspectors, who would in their turn be inspected too. Bentham envisions that the whole of society could be mobilized to visit the Panopticon and inspect the prisoners as well as the inspectors: 'There will be, however, curious people, travelers, friends and or parents of the prisoners, acquaintances of the inspector and other officials of the prison, who, all moved by different motives, will come to add to the force of the salutary principle of inspection, and monitor the chiefs like the chiefs monitor all of their subordinates' (Bentham 2002, 15; cf. Bentham 1843, IV, 46).

In this way the Panopticon prison would become an integral part of society, where everybody would go from time to time, some unfortunates as prisoners, but most people in the role of visiting inspectors. A stay in the Panopticon enhances morality, by restoring or elaborating the right psychological associations, namely between actions and their consequences according to the principle of utility. The exposition of prisoners to the visiting public would impress in everybody's psyche the association of criminal behavior with disadvantage and punishment. The Panopticon would thus function as 'a moral theatre, the depictions of which would implant the terror of crime' (Bentham 2002, 19). So Bentham comes to conclude on his project: 'It is quite unique that the most horrible of institutions in this regard constitutes an excellent model' (ibid).

3.3 Punitive City: Foucault's alternative model

As I have discussed before, Foucault was as excited as Bentham about the power of the Panopticon but the mood was rather dystopian than utopian. The humanitarian ideals of moral elevation of Bentham's utopian plans, Foucault felt, were nowhere realized in concretely existent modern disciplinary institutions (schools, clinics, barracks, manufactories). Whereas correction in the sense of regaining the status of 'free legal subject' was the *ideal* that was preached, the *operational practice* was the disciplinary dressage of 'docile bodies'. Foucault thought that the Panopticon should not be analyzed on the level of *ideas* but on the level of *operation*. In *Discipline and punish* Foucault vehemently criticized the Enlightenment and modernity. This critique was developed through a turn from ideas to operational practices. The question, relevant in the context of this chapter's discussion of the mode of subjection, is what Foucault thought of the Enlightenment ideas in themselves. How did he imagine improvement: by replacing

[26] These phrases from the French version cannot be found in the letters, but seem to be a concise rendition of notions from the postscript, part II: 'Will reformation, inward reformation, be, or not be, the result of such a course of discipline? My own persuasion, my full persuasion, and I hope it is not too sanguine a one, is, that with very few, or perhaps no exceptions, it will found to be so; and that at any rate, in such a period as that of seven years, the very disposition to mischief will be found to have been subdued. But should even the disposition remain, the ability will, at any rate, be chained down' (Bentham 1843, IV, 168)

the ideas that failed in execution for more probable ideas, or by improving the translation to practice of the same ideas? Surprisingly, regarding Foucault's vehement critique of the Enlightenment in *Discipline and punish,* he seems largely to retain and accept the Enlightenment 'ideas' of humanitarian reform of punishment. Much overlooked by readers and commentators, Foucault elaborated the plan of a *punitive city,* which is, I think, a rather provisory attempt at restoration of the original Enlightenment reform ideas.

In the Enlightenment the practice of torture became widely contested. For example Beccaria (Milan, 1738–1794), who influenced Bentham, argued that neither individuals nor the state have the right to kill or to apply the death penalty. Condemnation, he claimed, should prevent further damage by the guilty and set an example to others. The purpose should never be violent revenge, but elevation. As a general criterion he formulated that 'a punishment may not be an act of violence, of one, or of many against a private member of society, it should be public, immediate and necessary; the least possible in the case given; proportioned to the crime, and determined by the laws.' (cf. Audard 1999, 159). Foucault analyzes that it was not just, or not exactly, corporal punishment that the Enlightenment reformers contested. Their goal was rather to undo the punitive system from its arbitrary and uncontrollable elements. To improve the fair and effective execution of its proper function, that is moral elevation, would require that penalties are applied publicly, quickly, fairly, etcetera. The reform aimed at an optimization and intensification of the punitive system. In this optimized system all members of society would be able to know all the laws and penalties. Sentences would be applied fully consistently and fairly. Punishment would be fair but also impossible to escape.

While Foucault is highly critical of the Panopticon, the prison system, and disciplinary power in general, he shows surprising sympathy for the original reform ideas. As an alternative to imprisonment as the flawed translation to practice of Enlightenment reform ideas, Foucault imagines an alternative way of making the ideas practical, operative, that he called the *punitive city.* This notion, brought forward in the second part of *Discipline and punish,* entitled 'Punishment', is far less known than his criticism of *disciplinary power.* This punitive city would be a more perfect translation of reform ideas to reality. The punitive city cannot allow a prominent role for the prison because the prison sentence hides itself from public visibility. Moreover, punishment by imprisonment is not directed at the soul and its representations (the right associations of actions and consequences), but at the body of the individual (although no longer through corporeal punishment but through practices of disciplinary power, as Foucault analyzed).

Are there examples of alternative sentences that would count as true implementations of the Enlightenment ideas? Foucault asserts that the reformers had proposed a 'whole panoply of penalties', for example those based on an analogy between crime and punishment:

> 'Those who abuse public liberty will be deprived of their own; those who abuse the benefits of law and the privileges of public office will be deprived of their civil rights; speculation and usury will be punished by fines; theft will be punished by confiscation; "vainglory" by humiliation; murder by death; fire raising by the stake' (Foucault 1977, 105).

Such sentences create specific associations in the soul of the criminal and the public. It is therefore essential that punishment is exercised publicly. Public punishment helps making visible what is in ordinary life sometimes not directly sensible: the right associations between crime and misfortune. Punishment in public thus introduces moral learning experience into everyday life. 'Let us conceive of places of punishment as a Garden of the Laws that families would visit on Sundays' (111).

During the Enlightenment, Foucault asserted, there coexisted two different alternatives to implement the reform ideas, the punitive city on the one hand and the disciplinary system on the other:

> 'In short, the divergence is the following: punitive city or coercive institution? On the one hand, a functioning of penal power, distributed throughout the social space; present everywhere as scene, spectacle, sign, discourse; legible like an open book; operating by a permanent recodification of the mind of the citizens; eliminating crime by those obstacles placed before the idea of crime (...) On the other hand

> a compact functioning of the power to punish: a meticulous assumption of the responsibility for the body and the time of the convict, a regulation of his movements and behavior by a system of authority and knowledge (…)' (129–130).

A main thesis of *Discipline and punish* is that the reform 'ideas' of the Enlightenment were not realized. Bentham thought that the Panopticon would be a true translation of ideas for humanitarian reform. According to Foucault the realized application of Panopticon–like ideas are nothing like this. To the contrary, not the 'punitive city' but the 'military dream' (179) of a disciplinary system of governance (including the prison as a coercive institution) was imposed upon society.

3.4 The light of utilitarian reason

For Bentham, the human being as moral subject doesn't need much discussion: human beings are constituted with an inclination towards happiness and there is a simple ratio between morality and increasing happiness. Ethical problems find their cause in flaws in the transference of reason to everyday situations. In concrete situations crime does not always result in disadvantage, nor does good behavior assure happiness. At least human agents in concrete situations cannot oversee the effects of reward and disadvantage. Bentham had distinguished between three different aspects of the principle of utility: what actually is, what should be, and the means of harmonizing the two. The project of the Panopticon belongs to the third dimension, as it aims to improve functioning of morality in humans. Government is in Bentham's thought the work of removing or correcting these flaws in the functioning of the principle of utility. And here, it seems to Bentham, technology (the Panopticon) proves to be an all–important, miraculous instrument. Ubiquitous surveillance elevates the moral reasoning of prisoners until they only want to do good.

It has become clear that with his analysis of panopticism Foucault contests the implementation of the second aspect of the utilitarian doctrine, the means to harmonize what is and what ought to be. Does he also denounce the first two aspects of the principle of utility, which designate utility as that what is and what ought to be? Foucault has not himself explicated in any detail the utilitarian doctrine behind the Panopticon plan. Just by closely reading Foucault's book *Discipline and punish,* one cannot quite conclude that Foucault denounces the anthropology or psychology of utilitarianism (what is) nor the moral criterion (what should be). The surprising discovery (in the light of his fierce critique of the Enlightenment in *Discipline and punish*) was that Foucault appears to be rather sympathetic to the Enlightenment ideas of punishment reform. With the notion of the punitive city, he reconstructed and further elaborated those ideas. The *Garden of the laws,* of which Foucault speaks for example, is very similar to Bentham's idea of *moral theatre.*

Yet it would be out of place to consider Foucault as a utilitarian philosopher. In his later works Foucault developed an ethics which is nothing like the utilitarianism of Bentham. In 'What is Enlightenment?' Foucault revisited the Enlightenment (Foucault 2000a). Here he no longer opposes the ideas of the Enlightenment with the operativity of disciplinary power. Instead, he identified the Enlightenment with an 'attitude' of giving account of the conditions of one's existence on the operational level with the aim of avoiding domination and exploring possible transformations of one's existence. He then broke with the typically modern search of a universal rational principle, trying instead to establish an ethics of stylization of one's own way of living. In this ethical care of oneself the moral subject is a central concept, however not as a given. Instead, self–formation of the subject becomes the very matter of ethics. It seems then that when Foucault wrote *Discipline and punish,* he was not yet able to formulate an ethics of the kind he would later do. Although he contested modern philosophical reasoning, he had not yet managed to escape from it.

3.5 Every thing illuminated

How does the theme of technical mediation and the case of moralizing technology compare to Bentham's ethics? The technical seems fully embraced by Bentham. He does acknowledge that for perfecting the human being, his morality, a supportive technical environment is indispensable. Technology, Bentham thinks, can be a 'vehicle of morality', a means for correcting flaws in the adequate functioning of human moral decision making according to rationality (the principle of utility).

Bentham explicitly calls for the application of different kinds of behavior steering technical interventions. It may seem that Bentham's musings about the Panopticon are the perfect supporting philosophy for the program of application of behavior guiding technology.

Although his Panopticon plans are quite concrete, Bentham's conception of the technical mediation of human existence is rather abstract. In a broad sense, the 'ethics of technology' following from his thought is largely a complement of the utopian figure of technical mediation, which denotes technology as 'a miraculous means that is, unfortunately, scarce and unequally distributed'. Technology is for Bentham a means that can enable the perfection of human morality. Technology helps to illuminate the right associations between actions and their consequences, which may be flawed in real society because of the long chains of consequences and the difficulty of overseeing the interactions between all that many individuals. Technology that illuminates everything in the environment enhances the awareness of one's position in the world and the chains of cause and effect at work there. Typical for the utopian conception of technology, technology itself hardly becomes an ethical issue. It is considered a helpful and even essential support for the correct functioning of morality. Miraculous, utopian technology has itself no negative effects, the worst thing that can happen is the wrong application or unequal distribution of such technologies. In this way, technology did not seem in any way problematic to Bentham.

There is however a naïve side of Bentham's plans that is revealed by Foucault's dystopian critique of Bentham's utopian plans. Bentham sees the possibilities of corrective use of behavior guiding technology, but he does not pay attention to the problem that his ideal of the Panopticon also undermines the very idea of a free, rational subject. The subject is pre–given as a rational subject that is either supported or hindered by the environment to make fully effective use of reason. Bentham does not address the idea that even before starting to apply the social effects of technology, humans are already deeply marked by technology. He does not conceive of those influences as formative for the constitution of the subject in the first place. This problem of the subject torn between the determinations of the empirical world and the freedom required for an ethics based on reason, which Bentham neglected would be a central occupation in Kant's moral philosophy.

4 Kant's ethics: Free to obey

Unlike Bentham and his Panopticon writings, Kant did not explicitly pay attention to technology (cf. Ferrari 2003). Still Kant's writings are very important with respect to the ethics of technology, namely with reference to the possibility of the freedom of the subject in relation to external influences. Bentham saw the mediating role of technology as rather functionalistic. Technologies can either facilitate or confuse the functioning of the right moral associations in the subject. Kant, in his works on ethics was captivated by the question of how the subject of moral conduct, that is a free, autonomous subject, can actually exist amidst the determinations of the external world and one's own bodily constitution. The friction between, on the one hand, the possibility of empirical knowledge of the human being, and on the other hand, fundamental freedom of the subject as a precondition for ethics, is a recurrent theme in Kant's work.

Much more even than Bentham's, the work of Immanuel Kant (1724–1804) was of central importance to Foucault. To the extent that his work fits into the philosophical tradition, 'it is the critical tradition of Kant', he asserted himself (Foucault 2001a, 1550). Remarkably, Foucault has written no more than a few lines on Kant's moral philosophy proper. However, the code based ethics of the modern West which Foucault wished to overcome, finds its most profound articulation in Kant's ethics of duty. Foucault avoided largely any discussion of the details of Kant's moral philosophy. Instead he was drawn to Kant's considerations of the problem of freedom and immersion in the physical and social world in Kant's anthropology and his historico–political essay on the Enlightenment. I will extensively discuss Foucault's commentary of Kant's anthropology in chapter 7 and Foucault's reappraisal of Kant's Enlightenment text will play a role in both chapters 6 and 7.

In the following I will discuss Kant's moral philosophy. I will especially look at the principle of reason

that is entertained by Kant as a mode of subjection. It is impossible to discuss here all of Kant's writings on ethics, and the problem of the will and external determinations. But much can be learned from a study of the *Groundwork of the metaphysics of morals,* Kant's concise book from 1785 that first outlined his critique of practical reason and the metaphysics of morals.

4.1 Supreme principle: Autonomy of the will

In the introduction to *The groundwork of the metaphysics of morals* Kant asks: 'is it not thought to be of utmost necessity to work out for once a pure moral philosophy, completely cleansed of everything that may be only empirical and that belongs to anthropology? For, that there must be such a philosophy is clear of itself from the common idea of duty and of moral laws' (Kant 1998, 2). This is a fascinating phrase. It has the form of a serious call, where Kant writes about 'utmost necessity' of working out a metaphysics of morals. But at the same time it loosely states that whether or not this metaphysics will be elaborated explicitly, this will not have any consequence as this metaphysics will be effective anyway.

Kant remains personally disengaged, insofar as he seems to pretend that his personal thought will not have any consequences. Several times he affirms that the 'supreme principle' will continue to work through the 'common reason' of people, without philosophical explication. 'I do not, therefore, need any penetrating acuteness to see what I have to do in order that my volition be morally good' (16), he states, and also: 'We have, then, to explicate the concept of a will that is to be esteemed in itself and that is good apart from any further purpose, as it already dwells in natural sound understanding and needs not so much to be taught as only to be clarified (…)' (10). However, at the same time Kant still remains worried, and shows himself very strict: it may be too much to ask that the supreme principle is always explicitly present in one's attention, but it should definitely not be lost sight of. Explicitly formulated or lying dormant in the background, the metaphysics of morals is 'indispensably necessary (…) because morals themselves remain subject to all sorts of corruption as long as we are without that clue and supreme norm by which to appraise them correctly' (3).

If Kant sounds very strict, it is not that he wants to enforce his own will. Rather he points out that the common idea of morality rests on the assumption of a supreme principle that is objective and universal, which is therefore shared by all humans.

> 'By explicating the generally received concept of morality we showed only that an autonomy of the will unavoidably depends upon it, or much rather lies at its basis. Thus, whoever holds morality to be something and not a chimeric idea without any truth must also admit the principle of morality brought forward' (51).

Either moral codes are altogether noncommittal, a mere chimeric idea, or an objective existence of duty must be assumed, asserts Kant. Furthermore, action in congruence with a committal principle can only be termed a genuine moral action if the action not (just) happens following a determined chain of causes of nature, but is an action stemming purely from the human subject's rationally deliberated intentions. This is the 'supreme principle' that Kant has explicated from the 'generally conceived concept of morality'; and Kant terms it 'autonomy of the will'.

By the formula of the *categorical imperative* Kant derives from this formal principle a criterion for judging concrete rules of action (maxims): 'act only in accordance with that maxim through which you can at the same time will that it become a universal law' (31). In *The groundwork of the metaphysics of morals* Kant offers two more formulations of the categorical imperative. In the second, the general regularity of the maxim is being compared to a law of nature: 'act as if the maxim of your action were to become by your will a UNIVERSAL LAW OF NATURE' (31/421). The third formulation employs the notion of respect that humans as rational beings deserve, not as a means to something else, but intrinsic: 'So act that you use humanity, whether in your own person or in the person of any other, always at the same time as an end, and never merely as a means' (38).

4.2 Pure versus empirical

When we think that in the moral evaluation of action certainty is possible, then the criterion for judgment must reside in the action itself, following the question whether the maxim of the action could serve as a

general law. In this way Kant distances himself from other approaches in moral theory — 'all possible wrong ways' that reason has attempted before it succeeded finding 'the only true way' (48). Pure practical reason, that is, directed at action, should carry its principle in itself. Otherwise, only conditional imperatives are possible, of the type: 'I ought to do something *because I will something else*' (47). The absolutely good will must be an *autonomous* will that determines itself according to its own principle. If not, the will would be *heteronomous,* determined by a principle that is not its own. The 'wrong ways' to which Kant refers are *empirical theories* that rely on the pursuit of happiness and *rational theories* that appeal to higher powers such as a metaphysical idea of perfectness or the will of God. Kant is primarily in discussion with empirical theories where the accomplishment of happiness, or a moral sentiment function as criteria. Still, the discussion is closely related to the ethics of technical mediation. For, action mediated by technology is clearly a case of *heteronomy* and not of pure autonomy.

As for happiness, Kant thinks that one can hope for it, but one can never ensure it by morally good action. This alone means that happiness cannot serve as the supreme moral criterion. For, this would imply that somebody who does not succeed in becoming happy should be morally blamed. Kant asserts that only the *will* can be judged because of itself and therefore only a good will is 'good in itself' and not 'because of what it effects or accomplishes' (8). Contrary to the utilitarian doctrine where the consequence of an action serves as the measure point, Kant asserts that the subject's intentions should be assessed. Good will is good, regardless the consequences when it is being acted out:

> 'Even if, by a special disfavor of fortune or by a niggardly provision of a stepmotherly nature, this will would wholly lack the capacity to carry out its purpose (…) then, like a jewel it would still shine by itself (…)' (8).

Kant has a second argument to reject happiness as a principle. In the empirical moral theories happiness also functions as a natural striving that induces motivations to right action. Humans, then, would have access to knowledge of what is good through some *moral sentiment*. In this way, what is good becomes dependent of 'incentives' based in the human physical constitution. In Kant's way of thinking this is incompatible with morality, because reason is being circumvented. If the concept of moral duty, the categorical imperative, is supposed to carry any real meaning, Kant warns, then 'we must not let ourselves think of wanting to derive the reality of this principle from the *special property of human nature*'. Instead, the principle should 'hold for all rational beings' and *'only because of this* be a law for all human wills' (34).

Without doubt, conscious or unconscious mediation effects of technology must be counted alongside the empirical incentives for human action. Kant strives to purify the philosophy of morals from such empirical incentives. Pure moral philosophy is concerned with human action in so far as it is not determined by incentives, but by motives of the rational will. The functioning of incentives would belong to the domain of 'empirical psychology'. From this domain should be distinguished a domain of pure philosophy concerned with 'reason' as it 'entirely by itself determines conduct' (36). This philosophy, Kant thinks, is very much needed, though also very hard to conceive.

> 'Here, then, we see philosophy in fact in a precarious position, which is to be firm even though there is nothing in heaven or on earth from which it depends or on which it is based. Here philosophy is to manifest purity as sustainer of its own laws (…)' (35).

This is how Kant expresses that the *autonomy of the will,* as the *supreme principle* of morals, cannot be derived from anything else, but must support itself. It is the task of *pure philosophy* to bring forward this principle from itself (through pure reasoning) as well as to provide a ground for it; an altogether difficult task, as Kant himself fully admits.

4.3 Two standpoints: Freedom and determination

The ultimate capacity of philosophy to hold up its own construction rests in the critique of reason by itself. According to Kant there is no other way to certainty. However, self–critique has the form of pulling oneself from the swamp by one's own hair (like Baron Münchhausen). As Kant writes: 'It must be freely admitted that a kind of circle comes to light here from which, as it seems, there is no way to escape' (55). Indeed does it

seem that the degree of certainty that Kant is looking for is unachievable after having revealed this circular figure of thought. Because there is the moral law, there must be freedom beyond empirical causations; and because there exists freedom, there is a need of a moral law. The different terms are nicely ordered with respect to each other, but what is it worth when the construction as a whole is free floating? This image of a free floating construction without a foundation would not appeal at all to Kant. Following his style of thinking, there must be a foundation after all, even if it may be very hard to see. He considers one remaining 'recourse', namely to 'inquire whether we do not take a different standpoint when by means of freedom we think of ourselves as causes efficient a priori than when we represent ourselves in terms of our actions as effects that we see before our eyes' (56).

This solution means that humans consider themselves as subjects at the same time as *sensible appearances* in a *world of sense* and as *things in themselves* in a *world of understanding*. Here Kant establishes a link to the knowledge theory of the *Critique of pure reason,* where he had distinguished between *appearances* and *things in themselves.* We cannot know things otherwise than by stimulation of our senses, that is, as *appearances.* Human beings, subjects, can also not know themselves otherwise than by empirical perception. But, when it is clear that knowledge must remain restricted to cognition of appearances, 'then it follows of itself that we must admit and assume behind appearances something else that is not appearance, namely things in themselves (…)' (56). Similarly, a human being, 'can obtain information even about himself only through inner sense', but beyond this cognition 'made up by nothing but appearances', the subject 'must necessarily assume something else lying at their basis, namely his ego as it may be constituted in itself' (56). Humans count themselves not only as belonging to a *world of sense,* but must also count themselves as belonging to an *intellectual world,* where resides 'pure effectiveness', the determination of action by the free will.

Kant points out the conflict between determination and freedom in order to allow for the existence of both empirical science and pure ethics. On the one hand it will be possible to scrutinize humans and their behaviors by scientific observation and to discover regularities. On the other hand, it will be possible to consider humans as self–ruling actors who are accountable for their own actions. A human subject is at the same time part of nature and a free actor:

> '(…) he has two standpoints from which he can regard himself and cognize laws for the use of his power and consequently for all his actions: *first,* insofar as he belongs to the world of sense, under laws of nature (heteronomy); *second,* as belonging to the intelligible world, under laws which, being independent of nature, are not empirical but grounded merely in reason' (57).

The conflict between freedom and determination is being emphasized as well as being resolved by Kant's conception of the subject that can consider itself from two different standpoints. The solution of the two standpoints allows justice to be done to the two aspects of human experience, namely that reliable knowledge about the world, including our own bodily existence, is possible, but also that humans can act according their free will. Kant considers both aspects equally important. He affirms, firstly, that objective knowledge of the world of appearances is possible, and that this knowledge is only possible insofar as these appearances are structured by regularities, laws of nature. However, secondly, the perspective of the subject as free actor must be acknowledged too, for otherwise the imperative character of moral rules would turn into a chimeric idea. The freedom in question cannot occur in the domain of empirical phenomena, Kant affirms, but is a necessary precondition for ethics, rendering it an abstract idea of freedom.

> 'For we can explain nothing but what we can reduce to laws the objects of which can be given in some possible experience. Freedom however is mere idea, the objective reality of which can in no way be represented in accordance with laws of nature and so too cannot be presented in any experience (…)' (63).

With the conception of the two standpoints that Kant introduces towards the end of the book he returns to a division inside philosophy that he had already mentioned in the introduction (1). Empirical philosophy is concerned with material objects that can be the objects of sensation. Kant affirms however, that, for cognition of appearances to be possible, there must be

assumed concepts that are not themselves the objects of sensation. These concepts are therefore not *material,* they do not belong to the world of sense, but they are *formal,* belonging to the intelligible world.

4.4 Kant's freedom and technical mediation

Unlike Bentham, Kant did not himself consider the relation between technology and his moral theory. Still Kant's work on ethics is even more important than Bentham's for the ethics of technology. The principle of autonomy that Kant advanced denotes a very important aspect of the modern conception of ethics. Even people who find Kant's notion of duty and pureness of will overly demanding do find notions like free will, moral responsibility, intrinsic value and human dignity indispensible for ethics. These notions all refer to Kant's separation of pure autonomy from heteronomy. The influences of technology clearly belong to heteronomy, affecting the pure form of autonomy that Kant claims necessary for ethics. How then can technical mediation be reconciled with autonomy of the will as Kant's principle of ethics?

The *will* means to Kant the capacity of reason to form motives for action and thus 'become practical'. Motives are being distinguished from incentives. Kant acknowledges that inclinations (or in general physical chains of cause and effect) do play a role in the coming about of behavior, but in the formal division of ethics, pure philosophy of morals, they cannot play any role. If reason is to govern action, then a motive established by pure reason must be able to develop into an incentive, that is, become an efficient cause of action. Because it is the case that we regard ourselves as moral beings, the probability of a will that produces motives must be assumed. This holds, even if, as Kant himself admits, the full elucidation of this will is just the unattainable limit for reason: 'it is impossible for us to explain, in other words, *how pure reason can be practical,* and all the pains and labor of seeking an explanation of it are lost' (65).

It is, thus, impossible to understand exactly the relation between the motives of the will and the efficient causes of actions as physical events. Kant thinks that our reason reaches farthest towards an explanation when we consider one subject from two standpoints: it regards itself as belonging to the world of sense as well as to the world of intellect. After distinguishing between the two worlds, Kant compares the willing of the subject in the intellectual world with the causality between things in the world of sense:

> 'Everything in nature works in accordance with laws. Only a rational being has the capacity to act *in accordance with the representation* of laws, that is, in accordance with principles, or has a *will.* Since *reason* is required for the derivation of actions from laws, the will is nothing other than practical reason' (24).

When we affirm that an action occurs as a physical event wherein we assume causality, then we can for a reasonable being add to this that for him (or her) it holds that he is:

> '(…)endowed with consciousness of his causality with respect to actions, that is, with a will (…) (54)'.

Extracted from a larger sentence this phrase is one of the most explicit formulations Kant gives of his understanding of the *will.* A *moral subject* has to be altogether transparent to itself. It may be difficult to imagine how this total transparency can be accomplished, Kant agrees, but still this very radical position is necessary to safeguard ethics from being illusory. An action is only a moral action insofar as it occurs *because of moral duty,* or *under representation of the moral law.* In another text, 'Idea for a Universal History with Cosmopolitan Intent' from 1884, Kant asserts: 'Every pretended good that is not grafted upon a morally good frame of mind is nothing more than a pretense and glittering misery' (Kant 2001a, 128).

This, evidently, also brings us back to the theme of mediations of behavior by technology, for these are also influences in ourselves or on ourselves that we can attempt to explore but which also often remain largely hidden to us (our hybrid self as ethical substance). Introducing the theme of technical mediation into Kant's ethics thus leads to the demand that for moral action it would be necessary to become fully aware of all the influences of technology on us. Guiding people by design to 'pretended good' ends does reduce their actions to 'glittering misery'. At the same time, we can also assume that, confronted with the theme of technical mediation, Kant would repeat his affirmation that the required total self–consciousness of one's own will is hardly imaginable, and even harder to establish.

4.5 Free to obey

According to Kant the possibility of an ethics comes down to the proof that moral duty is not just a chimeric idea. This leads him to explicating the structure of the requirement of free subjects that can and must respond to the call of the universally valid moral law. We must be free, in order to obey.

At this point we have to consider what is for us the legacy of the Kantian ethics. In what way do we want to refer to and make use of Kant's notion of autonomy? We should consider to what degree we still share the experience of objective duty on the base universal reason. The question is if we are willing and able to repeat the words from his 1793 essay 'On the proverb: That may be true in theory but is of no practical use', where Kant affirms that:

> 'no idea more elevates and inspires enthusiasm in the human mind than that of pure moral conviction, which reveres duty above all else (...). That man is aware that he can do this because he ought to reveals deep tendencies toward the divine that allow him to feel a sacred awe regarding the greatness and sublimity of his great vocation' (Kant 1983, 70).

This brings me back to my remark at the very beginning of the discussion of *The groundwork.* Is Kant only explicating the structure of morality that is universally valid, independently of Kant's work of explication? Or are the shared values of morality rather a human project that demands commitment and effort? I think this is addressed in a very nice way by Wilhelm Schmid in his *Philosophie der Lebenskunst:*

> 'Was würden die Folgen sein, wenn ein Prinzip wie der kategorische Imperativ *nicht* in Kraft gesetzt würde? Das ist die Frage, von der Kant umgetrieben wird; aus Klugheitsgründen beantwortet er sie mit der Verpflichtung des Subjects aufs potenzielle allgemeine Gesetz — damit der freie Wille sich nicht als ruinös für die Freiheit des Subjekts selbst erweisen könne' (Schmid 1998, 230).

Maybe ethics does not, as Kant thinks, exclusively mean the recognition of being subject to a universally valid principle of reason in the form of the categorical imperative, the absolute moral law. In accordance with Schmid, I think, we could say that Kant's elaboration of the structure of the categorical imperative and the free subject may not be a universally valid structure but a call to one specific use of reason and elaboration of our freedom. Kant's ethics is and remains the most profound expression of what the use of reason meant for people in the Enlightenment and the Age of Reason.

One huge problem of the modernist ethical principle of universally valid law was and remains however the thesis of the two standpoints: the subject torn between the empirical world and the world of pure cognition and freedom. The structure of this two stand points thesis and the associated problems are of great importance for understanding the difficulty of recombining ethics and technical mediation. Even if Kant did not, like Bentham did, treat technology explicitly, it is Kant who has most profoundly elaborated the problem of the subject torn between the demands of reason and the determination in the material world. In Kant's thought this problem is clearly present from the beginning. While he does recognize physical inclination and coercion are sources of behavior, Kant emphasizes that ethics only applies to action resulting from free will. Only when subjects determine their own actions, by their autonomous will, and not when they are forced by external influences (heteronomous determinations of action), are people responsible for their choices and actions. The possibility of a free and autonomous subject must be assumed in ethics, otherwise the whole idea of morality would be illusory. Kant's conception of ethics with the rejection of the relevance of external determinations, has laid down the ground for the *dystopian* view on technology. In the dystopian conception of technology, exactly following Kant's views, humans are required to be fundamentally free. Part of the dystopian view is however also the fear that such freedom does not exist.

In order for ethics to be able to cope with the unavoidable acknowledgment that we are physical beings, tied to and part of the world and mediated by technology, the challenge is to explicate anew what is the way in which we as hybrid beings still make use of reason. An alternative use of reason, a different way of considering oneself subject to a principle of reason, is I think, the challenge of Foucault's project of an ethics as aesthetics of existence. Do we, as hybrid beings, not rather think that we are free to give style instead of being free to obey? I will now turn to Foucault's elabo-

ration of an aesthetics–like principle of ethics as style–giving.

5 Foucault's ethics: Aesthetics of existence

In this section I will be concerned with the question of what could be the mode of subjection in an ethics that does not reject but takes very seriously technical mediation research and the conception of a hybrid self. More specifically, I will follow Foucault's suggestion that for a renewal of ethics a revaluation of the arts of living would be fruitful. Foucault's approach of ethics as aesthetics of existence allows to fully acknowledge people's concern about the interactions and fusions with technology, and consider their efforts of giving direction and style to their hybrid self as fully ethical activity.

The perspective of style–giving and technology points to a way out of the problem of freedom and technical mediation as it appeared in the rationalist ethics of modernity. In Bentham's utopian vision technology is a perfect means to support ethics. In utilitarian ethics the subject orientates himself on objects, and navigates freely between them. However, in the mean time such belief in technology is seen as naïve and problematic. It is impossible to start making use of technology in the straightforward way like Bentham proposed, because we are already fundamentally conditioned by technology, entangled in its web from the beginning. Kant was very much aware of this problem. In Kant's ethics the freedom of the subject was proclaimed as a necessary condition of morality. External Influences (obviously technical objects must be included) become a pertinent problem for Kant's freedom requirement. This problem was only provisionally resolved by altogether rejecting the importance of external influences on ethics.

First I will discuss what is ethics as art of living (or aesthetics of existence). I will discuss how it refers to a different use of reason, rather aesthetical than ethical (in Kantian terms), and I will explain how an aesthetics of existence copes better than modern rationalist ethics with technical mediation, with the hybrid self. Ethics as art of living is quite different from modern ethics. Therefore, the question of whether it is still ethics needs and will receive more extensive consideration in the second half of this section.

5.1 Style as ethical principle

When Foucault studied ethics in antiquity he discovered that both the problem of law and of freedom received less attention. In the absence of absolute rules, people did however still moderate their behavior. Overall the behavioral guidelines were rather constant throughout history, observes Foucault. What changes is rather the *way in which* we confirm to guidelines. That is, the character, or the status, of guidelines changes through time, from one ethical system to another. The absence of a focus on codes in antiquity did not mean that there was only moral chaos. Ethics in antiquity appeared much more to be about practical skills and exercises to give oneself a line of conduct and to give style to one's existence. Foucault referred to these practices as arts of living, which he introduced as:

> 'intentional and voluntary actions by which men not only set themselves rules of conduct, but also seek to transform themselves, to change themselves in their singular being, and to make their life into an œuvre that carries certain aesthetic values and meets certain stylistic criteria' (Foucault 1992, 10–11).

The attention to individual exercise and stylization, as it were, compensates for the absence of absolute codes, so characteristic of ethics in the modern West. Foucault's scheme for studying subjectivation allowed him to study this variation, the different form and weight given to the four aspects of subjectivation. For Foucault ethics is about subjectivation, and is no longer reserved for the modern form of morality, for which the moral law is the essence. If the moral law is not absolute, this may mean the end of ethics for Kant, but not for Foucault. The practical art of living and rational foundation of the moral law are just two specific historical examples of ethics.

Foucault was interested in a genealogy of ethics, meaning the developments in the way people constituted themselves as subjects. Part of this is the change of the mode of subjection, the formal principle that motivates to engage in ethical behavior and practices. In ancient arts of living, this principle was not the demand

of reason in the form of duty, but as Foucault affirms, it was rather an aesthetic principle, sometimes also called an aesthetico–political principle (cf. Foucault 2000b, 264). Compared to the exigency and universality of a moral *law,* which are typical of the modern experience of the mode of subjection, an aesthetic–like vocation is a facultative, individual orientation towards *style*. And instead of total illumination of the world and transparency of oneself, the self is seen as a project of invention, of a transformation of oneself and one's entanglements with world.

This inspired Foucault to formulate an alternative conception of human freedom. Freedom is not a state of independence from external influences, but an experience that humans achieve through actively coping with circumstances. According to Foucault, the free subject is not a precondition for ethics, but any experience of being a subject (the first person perspective of a desire and ability of agency) consists of active exercises to get a grip on one's own life. This conception of freedom is in line with what Foucault thought to be the aim of the arts of living in antiquity, namely the establishment of an active mastery over one's own life (In chapter 7 this will be further elaborated). This reformulation of ethics, from obedience to a rational principle that assumes a free subject, to style giving activity of the subject with reference to an aesthetic principle, makes it possible to integrate the notion of a hybrid subject, mediated by technology, into ethics.

5.2 From law to style — Is this still ethics?

Now I will address once more the question of whether an aesthetics of existence can still be considered ethics. I will first see how Foucault thought a turn to aesthetics responds to the challenges of the contemporary world and experiences of ethics. Then I will compare his approach with other contemporary approaches that also try to overcome the strict and problematic structure of universal reason and the free subject, torn apart from the physical world.

Initially, Foucault had contested code–based modern ethics, by revealing its hidden complement of disciplinary power. In the modern West, ethics was identified with obeisance to such a degree that the process of subjectivation was concealed. It was largely overlooked that the modern free but obedient subject was not given, but, as Foucault had tried to reveal, was fashioned by disciplinary practices. Later, however, he considered the decreasing authority of absolute laws as a broader cultural phenomenon that prompted the articulation of an alternative to obedience for a contemporary ethics.

> '(…) for a whole series of reasons, the idea of morality as obeisance to a code of rules is now disappearing, has already disappeared. And to this absence of ethics corresponds, must correspond, the search for an aesthetics of existence' (Foucault 1988, 49).

Foucault's genealogy of ethics shows that abandoning compelling laws implies the end of a certain kind of ethics, but does not need to be the end of ethics altogether. In the ancient arts of living the reason for engaging in ethics was not duty but the wish to give style to one's existence and to earn the respect of peers. This ancient model served Foucault as an example when he tried to consider an alternative ethics encountering challenges raised by today's changing ethical experience.

> 'The idea of the *bios* as a material for an aesthetic piece of art is something that fascinates me. The idea also that ethics can be a very strong structure of existence, without any relation with the juridical per se, with an authoritarian system, with a disciplinary structure' (Foucault 2000b, 260).

Foucault thus considers how contemporary ethics can once more find its motive in an aesthetics of existence, where the subjectivation process could again take the form of care of the self instead of institutionalized disciplinary practices under the authority of law grounded in reason.

Is an aesthetics of existence still ethics? Obviously Foucault's approach means a departure from the common understanding of morality in modern philosophy. But Foucault's project does not altogether stand alone. It clearly coincides with contemporary trends of increased emphasis on the role of social and historical conditions in ethics. I will shortly compare Foucault's approach to three ways in this trend, namely a return to virtue ethics (MacIntyre; Nussbaum), a historization of reason (Habermas), and the use of Kant's *Critique of judgment* for questions of ethics (Arendt).

5.3 Virtue ethics

The notable resemblance of ethics as art of existence with virtue ethics (cf. MacIntyre 1981; Nussbaum 1986) is that both approaches are inspired by antiquity and both focus on the constitution of character rather than on rules and their rational foundation. Yet there are important differences. Foucault's aesthetics of existence is more radical with respect to the denunciation of the modern rational approach. Foucault marginalizes the importance of rationally based moral codes and insists, instead, on the activities, the practices of giving form to one's existence. His approach can be characterized as individualistic, facultative and aesthetic. This does not mean that there is no space or respect for others or the community in Foucault's ethical thinking, but the point of focus is on how individuals living their lives constitute themselves as ethical subjects.

As in virtue ethics, Foucault's ethics as art of living refers to social customs and exemplary actions of others, but not necessarily to conform to those. The difference with respect to virtue ethics is well illustrated by the presentation given by Foucault of the distinction between the Greek concepts of *sōphrosynē* and *enkrateia.* Virtue ethics is sometimes called an ethics of *sōphrosynē,* temperance. The aesthetics of existence is rather an ethics of *enkrateia,* a kind of active mastery of oneself. As Foucault explains:

> 'The virtue of *sōphrosynē* is described rather as a very general state that ensures that one will do "what is fitting as regards both gods and men" (…) In contrast, *enkrateia* is characterized more by an active form of self–mastery' (Foucault 1992, 64).
>
> 'The opposite of *sōphrosynē* is the immoderation (*akolasia*) that is expressed by deliberately choosing bad principles (…). *Enkrateia,* with its opposite, *akrasia,* is located on the axis of struggle, resistance, and combat' (65).

Virtue ethics contains a 'conservative' element that is not shared by Foucault. In virtue ethics, social circumstances, tradition or customs provide reference models for everyone. Although they are not based on a principle of universal reason, but are culturally established models, they do have the character of being general and exigent. That seems to be one source of the appeal of virtue ethics: after the failure of the modern project of elaborating absolutely certain rational foundations for ethics, commonly shared customs provide an alternative foundation for rules, still very firm although not absolute. Foucault's interest in social circumstances and customs is not to find a base for rules, but to see how the circumstances of concrete life constitute the milieu in which people must give form to their own existence. The point is to establish mastery in the conduct of oneself while dealing with one's social roles, one's own temperaments and one's physical constitution.

5.4 Modernity as an incomplete project: Habermas

One more way to account for the historical and cultural aspects of ethics is the attempt to remain loyal to the project of modernity of a universally valid reason, but then to consider reason as gradually evolving. The universally valid principle has the form of a meta–principle that transcends this historical process. For example Jürgen Habermas has sought to reformulate and refine the conception of rationality in this way. He remains within the rationalistic modern tradition, emphasizing that rationality does aspire universal validity, but he considers that the content of what counts as rational evolves. This evolution, Habermas thinks, is contributing to a historical development of the completion of modernity in so far as it is ruled by a meta–principle of rationality that he defines as 'consensus' on the basis of 'communicative action' (cf. Habermas 1989; see also Habermas 1981; 1984). Principles, criteria and moral rules are not given once and for all, but develop in the course of human history. They are the always preliminary results of a process of cultural learning and deliberation. The rationality of norms and principles is proportional to the quality of the discussion at the base of their acceptation. The closer the exchange of opinions and perspectives approaches the ideal of communication free of interests and power, the more the result gains in communicative rationality. Since the criterion of rationality applies not to the truth of the rules themselves, but to the procedure by which they are constituted, this approach has been called 'procedural ethics'.

Foucault does not follow Habermas in defining such a meta–principle that would enclose the historically different articulations and uses of reason. Habermas

emphasizes the importance of remaining loyal to modernity's project of an orientation towards universally valid reason, in a vain similar to Kant's that otherwise morality would be a chimeric idea (cf. Kunneman 1996; 1998). About this project by Habermas of safeguarding a universally valid principle Foucault affirmed in an interview:

> 'The idea that there could exist a state of communication that would allow games of truth to circulate freely, without any constraints or coercive effects, seems utopian to me' (Foucault 2000h, 298).

Foucault thinks it is more important to acknowledge and to know how to cope with different competing opinions, life orientations and the reality of living among others, implying games of governing others and being governed by them.

> 'The problem, then, is not to try to dissolve them in the utopia of completely transparent communication but to acquire the rules of law, the management techniques, and also the morality, the *ethos,* the practice of the self, that will allow us to play these games of power with as little domination as possible' (298).

The principle of 'style giving' as an ethical principle that one can consider oneself subject to means an acknowledgement of the historical, social and material circumstances and conditions of one's existence and the recognition of a possibility to change one's existence. For Foucault the explorations of constraints and possibilities of changing our existence are more important than assurances that together we are embarked on the same historical path. The use of reason, for Foucault, implies rather the hope of always being able to choose and invent singular, new ways of living, and to give a twist to the ways we are constrained. Again referring to Habermas, Foucault also remarked:

> 'The main problem when people try to rationalize something is not to investigate whether or not they conform to principles of rationality, but to discover which kind of rationality they are using' (Foucault 2002c, 299).

The recognition of 'style giving' as an ethical principle does not mean the end of ethics, but a different use of reason than the modernist universal reason. Whereas Habermas fears that this would mean altogether giving up on rationality in the tradition of Kant, Foucault thinks that an aesthetics of existence can also be seen as a true continuation of the modern tradition since Kant. For Foucault this does not mean loyalty to a doctrine but rather the continuation of a critical attitude. I will discuss this more extensively in chapters 6 and 7.

5.5 Kant's aesthetics for questions of ethics: Arendt

The project of an ethics as aesthetics also brings up the question of the relation between ethics and aesthetics in Kant's oeuvre. That aesthetical reasoning could provide a principle for ethical subjection is not what Kant had in mind. Foucault apparently also did not find such a possibility in Kant's work on aesthetics, but in the arts of living in antiquity. It is however possible to see how ethics as an art of existence relates to Kant's own thinking about aesthetics, namely with reference to his work on the mind's faculty of judgment, reserved by Kant himself for matters of aesthetic taste and political history, and not for ethics. On one occasion Foucault has referred explicitly to Kant's thought on aesthetics and politics. In one version of 'What is Enlightenment?', a 1983 lecture at the *Collège de France,* he spoke of the 'enthusiasm for the Revolution' (Foucault 2001b). This affirmative attitude constituted for Kant a provisory but shared scheme (a *sensus communis*) that allows for aesthetic judgments, as well as historical–political judgments about events that are still ongoing and where one oneself may not only be an observer but also an actor, like during the French Revolution. Foucault emphasizes that when Kant addressed actuality he did not focus on the possibility of universal knowledge that is valid for everybody, but instead on how to understand and cope with the situation that knowledge about human affairs is always only provisory and the subject of competing opinions.

Here I am however also drawing on views of Hannah Arendt to explain Foucault. Hannah Arendt's discussion of the relation between Kant's critique of judgment and his moral philosophy is much more elaborate than Foucault's. Whereas Foucault affirms that in Kant's texts on the Enlightenment there is a germ of thinking in aesthetical terms about ethics, Arendt suggests that Kant's third critique as a whole, intended by Kant for matters of taste and historico–political affairs only,

should now be revaluated as an investigation into ethics.

Like Foucault, Arendt expressed the experience of a crisis of morality, notably the decrease of religious belief and a loss of confidence in universal principles. In these circumstances, the mind's faculty of judgment, formerly preserved for matters of taste and opinion, is becoming all relevant in matters of morality. Kant distinguished between practical rationality (morality) and the faculty of judgment (aesthetics and history). Arendt asserts, however, that in the world of today and in contemporary moral philosophy, Kant's writings about judgment (Kant's aesthetics) are more relevant than his analysis of practical reason (Kant's moral philosophy). For, it is only in the *Critique of judgment* that Kant gives an account of the human condition of plurality, the fact of life that one has to live together with other people, who appear to have different opinions, preferences, values, etcetera. The challenge for Arendt is not to discover and elaborate the assumed fundamental moral principle (as in modern philosophy), but to face the adventures of the coming about, or not, of agreement among people in the absence of a universally acknowledged principle. Arendt writes:

> 'Kant himself analyzed primarily aesthetic judgments, because it seemed to him that only in this field do we judge without having general rules which are either demonstrably true or self–evident to go by. If therefore I shall now use his results for the field of morality, I assume that the field of human intercourse and conduct and the phenomena we confront in it are somehow of the same nature' (Arendt 2003, 138).

For Kant, judgment applies to matters of taste not only in the field of art, but also in the evaluation of historical events. Arendt believes that ethics does no longer dispose of principles to bring forth absolutely true knowledge. Therefore in the case of moral questions today, as before with judgments of taste, there is no 'transcendental scheme', but only a 'sensus communis' that guides judgment. This common sense is considered by Kant and Arendt to be opinion, broadened beyond simple self–interest, thus becoming impartial, disinterested. This broadened opinion results from the confrontation with others and the willingness to take into account their opinions and interests.

Arendt affirms Kant's analysis that in matters of taste (for Kant the realm of judgment) 'we are considerate in the original sense of the word, we consider the existence of others and we must try to win their agreement'. However, in matters of morality, Arendt emphasizes, Kant considers that 'nothing of this sort is necessary: we act as intelligible beings — including the inhabitants of other planets, the angels, and God himself' (142). Arendt admits that the condition of plurality is relevant with respect to human conduct as well. 'Then we shall have to consider human conduct in terms which Kant thought appropriate only for aesthetic conduct, so to speak', because, so Arendt, 'only here did he consider men in plural, as living in a community' (Arendt 2003, 142).

The notion of plurality, particularly dear to Hannah Arendt, is also directly relevant for Foucault's thought. If ethics concerns a stylization of the self, the result with respect to the community can only be a plurality of lifestyles. For Arendt too, ethics concerns the individual in the first place. The question of harmonization with the others comes next, and is, in her framework, a political rather than a moral problem. Her ethical thinking does not aim to produce a theoretical formula that successfully gathers all people into a harmonious whole, but to gain understanding of how the common good is constructed through political action. Consensus is being constituted by public, political action. Success is never guaranteed and yet there is no other remedy. Arendt's analysis of ethical deliberation, of plurality, clearly falls in the register of operativity (Foucault). It is all about choosing whose company one enjoys, and in some cases to 'stay just as far as possible away from people with whom we will never agree'. This remarkable advice is even the conclusion of her lessons in moral philosophy (146).

Hannah Arendt is not frequently associated with the approach of arts of living. However, as I have demonstrated, she too has explored the relationship between ethics and aesthetics. This convergence between Foucault and Arendt suggests an interesting route for further research into the meaning of others and community (not as a thought construction but as the plurality of real others) in an ethics as aesthetics. For now, however, here ends my comparison between Foucault ethics as art of existence with other contemporary approaches in ethics, and I will continue by going back to the ethics of technology.

5.6 Style–giving and technology

In the previous chapter, on the hybrid self, it was shown that in abstract thinking about technology two main figures of technical mediation could be articulated: utopian technology and its opposite, dystopian technology. The recent empirical turn in studying technology added a third figure: hybrids for better or worse. This notion of hybridity, is on the one hand still a generalizing, abstract conception of the relation between technology and humans. On the other hand it points the way to the investigation of concrete technologies and their influences on humans. Thus the philosophical investigation of the relation between humans and technologies was extended from merely the abstract quadrant 'above–the–head' to the further quadrants 'before–the–eye', 'to–the–hand' and 'behind–the–back' which encompass concrete forms of human–technology relations. The modern, rationalist modes of ethics of both Bentham and Kant are congruent with abstract conceptions of the power of technology, where Bentham's ethics can be aligned with the utopian figure of technical mediation and Kant's with the dystopian.

In Bentham's utilitarian ethics the subject orientates himself on objects, and is supposed to be able to navigate freely between them. Only in an abstract way is the subject seen as determined by technology, and in such a way that it is hardly an ethical concern. The utopian figure of technical mediation placed technology as a means to human perfection, miraculous in itself, but scarcity and unequal distribution hinder its wonderful workings and thus still have to be overcome. This ethical concern in rather economic terms of distribution of means, complies well with Bentham's concern for utility and happiness. However, Bentham's approach also includes a more psychological perspective, describing how humans are inclined to respond to the call of the rational principle of utility, of maximizing happiness. Also on the level of this perspective the same utopian figure of technical mediation is entertained by Bentham. The perfection of rational moral behavior of humans depends on technology, can be hindered or supported by it. The technology of the Panopticon prison as well as any other panoptic technical arrangements, hold the promise of making the correct functioning of morals flourish. The present situation is however that human societies induce flaws in the correct functioning of morals, a kind of scarcity or incorrect distribution of morality. Technology is good in itself, a miraculous supportive tool of morality, if it were only applied to the degree of a global Panopticon. Only because of this specific conception of technology, naive in the light of the contemporary philosophy of technical mediation, can the subject be assumed to be free and able to act in accordance with reason.

Unlike Bentham, Kant did not himself take technology into consideration. It is, however, rather obvious that in his ethical system technology would be very problematic. Whereas Bentham, takes for granted that humans are free, so that they can act according to reason, in Kant's ethics the freedom of the subject is an all–important problem. This problem was only provisionally resolved by rejecting the importance of external influences for ethics. The apparent implication is that the notion of a hybrid subject is also incompatible with ethics and would equally have to be rejected from any ethical consideration. This is largely comparable to the dystopian figure of technical mediation, which expressed that technology threatens to take command, determining humans, alienating them from themselves and depriving them of their freedom. The ethical complement to dystopian technology was to call for limits to the rush of technology, or to re–humanize technology. Typical of the dystopian conception of technology was that this appeal to limitation was an emergency call, almost in despair. By addressing the problem of freedom of the subject Kant definitely moved beyond the naivety that characterized Bentham's analysis in this respect. Kant's analysis, however, introduced a new problem, largely unsolved to this date. A subject, to be able to act according to a principle provided by pure reason, must be free of external influences, and therefore can also not be a technically mediated self.

At this point we reach the heart of the question that the philosophy of technology faces about the relation between recent empirical approaches and ethics. It is hard to see how an ethics in the modern rational tradition, radically based on reason, deriving its principle from pure reason, can be combined with the notion of technical mediation. For, contemporary empirically orientated philosophy of technology stresses

that human action and existence are always technically mediated. The influence of technology on people is understood in terms of progressive hybridization. If the notion that technology does not directly affect the ethical subject is then estimated naïve and a purification of the subject from technology is deemed impossible, is ethics then still possible? Does the empirical turn in the research into technology, resulting in an approach that describes more than criticizes how different technologies affect people's lives, mean the end of ethics? Or, can ethics renew itself and find a method and a vocabulary to analyze the interference of technical products in human action in ethical terms as well? Is a different, non–modern, use of reason possible to provide a principle of ethical subjection?

Contemporary empirical philosophers no longer avoid the human–technology merger, but engage in detailed, empirical studies on the multiple forms of impact of technology on human beings. The challenge is to supplement the empirical philosophical research into the impact of technology with equally detailed investigations into the experiences people have who undergo the influences of technology. What kind of approach in ethics is apt for taking on this task? The appropriate response of ethics to the merger of humans and technology is not to ward it off, but to start caring for the quality of the interactions and fusions with technology. In line with ethics as art of living after Foucault, the motivation for this care of our hybrid self is the wish to give style to our existence. The leading question must become what is a desirable form of our hybrid mode of being. With respect to one's engagement with technologies, attaining *style* can also be a motivation as an alternative to the now problematic notion of absolute law. Ethics can comprise care for the style and the quality of our hybrid modes of existence.

5.7 Nudges, delegation and the spell of modern ethics

Such an alternative articulation of ethics, no longer about subjects free from any influences called to obey a purely rational principle, but instead about humans wanting to give style to their mediated existence, seems a reasonable but as yet hardly elaborated extension of the philosophy of technical mediation. So far, claims that technical mediation is relevant for ethics, and not in the sense of being opposed to it, have hardly been convincing to moral philosophers. While the mediation theorists have successfully stretched the description of the world beyond modernist frameworks, they have remained too loyal to the modern ethical framework for explaining the relevance for ethics. They have tried to debunk the modernist way of thinking, but not provided a convincing alternative. Therefore they have remained under the spell of a way of thinking that cannot combine technical mediation with ethics.

One example is the theory of nudges by Thaler and Sunstein (2008). Whereas their concrete examples and policy advices are credible on a pragmatic level, their background theory revives all the problems of technology and modernist ethics. Nudges, as they propose, correct for action choices made by the 'automatic system' that do not confirm people's deliberations by their 'reflexive system'. The influence of technology is here conceived of as introducing flaws into the functioning of deliberate action choice. Technology can however be redesigned so that its effects are bent towards the complete functioning of deliberate, rational determination of action. This is exactly the figure of mediation that Bentham employs, and is thus similar to utopian technology. The degree and mode of application they strive for is considered by themselves as moderate, far from the explicit utopian aspirations Bentham had. Still, Bentham would also see his own proposal 'moderate', because he too did not want to force people, but only promote the correct functioning of morality in everyone.

A second example is Latour's explanation of how behavior guiding technology relates to ethics. Latour claimed that in the case of user influencing products, action is 'delegated' from humans to technology. To become aware of this would be to find the 'missing masses of morality' (Latour 1992). How can the discovery of the constraining effects of technology be a recovery of ethics, is the obvious question from a traditional ethical framework. Latour's claim does denounce but it does not break out of modernist morality, or at least does not convincingly explain how or what the alternative is. When Latour used the notion of delegation as a means of solving the problem with morality

and technology, his vocabulary remained caught within the modern framework of code–based ethics, close to Kantian terminology. For 'delegation' meant the transfer of 'obligation' from 'our hearts' to our 'apparatuses' (Latour 2002, 253). Moreover, although Latour further declared that the form in which one usually recognizes morality, that of 'obligation', 'does not properly belong to it' (Latour 2002, 254), he has not yet offered an elaboration of what ethics can be if it is not obligation.

Foucault's proposal for an aesthetics of existence offers such an ethical approach that is not code based, and is therefore helpful in further elaborating an ethics of technical mediation. The decisive point is that behavioral constraints by technologies should not be seen either as immediate threat or the necessary replacement of moral law. Technical mediation and ethical principle do not compete with each other in this direct way. The influences of technology are part of the hybrid self that one can problematize and actively shape. Technical mediations should thus be understood under the aspect of the ethical substance and not of the subjection mode. Ethics is then not about obeying, subjecting to technology, but about concern for the influences of technology and the wish to give style to our hybrid form of existence.

6 Conclusion

In this chapter about the mode of subjection in Foucault's scheme of subjectivation, I investigated which ethical principle can be recognized in a contemporary ethics as care for our technically mediated way of being. This is a pertinent problem, because it is often feared that technical mediation would mean the end of ethics. Ethical evaluations of user guiding and changing technology as in Achterhuis' proposal for 'moralizing technology' get bogged down in a fear for a totalitarian technocracy and the estimation that technically mediated behavior is incompatible with the requirement of freedom of the subject in ethics. I analyzed that this is a problem of the modernist framing of ethics as universally valid laws of reason that can only be responded to by free subjects, and not by hybrid beings.

A discussion of the ethical principles of Kant and Bentham revealed that for Bentham technology can actually be a support of ethics, but at the price of not fully acknowledging technical mediation. Kant has most profoundly articulated the structure of modern ethics as universal rational law and free subjects. Ever since, freedom is commonly considered a requirement of ethics, following Kant, which explains the difficulty of integrating technical mediation and ethics.

After discussions of Bentham and Kant, I introduced and discussed Foucault's alternative, an ethics inspired by the ancient arts of existence. In this ethics technical mediation does not have the sense of a negation of freedom and absolute law, but the hybrid self becomes the matter of ethical care. A shift of the mode of subjection from absolute moral law to a aesthetic principle of style, offers an opportunity to take serious technical mediation of our existence. Whereas the ethics of law assumed a subject free of empirical ties, an ethics of stylization can take the technically mediated self as the substance of ethical work on the self.

As Foucault analyzed, in the modern conception of ethics, ethics was almost identical with the rational law. In the ancient arts of existence practices of ethical elaboration were much more articulate. In the next chapter I will therefore investigate how ethical practices can again become a more important dimension of a contemporary ethics as care for our hybrid selves.

Chapter 6
Ethical practices of hybridization
(Ethical elaboration)

1 Introduction

This chapter takes as its starting point the third term of Foucault's fourfold scheme of subjectivation, the *ethical elaboration*. Moral laws or aesthetic choices of style may define a model of existence, but effort and exercise are required to elaborate this form in practice. Conducting oneself and giving style to one's existence requires 'work' in the sense of efficient cause. In the context of subjectivation, constituting oneself as a subject means work of the self on the self: 'ethical work'. The fourth chapter discussed research on technical mediation, covering the dimension of the ethical substance, and the fifth chapter was about principles of ethics as modes of subjection. This chapter proceeds by exploring the contribution of historical, anthropological and ethnographic research about practices of coping with technology as relevant to the dimension of ethical elaboration.

Such processes of technology accommodation can be studied from the perspective of an ethics of care of the self. How do people manage to accommodate technologies for their own ends, so that they become embedded in their lives in a meaningful way? What are the considerations that play a role when people engage with and accommodate technologies? By what kind of activities do people adapt to technologies and transform themselves? Thus, with respect to technology, studying ethical elaboration involves exploring the activities whereby people get attached to technologies and accommodate mediation effects into their existence. For a contemporary ethics of technology, ethical elaboration can be defined as *practices of hybridization*. By investigating how people cope with the mediating effects of technology, how they actively resist or accommodate and integrate technology in their way of living and being, the chapter further completes the discussion on subjectivation and technology.

Foucault found that this practical aspect of ethics had been neglected in modern moral theories which focus on compelling codes and their rational foundations. In the ancient ethics as arts of existence work of the self on the self was at the center of ethics, while ideas about objectiveness of moral laws and accompanying freedom of will were less important. Foucault's proposal for a renewal of ethics, oriented around the arts of living, wishes again to attribute a

prominent place to 'the practice of ethics', by focusing on the 'care of the self'. In this chapter I aim, firstly, to trace and explain Foucault's 'rediscovery' of ethical practices of governing and fashioning oneself as a subject. The second goal is to elaborate how this ethical dimension of care of the self is relevant for a contemporary ethics of technology. This means tracing and articulating practices of care for our hybrid selves. Where can we find those practices, how can we study them and how can they become integrated as an important dimension of ethics?

Theoretical approaches to ethics often show a lack of contact with concrete reality. Utopian visionaries with an interest in technology do not see this as a problem. They embrace technical progress, but are naïve about the multifaceted implications of technical mediation, that may include very undesirable effects. Dystopian thinkers about technology have the strongest moral stance concerning technology, but they are naïve about the possibility of an independent standpoint necessary to control technical developments. Ethics often finds itself watching helplessly how in everyday practice all kinds of technologies get integrated into people's existence. What does it mean for the status of ethics that the principles it brings forth seem impossible to impose on the practice of technical development? In the last chapter I discussed the principles of ethics in relation to our hybrid self and concluded that principles in the sense of style would be more adequate than law–like principles. Now, by investigating practices of hybridization, I want to research what this means in practice. I will elaborate the ethical relevance of such practices. A goal is to see to what degree this bringing to the foreground of ethical practice of formation and transformation of our hybrid self according to principles of style rather than law, does indeed bridge the gap between seemingly 'powerless' theoretical moral philosophy and the rush of technical developments in practice.

The outline of the chapter is as follows. First I will discuss Foucault's studies on 'technologies of the self' and on the philosophical life in the extraordinary case of the Cynics, and will relate this to his proposal for a contemporary philosophical approach as a 'critical ontology of ourselves'. Next I attempt to recombine this work on ethical practices with the theme of hybridization. Three domains of ethical practices of hybridization will be discussed. The recombination of practices of the self with anthropological research on technology, bodies, and gesture amounts to an approach of 'studying hybridization practices'. Then I will discuss the domain of 'testing hybridization', by looking at pilots and usability trials. Next I will turn to art and technology as another relevant domain, namely by showing how artists often engage in 'exploring hybridization'.

2 The care of the self: Practices of ethical self–constitution

In the third chapter I have discussed how Foucault in the course of his work on the history of sexuality gradually discovered the theme of *subjectivation*. The *subject* is not a universal given, but being a subject has singular historically and culturally dependent forms, and Foucault became interested in the formative activities by which the formation and transformation of the subject is effectuated. He studied the notion *care of the self* as an important ethical precept in ancient ethics. In general he became interested in the practices of work of people on themselves. Foucault coined the terms *practices of the self* or *technologies of the self* to denote the specific methods and activities of caring for oneself.

2.1 Power transformations

The discovery of the theme of technologies of the self and the practice of ethics had actually started with his research on disciplinary power where Foucault opposed his way of studying power on the operational level to analysis of power on the level of ideas. In *Discipline and punish,* as I have discussed in chapter 3, Foucault also claimed that power is not simply repression of a free subject, because no subject exists that is not produced by some kind of disciplinary practices. In his work on power Foucault thus had already approached the theme of subjectivation, but never as a positive part of ethics. For, he had only exposed the production of 'docile bodies' from the perspective of the structure of disciplinary practices. He nowhere paid attention to the experience and attitude of individuals as they are coping with the disciplinary practices imposed on them. The one exception is the remarkable newspaper report of the condemnation of a young man, Béasse, sentenced for no other reason than having no place to live, no parents and taking on all kinds of different jobs for making a living (in short: for being undisciplined). After hearing the sentence of two years of reformatory, Béasse 'pulled an ugly face', but soon recovered his good humor and said 'Let's be off then' (Foucault 1977, 291).

In the years after *Discipline and punish* Foucault broadened his focus on practices from the perspective of disciplinary power to the theme of practices of government more generally. In lectures from 1980, 'About the beginning of the hermeneutics of the self', Foucault stated:

> 'Governing people is not a way to force people to do what the governor wants; it is always a versatile equilibrium, with complementarity and conflicts between techniques which assure coercion and processes through which the self is constructed or modified by oneself' (Foucault 1999, 162).

Not only was the research perspective broadened, but also the historical period of study was expanded in time. Foucault became explicitly interested in different styles and techniques of governing throughout history. From disciplinary power (disciplining individuals) in the early nineteenth century Foucault went on to study bio–power (managing populations), and then the 'laissez–faire' rationale of liberalism and neo–liberalism of recent times. And he also went back in time to study the practice of confession in the Christian Church.[27] This prompted him to delve deeper into the history of the relation between power relations and self–examination in the practices of 'penance' and of 'confession' in the early Christian Church and in the medieval monastic tradition. It appeared to Foucault that the early Christian ascetic practices were variations of pagan methods of self–examination and self–government, which again led him towards an extensive study of the government of the self and others in antiquity.

One could say that Foucault's work under went a series of 'power transformations', not in the sense of replacements of a ruler or a class who own the power, but in the sense that Foucault's understanding of the nature of power changed or evolved. In his later work he recognized and valued that the self is not only produced by government imposed on individuals by way of disciplinary practices, but that the ways of coping with power and techniques of self–governing and self–discipline are equally important.

> 'In short, having studied the field of government by taking as my point of departure techniques of domination, I would like in years to come to study government — especially in the field of sexuality — starting from techniques of the self' (Foucault 1999, 163)

[27] Apparently on suggestion by Ivan Illich (cf. Carette 1999, 4).

Foucault comes to understand power as strategic relations between people, as games of governing and being governed. A critique of power should not consider power as repression. Power is not the adversary of the 'self', and it cannot be overcome by liberation.

Every instance of subjectivity is entangled in relations of dependency and government, and thus related to power (technologies of governing oneself and others). Instead of a universal given self that could be affected and repressed by power, Foucault suggests that 'the self is nothing other than the historical correlation of the technology built in our history' (Foucault 1999, 181). As a result ethics does not, for Foucault, require a subject free of external influences that only then would be capable of moral action. In the case of technology, the problem is no longer to decipher ourselves to denounce any technical influences and safeguard authentic freedom. Ethics concerns governing and fashioning the subject, subjectivation. The point is not to save the subject from being correlated to technologies, but 'to change those technologies', and thus change ourselves in correlation. A main political problem of today would be the 'politics of ourselves' (181). That would mean to take better care of the way we govern and fashion ourselves, and the technologies involved.

From the study of power and government, Foucault's interests developed into self–governing and 'technologies of the self'. This research was all part of his work on the project of the history of sexuality. In 1984 Foucault was to publish three books of his project on the history of sexuality about ancient Greek, Roman and early Christian culture. In the two books which were actually published, technologies of the self do indeed play an important role. The focus in that presentation is on sexual ethics. The third book, titled *Confessions of the flesh,* has remained unpublished (cf. Eribon 1991, 317 and onwards; Bellon 2007). Extracts of this research on the Christian era have however become public through conferences and separately published articles. Those published extracts focus especially on the aspect of ethical practices (Christian ascetic practices in comparison to pagan Hellenic and Roman self–practices).[28] At some point Foucault decided to produce a separate work on 'technologies of the self' apart from the study of sexual ethics (Foucault 2000b, 251–256). Some of the shorter texts, and especially the seminar 'Technologies of the self' (Foucault 2000c) show the outlines of this general research on 'technologies of the self', that I will now discuss.

2.2 Technologies of the self

With the term 'technologies of the self', or 'practices of the self' Foucault refers to methods, exercises or procedures, that one applies to oneself and which are significant for fashioning and refashioning subjectivity. Examples of technologies of the self that he himself discussed are: writing (personal note books and correspondence), interpretation of dreams, meditation (on coping with possible adversary, *memento mori*), penance and confession. I will focus on Foucault's discussion of pagan self–writing and Christian penance.

One important exercise of the care of the self that Foucault analyzed, is writing, *self–writing* (Foucault 2000c, 232; cf. Foucault 2000d). Foucault's discussion brings up a difference between personal *notebook keeping*, *correspondence* with others, and *diary writing*. *Notebooks* (*hupomnemata*) were used to keep track of knowledge and ideas collected everywhere that one wanted to employ and integrate into one's personal way of living. This was a personal exercise to learn to govern one's own behavior in a rational, balanced way. The writing of *letters* added an inter–subjective aspects: expression of oneself to others and consultation with others. Foucault remarks that *diary writing,* a practice of a later date, is a kind of 'correspondence with oneself' and thus combines the personal aspect of notebook keeping with the aspect of comparing oneself to others of correspondence.

Christianity adopted and transformed pagan practices of self–examination, which then became connected to the purification of one's faith and one's obedient relation to God. Foucault gives a detailed account of the practice of public penance in early Christianity: *exomologesis* (Foucault 2000c, 243; cf. Foucault

[28] See: 'On the government of the living' (Foucault 2000f), 'About the beginning of the hermeneutics of the self (Darmouth lectures)' (Foucault 1999), 'Sexuality and solitude' (Foucault 2000g), 'The battle for chastity' (Foucault 2000e), 'Self writing' Foucault 2000d), and 'Technologies of the self' (Foucault 2000c).

2000e). This was a theatrical public ritual of recognizing oneself as a sinner after which one lived in penance for a period of four to nine years. Exomologesis is different from *exagoreusis* that was practiced in monastic Christianity (245), which meant a day–long practice of continuous contemplation of God and complete obedience. So, whereas exomologesis was a theatrical public showcase of oneself as a sinner, exagoreusis concerned a continuous struggle within oneself, deciphering one's conscience to see if all of one's thoughts led towards God, or if there was secret concupiscence.

The philosophical importance of Foucault's research into practices of the self is his claim that the subject is not a universal given, but emerges through operations of self–constitution. Through the application of practices of self–examination 'introspection' was intensified, or even invented, and thus gave rise to 'a new experience of the self' (Foucault 2000c, 232). Moreover, Foucault points out that the different practices of self–writing facilitate and induce different kinds of introspection and refer to different experiences of the self. Detailed self–examination at the end of the day had the purpose of measuring to what degree one had managed to live to one's self adhered principles, and was part of a project of self–improvement towards consistent, effective rational conduct. Later, in relation to Christian confession practices, detailed introspection got a moral character: the recognition of sin and penance (337).

In relation to my research it is relevant to note that technology figures here in two different meanings. The 'technologies of the self' concern technologies in the sense of 'practical methods' of governing oneself, in which technologies in the second sense of 'technical utensils' (notebooks, letters and diaries) played a role. The different technical utensils accompany different exercising procedures. Foucault does not explicitly analyze the difference. Still it is good to see how both senses are included in his use of the term, as I elaborated before in chapter 3. It is possible to extend Foucault's analysis and to pay special attention to the technical objects involved in governing and fashioning oneself.[29]

The research by Douwe Draaisma, on how technical devices have served as metaphors of understandings of the self, is a very good example of that, closely related to the exercises of self–care discussed by Foucault. Foucault showed how for the Roman notebook and letter writers the example of the money–changer served as a metaphor for understanding how one should use practical reason to compare and evaluate ideas and assess whether one's actual behavior is aligned to them. In Christianity the metaphor of the money–changer is reused, but now for explaining how moral conscience must purify itself from the hidden influences of the great Seducer (Foucault 2000c, 240). Focusing on the devices Draaisma has described a history of such metaphors, from memory as a clay tablet to a hard disk (Draaisma 2000).

In these studies on the technologies of the self, the focus is on a certain aspect of the self, namely on the structure of practical reason and moral consciousness. The question of how people behave morally was approached by looking behind the content of people's moral deliberations to the exercises they practiced and analyzing from there the structure of their self that could explain the people's moral deliberations. The focus is on the correlation between the type of exercises and the structure of moral consciousness. As explained with reference to Draaisma, this approach implies a lesson for the philosophy of technology: the form of the subject has an, at least metaphorical relation to the technologies of the self (the exercises including the technical utensils).

Clearly, the technical mediation figure of 'environmental conditioning of the subject' can be recognized here. The direct interaction with objects is hardly considered. (To the degree that the side of direct contact in the mediation model applies here, it is the figure of 'self–representation'). Also not studied are the more physical relations to the technologies used, which should definitely become part of the approach for a practice oriented philosophy and ethics of technology. Jonna

[29] How and where in modernity philosophy was accompanied by practices of the self is the topic of a recently published study about 'Anthropotechnik' (anthropo–technics) by Peter Sloterdijk (2009). However, in this study Sloterdijk also does not focus on technology in the sense of objects, but only in the sense of exercising methods — which is surprising, in the light of his interest in life sciences and bio–technologies, and technical mediation in general (cf. Sloterdijk 1999).

Brenninkmeijer (2010) uses Foucault's work on technologies of the self to study how brain training devices not only enhance people's brain functions but these practices also reconfigure our understanding of what the 'brain' and the 'self' are. This is a very relevant example of a study where technical devices and the constitution of the self are not only correlated by the figure of environmental conditioning but also through concrete interactions, in exercising practices.

In order to extend this concrete, bodily aspect of subjectivation and technology, I will now turn to Foucault's lectures on the Cynics, because there Foucault did approach the transformation of oneself on a more physical level.

2.3 Life as a scandal of truth: The Cynics

When Michel Foucault died on June 25, 1984, he had just finished his annual series of lectures at the *Collège de France*. Since 1997 there has been a project to publish all his lectures, given between 1970–1984 in book form. Prior to this publication project, the content was not readily available. From listening to tape recordings Wilhelm Schmid (2000) and Frédéric Gros (2002) reported that Foucault's last lectures dealt with the life and philosophy of the Cynic philosophers (an elaboration on the Cynics fills the second half of the book whereas the first half is mostly about Socrates). In these lectures on the Cynics Foucault apparently had talked about 'life as a scandal of truth': defying the traditional (moral) truths about life by the example of one's own life. Finally published, these lectures appear to be relevant for my project, as they add a more bodily aspect to Foucault's research on practices of governing and fashioning oneself.

The central theme of Foucault's research into the philosophy of the Cynics is how life and philosophical teachings are interconnected. At stake in Cynic philosophy is the 'true life'. In this Cynic philosophy is not unique. Foucault identifies four themes concerning the true life which more generally play a role in Greek philosophy. The true life is unconcealed, unalloyed, straight, and unchanging. These features are so general that both Plato and Diogenes favor them, while both philosophers are otherwise so dissimilar. For Plato, the search for the true life focused on finding peace and certainty. Diogenes, in his quest for the true life, stretches the four aspects so much to the extreme that it leads to a life full of risk and transgression (Foucault 2011, 209). Instead of focusing on the doctrines, the four traditional features of the true life, Foucault aims to explore how the Cynics brought their own existence into play. How this comes to the fore in the text, I will now show by summarizing a few passages.

The philosophy of the Cynics does not aim to unravel the truth 'about' human existence, but is characterized by 'practicing' and passing on a certain attitude, a way of being. 'Cynicism', says Foucault, 'practiced what could be called, not a traditionality of doctrine, but a traditionality of existence' (209). The Cynics did not see it as their task to conform their individual lives to established doctrines on how to live. Quite the opposite, they believed that the truth about life must conform to, follow what individual people make of their lives, witnessed by the example of their own lives. Hence, Foucault believes that the Cynics with their controversial way of living were, as it were, provoking the truth:

> 'It seems to me that it is the form of existence as a living scandal of the truth that is at the heart of Cynicism' (180).

Foucault never states that everyone has to aim for an equally extravagant lifestyle as the ancient Cynics. He does however believe that the ultimate importance of practicing philosophy is that the philosophical beliefs become expressed in the philosopher's way of living. 'From the origin of philosophy', Foucault says, 'the West has always accepted that philosophy cannot be separated from a philosophical existence, that the practice of philosophy must always be more or less a sort of life exercise' (235). This was a more generally accepted belief in antiquity than it is today. 'Western philosophy (…) progressively eliminated, or at least neglected and marginalized the problem of life in its connection to truth telling' (235). Doctrines and the lives of philosophers have become separated. Disputes over doctrine about our existence have taken the place of giving an example with one's own existence. Abstraction, independence, not being engaged oneself have even come to count as conditions for scientific proof.

In the project of a revaluation of philosophy as a way of life, Foucault believes that the Cynic philosophers obviously deserve more attention than is usual

in the history of philosophy. In Foucault's words:

> 'A history of philosophy, morality, and thought which took forms of life, arts of existence, ways of conducting oneself and behaving, and ways of being as its guiding theme would obviously be led to accord considerable importance to Cynicism and the Cynic movement (285)'.

Such a history of philosophy as a way of life was exactly what Foucault was concerned with at the time. 'This is why Cynicism interests me', Foucault affirms (237).

Even if philosophy has become restricted to a theoretical, scientific discipline, this does not mean that the practice of courageous provocation of the truth, including the engagement of one's own existence, has altogether disappeared. This practice may have been marginalized in philosophy, but reappears and lives on elsewhere. Foucault identifies three domains of practices where the attitude of the Cynic philosophy has in later times been preserved and passed on. Firstly, Foucault asserts: 'In Christian asceticism we find what I think was, for a long time, for centuries, the major medium of the Cynic mode of being across Europe' (181). Secondly: 'This [lingering Cynicism] would be found (…) in political practices. Here, of course, I am thinking of revolutionary movements' (183). And finally: 'I think there was a third great medium of Cynicism in European culture, or of the theme of the mode of life as scandal of the truth. We would find it in modern art' (186). 'The consensus of culture has to be opposed by the courage of art in its barbaric truth' (189).

This summary has shown that Foucault in these lectures — which turned out to be his last — explicitly devotes himself to a conception of philosophy as a way of life. Fashioning and transforming one's own existence and way of living belongs to the practice of philosophy. Foucault would like to see that this aspect of the transformation of ourselves would again become an important, integral aspect of philosophy. The Cynics provided him with an emblematic and extreme example: a way of doing philosophy that was all about defying (moral) truths about life, inventing new lifestyles and testing the limits of one's bodily existence. How this perspective helps to bring out some of the stakes of Foucault's philosophical project at large will now be explored by discussing 'What is Enlightenment?'.

2.4 Limit attitude — Enlightenment

Around the same time that Foucault was lecturing on the Cynic philosophy he also worked on the text 'What is Enlightenment?' that was first published in 1984, posthumously. Reading together the text on the Enlightenment with the lectures on the Cynics, allows one to see how Foucault attempted to reintroduce the ancient philosophical theme and practice of the 'transformation of ourselves' into modern philosophy. I have referred to this important text before. Here I want to single out one aspect, namely what Foucault called a 'limit–attitude', a sense that our existence is not conditioned once and for all, but that we transform ourselves, stretch the limits of our existence.

The Enlightenment is often understood as the entrance into the modern world where the use of reason is bringing scientific and technical progress as well as a democratic political order. Foucault emphasizes, however, that progress and liberation are ambivalent phenomena, which always bring along negative effects. As Foucault brings to mind, Kant had in 1784 defined Enlightenment by 'aude sapere': dare to know, dare to think for oneself (Kant 2001b). Foucault contests that it is clear where this leads, and emphasizes that Kant rather just points a 'way out' of 'immaturity' (Foucault 2000a, 305). Foucault therefore proposes to see the Enlightenment not as a period or a 'doctrine' but as a philosophical 'attitude' of modernity that requires lasting commitment and an ever actualized criticism (309).

As we have seen before, Foucault conceived of a 'critical ontology of ourselves' as a philosophical approach in compliance to this modern attitude. Within this formula the term 'ontology of ourselves' refers to examining one's own existence and the historical and social circumstances that conditioned one's present existence. The term 'critical' designates the questioning of how things are in the realization that things could have turned out otherwise. Investigating how our existence was historically conditioned thus, Foucault thinks, always presents us with starting points for experiments with the transformation of the established conditions. This alternative conception of the Enlightenment and modern philosophy, allows one to see Foucault's work no longer just as directed against the Enlightenment, but to appreciate it as an alternative continuation of the Enlightenment.

For the purpose of this chapter, I now want to highlight Foucault's claim that the critical ontology of ourselves calls for practical experimentation.

> 'The critical ontology of ourselves has to be considered not, certainly, as a theory, a doctrine, nor even as a permanent body of knowledge that is accumulating; it has to be conceived as an attitude, an ethos, a philosophical life in which the critique of what we are is at one and the same time the historical analysis of the limits that are imposed on us and an experiment with the possibility of going beyond them' (319).

There is a clear connection with Foucault's interest in the scandalous, truth provoking philosophical lives of the Cynics and his insistence on the challenge of modernity as an experimental limit–attitude instead of a doctrine that demarcates rational from irrational. In the perspective of modernity as an attitude, what matters is not a doctrinal truth about life, but experimentation with the transformation of our existence. When read next to the work on 'technologies on the self' and 'life as a scandal of truth', 'What is Enlightenment?' appears as a (conclusive) part of Foucault's project of reconsidering the history of philosophy from the perspective of the transformation of ourselves.

With the formula 'critical ontology of ourselves' Foucault positioned himself in relation to other modern thinkers. 'Critique' refers and responds obviously to Kant, but also to Jürgen Habermas. In lectures, at the *Collège de France* in 1982 and elsewhere, Habermas had voiced fierce critique against some contemporary French thinkers, including Foucault (Habermas 1985). As long as Foucault would not make clear the normative framework on which his critique was based, his work would only confuse without helping to propose alternatives. In 'What is Enlightenment?' Foucault responds to that allegation. He points out that Habermas suggests an absolute choice: 'you either accept the Enlightenment and remain within the tradition of its rationality, (...) or else you criticize the Enlightenment and try to escape from its principles of rationality' (313). Foucault calls this the '"blackmail" of the Enlightenment' and refuses to give in to it (312). Habermas, Foucault believes, does not fully acknowledge the challenge of truly modern thinking 'on the limit' and maintains for philosophy the position of an independent referee, border guard. Foucault calls this longing for reclaiming a ground for independent judgment a 'contra–modern' movement that has always accompanied the attitude of modernity and competed with it.

Without mentioning their names, Foucault's call for philosophy as a 'critical ontology of ourselves' also seems to entertain a discussion with the existentialist philosophies of Martin Heidegger and Jean–Paul Sartre. The term 'ontology of ourselves' should be read as a variation on Heidegger's 'analytic of Dasein'. Heidegger believed that philosophy cannot investigate the world and the place of humans in it from an outside perspective. Foucault shares with the existentialistic philosophers the emphasis on the perspective of one's own existence. In this perspective, the question is whether and how right can be distinguished from wrong. In existentialist philosophy, the concept of 'authenticity' becomes a new sort of ethical principle. Especially in the case of Sartre this functions as an absolute moral truth about life. Foucault disagrees with this appeal to an authentic versus a morally false way of realizing one's own existence. At that point existentialism relapses in the contra–modern aspiration of acting as ethical border guard.

Foucault shows that, starting from Kant, the Enlightenment can also be seen as an attitude instead of as a doctrinal line between accepting or not accepting reason. Foucault argues for a conception of critique in which philosophy does not pretend to be an independent guard of limits, but in which philosophy has become aware of its role in exploring and transgressing limits.

2.5 Conclusion: The Cynicism touch of Foucault's ethics

In the course of his research on the history of sexuality and genealogy of ethics Foucault committed himself to a conception of philosophy as a way of life. Foucault discovered and analyzed technologies of the self as exercises that were traditionally seen as necessary accompaniments or elements of the practice of philosophy. Working on the theme of parrhesia, (free, fearless speech, truth–telling), Foucault became fascinated by the philosophical way of living of the Cynics. He characterizes the Cynic philosophical practice as 'parrhesia'

with 'the very life of the person' as its instrument (Foucault 2011, 217). The analysis of the Cynics brings the aspect of one's bodily and living existence to the theme of 'technologies of the self'. This touch of Cynicism also aids in understanding the conditioning and transformation of our concrete existence in Foucault's testament text on the Enlightenment. Research on the concrete historical and material conditions of our existence does not deny our freedom, but is seen by Foucault as a starting point for practical experimentation with the transformation of our existence. This is the attitude of modernity, which is a limit–attitude, because it consists of an awareness that we are 'on the frontier', shifting and stretching the conditions of our existence.

The Cynics do not only make courageous, truth–defying statements *about life,* but they put their own lives, their own bodily existence, at the wager. Frédéric Gros made this point as follows: 'The Cynic ethics of parrhesia is (...) life being put to the test by truth: it is about seeing to what point truths endure to be lived' (Gros 2002, 165). The criterion for the truth about life is if it sustains, if it can be lived. Gros thinks that the connection between truth and life, affirmed by Foucault, takes the form of a 'provocation' (163), where provocation should be understood as both the denigration of traditional truths as well as the evocation and reification of new truths.

The movement of the Cynics serves Foucault as the clearest example of a way of doing philosophy where what matters is not doctrines about life, but the formation and transformation of our existence. In the extreme case of the Cynics this took the form of a practice of experimentation where one's own life and bodily existence were put at stake. The publication of Foucault's lectures on the Cynics thus adds another dimension to his research on the technologies on the self and his well–known text on the Enlightenment. The experimental attitude towards conditioning circumstances of one's existence, directed at the transformation of ourselves is not meant as a philosophical play with words, but has a very concrete, physical dimension.

Foucault's reflections on the philosophy of the Cynics results in the affirmation of an experimental attitude toward one's own existence. What the body can endure, support, constitutes the truth about life. This can be interpreted as a wild ethic that calls for a reckless life. Because Foucault contests so much that philosophy acts as an ethical border guard, it may seem that transgression of limits would become an end in itself. This is however not the point. In a moderate interpretation, Foucault rather only emphasizes that acquiring knowledge always has a return effect on the searchers of knowledge. Truth searching about human existence often implies the affirmation of a vision about life, as well as an attempt to fashion one's life guided by that vision. Truth searching and knowledge building require to be accompanied by commitment, involvement and cooperation of the truth–developing subject.

What is important is that people are always shifting and stretching the limits of their own existence, and the challenge is to become better aware of this. According to Foucault, this awareness has since Kant's article on the Enlightenment become part of the modern philosophy. But often a 'contra–modern' aspiration for knowing the absolute truth about life and acting as ethical border guard prevailed. The challenge for philosophy today is to acknowledge the social and historical circumstances as hard limits, conditions of our existence, but at the same time as the result of human action and as such open to change. The task is not to protect fundamental limits, but to become aware that our life activities and our research always proceed 'at the limit'.

3 Studying hybridization: Practices of the self and technology

In the remainder of this chapter I will elaborate how these insights on self–transformation practices as part of philosophical reflection on our mode of existence can be made fruitful in the field of contemporary ethics of technology. I will first compare Foucault's proposal with relevant research approaches that can be collected under such terms as technology 'domestication' and 'embodiment'. Work by other scholars allows for further elaboration of an approach that is focused on practices of hybridization and brings out the importance of the aspect of bodily gestures. Jean-Pierre Warnier (2001), notably, has remarked the importance of Foucault's perspective for a 'praxeological approach to subjecti-

vation in a material world'. Warnier also notes that, 'as a historian and a philosopher, Foucault has never been concerned with making explicit what could be an ethnography of the techniques of the self'. He adds: 'Foucault never concerned himself with providing a detailed analysis of the processes by which the material contraptions (...) reach the subjects and act upon them' (Warnier 2001, 12).This is true for Foucault's later work on subjectivation, while, as I have already elaborated in chapter 3, Foucault's account of being trained in the use of pencils and rifles is definitely close to the ethnographic approach Warnier promotes. I will now further develop an extension of Foucault's approach towards a 'praxeological' study of subjectivation and technology. The important contribution of Foucault's work to this field of technology domestication and embodiment is that integration in the scheme of 'subjectivation' provides insight into how this research is relevant for ethics.

3.1 The body between discipline and resistance

Foucault's approach of studying practices of forming and transforming oneself and others was already very much present in *Discipline and punish* since it dealt extensively with the training of routines and its importance for the formation of the subject. However this research focused exclusively on disciplinary institutions. At best, training took on the character of education, but mostly that of drill. Disciplinary power was directed at the individual's body and gestures, and seemed to signify a violation of the subject. Disciplinary power appeared rather as the negation of ethics. If there was an ethical message it seemed to be in the notion of resistance against disciplinary power (cf. Thompson 2003). This interpretation of Foucault's work on power converges with a wide spread approach of social critique that is a version of the struggle between spheres (see chapter 3). It consists of the idea that society functions as a repressive structure, tending but never quite succeeding in taming us. Just as total submission looms, this is also the moment that a more original (libidinal, bodily) level of subjectivity may break free to form a source of critique and resistance. This theme could be expressed as follows: the disciplinary dressage on the bodies of individuals at some point meets a 'pain limit', which serves as a starting point for critique of repressive social power.[30]

An original and prolific example is the work of Michel de Certeau. In line with Foucault's later focus on arts of living De Certeau studied 'arts de faire' (everyday practices). He gave a twist to Foucault's work on discipline by calling for an approach that he called 'anti–discipline' (De Certeau 1980, p. XL). De Certeau intended to adjust the attention to the 'strategies' of societal discipline with the 'tactics' of individuals, showing that individuals are not mere victims but often are able to give a twist to the discipline yielded on them (p. XLVI).[31] Foucault's historical research on drilling could be turned into a wider research approach of 'styles' (78), for which De Certeau refers to Pierre Bourdieu's 'theory of practice' and the central concept of 'habitus' (92). Habitus is the anthropological concept, stemming from French anthropologist Marcel Mauss that refers to the ensemble of skills that individuals inherit from their culture and that structures their mode of being in a way that often goes unnoticed.

This connects Foucault's approach to the work of Marcel Mauss and his influential essay 'Techniques du corps' (Techniques of the body), from 1936 (Mauss 2009). Mauss focuses on human existence by addressing styles of using one's own bodily members.[32] The trajectory and influence of Mauss' concepts and

30 At the time, and still today, the notion of 'the body' as an original source of critique was influential (for example Oosterling 1989; Zwart 1995). Foucault's choice to not pursue this direction further seemed to have been a reason for the cooling of his friendship and collaboration with Gilles Deleuze (Macey 2004, 112; cf. Miller 1993, 297)

31 As for a detail, in *Discipline and punish* Foucault himself had on the contrary reserved the term 'tactics' for an important function in the system of disciplinary power. There tactics mean the function of uniting the disciplinary sub–functions of drawing up 'tables', prescribing 'movements' and imposing 'exercises' (Foucault 1977, 167).

32 Foucault himself nowhere refers to Mauss, although his study of discipline clearly can be seen as an extension of Mauss' approach, reassessing 'technologies of the body', 'style' and 'habitus' from the perspective of social critique. Mauss' study was definitely important for Foucault, as for all French scholarship of his generation (affirms Daniel Defert, personal communication).

approach has been extensively reviewed recently by Carrie Noland (2009) in her book *Agency and embodiment*. Noland opens and closes her study with references to Foucault. The starting point is the notion that in Foucault's work the subject and agency are dissolved by the structuring interferences of discourse and power. In the tradition of, mainly French scholarship of Mauss, Leroi–Gourhan and Merleau–Ponty to Derrida, Stiegler and Butler, she traces an understanding of agency where structuring cultural forces are not the negation of agency but the milieu in which it functions. Perhaps surprisingly, she does not refer to Foucault's own later work and does only remark that the later Foucault himself seemed to have evolved in line with her own research interests (217).[33]

Noland gathers a set of research approaches on the human beings that we are between nature and freedom, 'embodiment and agency', which try to remain close to the sensual, bodily awareness, instead of altogether translating experience into linguistically, conceptually, logically structured thought. Giving a twist to Butler and Foucault, Noland asserts that Foucault's analysis of 'discursive formations' (cf. Foucault 1972), governing thought and speech, could be used to understand how 'gestural formations' (Noland 2009, 192) govern kinesthetic self–awareness and gesturing. Butler sought to pinpoint how discursive formations do not come first and determine speech, but how individual speech is always an 'iteration' of inherited discourse that can become an 'alteration' (186). In the same way 'gestural formations' are an inherited, acquired set of habitual gestures, ways of doing, where every following enactment can become an improvisation, inventively producing new variations.

The gesturing body is here the place of agency and is in that sense the 'structuring principle' (42). This does not mean, in my words, that it is an original, fully spontaneous source of movement, nor exactly that it could function as a base for a critique of repressive discipline. It is the transference into linguistically ruled thought that makes freedom the target of paradox and dialectical contradiction: determination versus autonomous agency. However, what is very difficult to express and apprehend in conceptual thought and speech, we have no difficulty in experiencing in practice. Down on the level of kinesthetic awareness, the dialectic of constraint and freedom is nothing more or less than the very ordinary experience of contact and friction, that one explores and plays with, and where training accomplishes skill. The culturally inherited formations do not sit in the way of agency, but are the milieu in which agency works, produces itself.

Technology, the material environment, plays an important role in the work of all aforementioned scholars. The notion of a hybrid self, mediated by technology has relevance here. It converges with Mauss' claim that there is no such original, 'natural way' of doing things. One always acquires the capacity of agency 'only through the intermediary of the other', by culture, affirms Noland with reference to Mauss and Merleau–Ponty (Noland 2009, 24). Agency doesn't need a foundation not affected by culture, but can be understood as the experience of 'I can's' (24), the enactment of skilled routines and exploring improvisations on them. In this way of thinking the self remains a self even if it is hybrid, mediated by technologies and by culture at large.

3.2 Gestures and groping

Noland's *Agency and embodiment* traces a history of thinking about practices, ways of doing, on the borderline of philosophy and anthropology. The turn towards the body does not in the first place reveal an original foundation for social critique ('resistance of the body against discipline'), but simply attempts to get better access to the richness of the domain of activities, namely by allowing more space for the dimension of gestures as opposed to the conceptual, linguistic dimension. Her study can be read as an attempt to liberate philosophy and human sciences from a language bias. After distinguishing it from the resistance–discipline theme, this approach deserves an elaboration in its own right. Is it possible, and to what benefit, to attempt an analysis of human existence and human self–experience, less in terms of concepts and statements, but by taking 'gestures' as the point of access? This project means a further elaboration of insights that were discovered in a critique of language driven, conceptual thought.

Another attempt to turn towards gesture can

33 My study obviously exactly elaborates on that notion.

be found in the work of Vilém Flusser. In his study *Gesten* he claims that there is a need for a 'Theorie der Interpretation von Gesten' (Flusser 1993, 9). Gestures mean to Flusser movements that cannot be given full account of in terms of functionality and physical causes (11). A missing element in causal explanations is the 'Gestimmtheit', 'mood' (13–14). Gestures express a mood, but this mood does not come before the gesture. Gestures do not only communicate a mood, the mood 'is' the gesture. Moreover, Flusser claims that the approach to human activity in terms of gestures and mood should proceed in aesthetic categories: 'es besteht keine Zweifel, daß die Gestimmtheit eine ästhetische Frage aufwirft, und keine ethische, erst recht keine epistemologische' (15). The question is not if the mood, carried in and by a gesture, is mendacious (ethical), nor if it satisfies conditions of truth (epistemological), but if others are 'affected', 'moved' (ibid).

McLuhan's account of shifting sense–ratios and resulting 'spaces of experience', that I discussed in chapter 4 in the context of the mediation figure of 'environmental conditioning of subjectivity', is yet another relevant analysis. The invention of script was according to McLuhan and other media researchers before and after him such as Ong (1982) an expression as well as an operator of a changing experience of humans of themselves and their relation with the surrounding world. McLuhan describes how in oral (and tactile) cultures humans live in a world experienced as an acoustic–tactile space, whereas in literate cultures humans live in a visual space. In tactile–acoustic space the world is not well ordered, but it is an endless space in which one is immersed and which one explores in a 'groping' way, from point to point, while an overview is missing. The experience of the world as visual space is characterized by the tendency to analyze and order from an independent viewpoint.

The term 'groping', *'tâtonnement'* in French, is considered by Carrie Noland as the most original contribution of anthropologist and historian of technology André Leroi–Gourhan. ' *"Tâtonner"* conveys the sense of exploration, whether physical or cognitive: testing out a path not yet cleared or devising a sequence not yet inscribed' (Noland 2009, 105–106). In the turn to practice that favors gesture over statement as the point of access, 'groping' therefore replaces 'analysis' as the method of exploration, we could say.

These research approaches, focusing on 'gesture' and 'groping' are relevant contributions to research into the ethical practices in Foucault's sense. The angle of gesture and groping naturally brings in the importance of the lower quadrants of the model, elaborated in chapter 4, with interaction modes and figures of technical mediation. Ethical questions about technology are often framed as a concern that mirrors utopian or dystopian figures of technical mediation. These are abstract, generalizing conceptions of the influence of technology on humans. The practice oriented philosophy of technical mediation stresses the importance of studying hybridization of humans and technology also, or especially in concrete cases. The analysis of human agency on the level of gesturing is very important for understanding the ethical relevance of the influences of technology as following the figures of mediation in the quadrant of bodily interaction, especially the figure of mediated gestures.

3.3 From technology domestication to subjectivation

Now, I will turn to the application of the explorations of gesture and groping in the domain of technology use and appropriation, and show their relevance for studying subjectivation. Bringing together these research approaches brings to the fore a promising field of studying subjectivation in relation to practices of technology domestication. The domestication of new technologies, approached through this angle, constitutes the first domain where subjectivation and technology can be found and studied.

The study of gestures and technology was already alluded to in chapter 4 when I described 'mediated gestures' as a figure of technical mediation. I referred to Edward Tenner (2003), who analyzed how the innovation of technologies is accompanied by and depends on the development of techniques of use (with reference to Mauss' concept of *body techniques*). He describes how the development of technologies (for example specific footwear, from flip–flops to running shoes) and techniques of using (particular walking gaits, including foot adjustments) mutually influence and support each

other. Some other research approaches in Science and Technology Studies focusing on users in the process of technology adoption are *user studies* (Oudshoorn & Pinch 2003), research into *human–machine reconfiguration* by Lucy Suchmann (1987; 2007) and *domestication studies* (Silverstone & Hirsch 1992; Sørensen 2005).

Following the approach of domestication studies, users are not adequately analyzed as being mere effects in actor–networks; it should also be studied how users actively 'tame' new technologies and their social effects. According to Sørensen the domestication perspective 'adds subjectivity' to Latour's actor–network approach. Whereas the script concept focuses on how technology constrains users, the domestication approach focuses on how users accommodate technologies and their effects in their ways of living. Often this implies that technologies are not finally used according to the script that the inventors originally had in mind. Users do not simply undergo the influences of technologies, but tame the technologies to adapt them to their use. If hybridization practices involve a process of give–and–take, establishing new configurations of hybrid subjects, then the taming metaphor expresses very well the time and effort required for training.

Foucault's subjectivation perspective could add to this analysis that such processes of taming mean a formation and transformation of humans as ethical subjects. The outcome of taming/hybridization is not that users have been able to adapt some new technology so that they retain their autonomy, freedom, or privacy. Users often reconsider the meaning of such notions, in reaction to new experiences they have while adopting new technologies. Therefore, Foucault's framework helps to bring out the 'ethical' relevance of this addition of subjectivity. Such taming should be seen as exercising work, carried out in order to accommodate the effects of technology, whereby people transform their own mode of being. In Foucault's framework this can be rephrased as *ethical elaboration,* and thus is an integral part of ethics as subjectivation. Combining these existing research traditions with Foucault's framework of ethics as subjectivation makes the relevance for ethics much clearer.

4 Testing hybridization: Use research in design

Testing new technologies as part of design procedures is also a domain where subjectivation by technology use can be examined.[34] Tests and pilots are usually performed in the first place to examine the technical functioning of new products. These moments also offer, however, a privileged possibility to observe technologies in use for the first time. Next to that, there is still the possibility to adapt the design to some degree. From the perspective of subjectivation it can be stressed that testing must not be seen as a last check moment, which marks the transfer of a product from its design phase to its use phase. Instead, particularly during testing it can become clear how products are being accommodated by users, and thereby how users perform a transformation to their hybrid self. Pilot projects and usability tests in design are a marked occasion of hybridization practice and therefore of foremost importance for an ethics as care for our hybrid way of being.

4.1 Intelligent Speed Adaptation

First I will discuss use tests of Intelligent Speed Adaptation in automobiles as a case. Intelligent systems that assist car drivers and interfere with their behavior are an interesting case. Technical developments lead to ever more sophisticated systems that interfere with driving a car. Many cars are now equipped with features such as a cruise control and parking assistance. There are cars that can park automatically with the driver only having to wait and observe. In the Dutch town of Eindhoven for several years the Phileas has been in operation, a bus, designed to find its way through the traffic without a driver (although the current system still does employ a driver). Smart technologies support and serve humans, but it is clear that in doing so they take over tasks and responsibilities of people. This raises the question of whether such technologies restrict human freedom,

34 Some other scholars, notably Lucy Suchman (1987; 2007), Steve Woolgar (1991), and Sophie Dubuisson & Antoine Hennion (1996) have also studied design practice and usability trials to see how prospective users are represented by designers and configured by technology in use.

agency or responsibility to too high a degree.

How human freedom and autonomy are affected by the increasing influence of technology has long been one of the major themes in philosophy of technology. The dominant way of answering this question was to limit the influence of the rush of technology. Technology should support people, but should not restrict their freedom too much. How to define the boundary has proved to be a difficult and enduring problem. New technologies create new opportunities and enrich human capabilities, but at the same time people become dependent on the technology. However it is ultimately unlikely that human freedom can be captured and defined by a certain number of criteria or essential features, so that one can argue that technology is acceptable so long as the essential nucleus of freedom is not affected. The point is not to safeguard an essential nucleus of freedom, but to become attentive to how new experiences and practices of freedom and agency take shape in new technical regimes. Instead of 'border guarding', philosophy takes up the role of 'accompaniment' (Verbeek 2011, 164), engaging in research 'at the limit', closely involved with actual developments.

What this means in practice can be illustrated by a pilot project that was carried out in 1999 and 2000 in the Dutch town of Tilburg with a system for Intelligent Speed Adaptation, ISA (Weele 2001). ISA consists of a device in the trunk of cars that uses GPS to locate the car and a system that limits the speed in accordance with the local maximum allowed speed (e.g. 50 or 30 km/h). The test focused primarily on the technical functioning of the system. However, interestingly, there was also research on the user experiences. An important conclusion was that drivers after a period of trial and 'habituation' became 'gradually more enthusiastic' (Pol & Twuijver 2004, 26). Beforehand, many participants were hesitant about so much technical interference with their driving activities. These concerns did not altogether disappear, but in general, people were more positive after the trial. A surprising discovery was that people noticed that they were becoming calmer drivers, and that they became more attentive to the situation around them. The latter effects strikingly show that the experience of being a car driver takes on a new form in a car with ISA, rather than the function of driver being simply lost.

4.2 Lane Change Assistant

The case of research about an intelligent Lane Change Assistant by Martijn Tideman (2008) provides one more example. Tideman used an advanced car driving simulator at the Virtual Reality Lab (University of Twente and T–Xchange) for use tests and to enable user participation in the design process. Instead of determining 'user needs' beforehand, the followed design method was to work with multiple 'scenarios of use'. Simulation is then employed so that users themselves can try out and experience the different scenario's, on the basis of which a design solution is chosen. The Lane Change Assistant is a system that checks if there is space on the sides of the car and intervenes when the driver tries to change lanes while there is a car or something else in the way. Tideman used simulation to test different modes of interaction and thereby different scenario's of use of this system. Different interaction options were: warning light signals, spoken warning messages, and also a warning signal by a nudge from the steering wheel. People appear initially reluctant to the nudging steering wheel, but after some test rounds many of them began to quote it as the most convenient feedback option. The results are comparably to the case of ISA. Before experiencing the different options, physical intervention is considered a stronger infringement of our 'freedom' than guiding signs to our cognition. But after having hands–on experience this difference disappears. In practice, freedom is not absence of physical constraints, but an experience of convenience while being conditioned as a driver.

4.3 Testing hybridization

This effect can be well understood with the help of Foucault's insights. The freedom we experience when driving today's cars, is also not an original experience, but dependent on and shaped by the existing technical system of cars, roads and traffic. We realize this only when we have new experiences in a different system. In order to evaluate new technologies, it is not very helpful to search for a definition of a fundamental distinction between human freedom and the influence of technology. Rather, research must focus on a comparison between the old, familiar and the new shape of the 'experience of driving a car'.

In designing and evaluating new technology, research into user experience deserves a prominent place. In practice user experiences are already a driving force in the acceptance or rejection of new technology. Note that people embrace all kinds of accessories, from ABS, cruise control and parking aids to navigation systems with speed alarms. Taken together, these aids amount to a highly sophisticated and intrusive system of driving assistance. At the same time, those same people are often highly critical of such speed limitation systems. It appears that hardly conscious experiences with such a technology are more decisive than the verbally articulated ethical considerations as to whether or not a technology is to be accepted. Moral thinking and speaking about the experience of driver assistance cannot keep up with practice, as it were. Many moral philosophers may think this shows a weakness in rational moral perseverance that has to be overcome. In my perspective, however, the divergence with moral reasoning does not mean the failure of ethics. Instead, the user experiences in practice should be taken seriously. One way of doing this is to regard changing user experiences such as in the ISA pilot as an instance of experiments with the transformation of ourselves.

Ethics of technology is not essentially about protecting core human values that one has to acknowledge as a rational principle; today's challenge is rather to see how our mode of existence is always mediated by technology, and our ethical concern is of the character of a choice of style of our hybrid existence, that is elaborated in practices that we can become aware of as ethical practices instead of ignoring them. Pilots with new technology with a focus on user experiences provide an outstanding opportunity to investigate how people are conditioned by their environment combined with research into how people transform themselves, become subjects in an environment. This is one example of a domain where people engage in practices of becoming subjects of a specific kind. And the study of technical mediation and subjectivation in pilots and usability tests is a way of reclaiming 'technologies of the self', or 'practices of ethics' for philosophy.

In the last chapter I will present and discuss my work on the conception of a design tool to assess and redesign user guiding and changing effects of design.

5 Exploring hybridization: Art and technology

Artistic explorations of technology form another domain in which training practices for hybridization can be studied, and experimented with. Modern art was mentioned by Foucault as a domain where the transformation of ourselves is practiced, and this also holds in the case of our interactions and fusions with technology.

I follow here in particular the work of Petran Kockelkoren (2003) about 'art and technology'. Artistic works often deal with the confusion and fuss caused by the effects of new technologies and they play a role in a cultural process of integration. Following Helmuth Plessner, Kockelkoren analyses the user's confused experiences as a 'decentering' of the subject. As artists explore the challenges of new technologies, they contribute to a cultural learning process that, again after Plessner, can result in a 'recentering' of the subject. Therefore, Kockelkoren is interested in art and fairground installations where visitors can experiment with new technologies. For example, at the time of the introduction of the train, one could find train simulating installations at fairgrounds, where panels with painted landscapes were moved by at high speeds while visitors were seated in a train wagon. Such installations, as well other artistic forms of expression, such as poetic descriptions and paintings of landscapes blurred by the rapid movement, Kockelkoren analyses, allowed people to get their senses accustomed to the high–speed experience. Not all art is concerned with training practices for hybridization, but, affirms Kockelkoren, this 'research activity' is an important cultural role that artists can and do play today (Kockelkoren 2007).

Kockelkoren has given a well–articulated elaboration of the idea that art is important for the cultural appropriation of technology. In a more general way this notion is widely shared. With less philosophical background, but on the base of many examples, art historian Frank Popper asserts that contemporary artists engage in a 'humanization' of technology (Popper 2007). The artistic explorations of the embodiment of technology are also important in Noland's study (2009), although not referenced above. McLuhan too often made allusion to art as a way of exploring new relations to technology:

artists are the 'antennae of the race' for tracing the transformative effects of new technology (cf. McLuhan & McLuhan 1988, 47). Also Heidegger who seemed very doubtful about the possibility of escaping from technology as the greatest danger, still placed some hope in an artistic attitude. Firstly he cited the poet Hölderlin saying: 'But where the danger is, grows / The saving power also' (Heidegger 1977a, 333). In addition, in his essay on the 'The origin of the work of art' Heidegger considered that works of art evoke an engagement which can still escape the dominant understanding of 'Being' as technical exploitation (Heidegger 1971; cf. Verbeek 2005, 85).

The contribution of artists to technology appropriation, and therefore to the ethical practice of hybridization, is also a relevant phenomenon for understanding Foucault's claim that the arts of existence were relevant for renewing ethics in contemporary society. Foucault, like Kockelkoren and the other mentioned writers, does not intend to replace law–like moral criteria with equally law–like principles for judging beauty. The turn from ethics (of law) to art (and style) rather focuses on the experimental, innovative, creative, and skillful aspects of artistic activity (style giving). Artistic activities have ethical relevance, because artists often experiment with the effects of technologies on us and therefore with transforming our hybrid modes of existence.

5.1 Like tears in rain: Between dance and drill

The two artistic projects that I will first refer to are both relevant to the question of what is the meaning of freedom in relation to drill and technical constraint. In Foucault's *Discipline and punish* (1977) 'drill' produced 'docile bodies'. This subject as docile body appeared to many as the negation or repression of the free subject. However, Foucault also claimed that disciplinary power is unavoidable as it is a necessary formative condition of the subject in the first place. This contrasting, positive account of drill is emphasized by William McNeill in his study *Dance and drill* (1995) that I mentioned in chapter 4. McNeill investigates the historical importance of concerted movement (dance as well as military drill and discipline in industrial manufacturing) as practices of 'keeping together in time'. These practices, he analyzes, have been necessary constitutive drivers of community building and thereby of the development of civilizations. Although much overlooked, McNeill claims that dance and drill are constitutive elements of primary importance to societies. As concluded before in this thesis, there is no univocal answer to the question of whether discipline is ultimately good or bad, empowering or repressive. Artistic explorations of drill and technology deepen understanding of this state of affairs, and also help to realize how the development of the artful skill of giving style is a relevant way of coping with these circumstances.

In her work *Like tears in rain* Janet Biggs shows and investigates by way of video art the 'beauty of drill'.[35] Her movies display a fascinating succession of images of very strictly trained human (and animal) gestures. Examples are images of 'dressage' horse riding and military parading (see pictures below).

The movies appeal to the public because of the beauty of the depicted activities and gesturing (combined with the artistic beauty of the movies themselves). At the same time the focus on the strictly disciplined gesturing raises probing awareness of the disciplinary training efforts and disciplinary power that are implied.

35 See www.jbiggs.com/video_installations/tears/tears.htm. In the company of Petran Kockelkoren I visited the exposition in July 2007 in the Gibbes Museum, Charleston, South–Carolina, U.S.A.

Biggs' video art can be considered as an extension of Foucault's and McNeill's historico–philosophical research into the meaning of freedom in the context of discipline. This way of artistic exploration is complementing scholarly research, with more ways of coming into contact with the meaning of freedom. The art work expresses an experience in a way that cannot be exhaustively transferred to conceptual thought. So if historical and ethnographic descriptions add understanding of experience in comparison with conceptual analysis alone, artistic works such as Bigg's may extend still further in that direction of communicating meaning on an experiential level.

5.2 Beau Geste: Artful play with machines

Another artistic project with relevance for exploring the meaning of hybridization and of freedom is the dance choreography *Beau Geste* by Dominique Boivin.[36]

This dance for dancer and excavator machine explores how interaction with a machine suggests mechanical constraints on the human mover, but also how this can always be turned into an artful play. As a spectator one could not but be impressed by the smooth dancing movements of the excavator, as well as by the skill and courage of the dancer to get so close to the machine, curl around it, be lifted, and stand on its arm. The art performance could well be interpreted as a call for and attempt to give an aesthetic twist to our interactions with machines instead of considering it only in terms of 'functions', 'effectiveness', and' risks of danger'. The richness in meaning of this artistic exploration was nicely alluded to by the choreographer himself in the accompanying leaflet.

Le conducteur et la machine

La pelleteuse est une machine complexe et certaines séquences chorégraphiques demandent une vraie sensibilité à la danse. D'où la nécessité de procéder à un apprentissage minutieux. Le conducteur devait ressentir la danse tout en apprenant à manier le corps sensible de la machine. C'est en soi la première phase d'un duo, où le conducteur s'est familiarisé avec les manettes, le timing, la précision des mouvements et la musicalité pour dépasser un mouvement purement mécanique. Au–delà du danger physique, réel mais peu perceptible, c'est une histoire d'écoute. Ce duo (trio ?) devient une danse entre deux « corps » distincts qui s'apprivoisent.

Finalement, l'émotion

J'aime cette machine, mais je ne sais pas pourquoi. Comment traduire mes premiers sentiments, lorsque j'ai vu le danseur à côté de la pelleteuse? Comment « gratter », épurer, rendre lisible le plus simplement possible la relation « amoureuse » entre ces deux mécanismes? Pourquoi « amoureuse » et pourquoi pas guerrière, conflictuelle, armée ? À dire vrai, expliquer ne m'intéresse pas. La bonne question serait plutôt « comment ». Oui, comment produire de l'émotion et trouver la forme la plus juste possible pour toucher le public et « réunir » un instant ceux qui regardent et ce qui est donné à voir dans le mouvement.

Dominique Boivin
Janvier 2006 (extraits)

Boivin speaks of the harmonizing of music and dance, of dancer and machine, and of the 'sentiment of love' he felt for the machine. As if acutely aware of the theme of my research, Boivin ends by saying that he is not interested in 'explaining' his love; rather the right question is 'how' to produce emotion and touch the public. Of course, this can be said of any art work, but it applies here especially well: art can sometimes better evoke and communicate a certain experience of attachment

[36] This dance was performed on several occasions during a summer festival in Paris in 2006.

to technology than language driven scholarly analysis. Again, the point is not to demarcate in sharp definitions the frontier between machine constraint and human freedom, but rather the art work conveys a call for skillful and artistic elaboration of our hybrid modes of existence.

5.3 Dune: Meaningful interaction with intelligent environments

As a last example, I will look at *Dune* by the Dutch artist Daan Roosegaarde. Roosegaarde has specialized in artistic explorations of new technology in line with the insights of Kockelkoren. His atelier, Studio Roosegaarde, looks much like the workshop and test site of an engineering agency. Together with a team of engineers and computer programmers Roosegaarde designs and builds artworks in which advanced technology plays a major role.[37] Perhaps his finest work, *Dune,* is an artificial landscape of beach grass that waves and has ears that light up in reaction to the movements and noises of visitors looking at, or rather trying out the artwork by walking through it. Part of the success of *Dune* is its aesthetic beauty, with the many long slender black blades with a light in the top. But the artistic quality is even more the result of the interaction between the artwork and the visitor–strollers. This smoothly responsive artificial environment appears to fascinate people.

Dune can be seen as an exploration of how people can live with smart technologies that constantly react to them. Smart technologies are not only advancing in cars, but everywhere. Terms like 'ambient intelligence', 'smart technologies' and 'intelligent environments' can be heard everywhere. In many office buildings the lights turn on and off automatically, garage doors respond to approaching cars, and maybe the long promised refrigerator that automatically maintains stocks will soon become true. The vision that seems to propel much of the technical research is happy and positive: the more convenience, the more happiness. However, if technologies constantly monitor us and sense our needs and want to serve us instantly, if everything becomes automated, does it really make life better? In the philosophy of technology the classic, dominant view is that the spread of automation would increasingly dominate humans, or at least make life devoid of meaning. This is the type of analysis that calls for setting limits to defend an essential freedom of humans. The approach of technical mediation and subjectivation suggests an alternative to this, namely to try to understand how the experience of people is dependent on technology in familiar environments as well as in new technical environments of the future. The point is not to demarcate free from disciplined and constrained, but to start caring for the form of our conditioned freedom. *Dune* can be interpreted as a contribution to such research.

Dune leads to the discovery that more automation does not necessarily lead to an experience of full encapsulation by technology. After a lot of programming new and unexpected forms of playful, fascinating interaction with technology can come about. Playing with the waving artificial grass makes us realize that artificial environments already structure our lives to a great extent. Both the pessimists and the techno–believers have understood automation primarily in terms of the delegation of evermore functions from humans to technology, which would make our lives either dangerously futile or fully comfortable. *Dune* draws attention to another aspect, namely that the 'quality of interactions and fusions with technology' makes a difference. The experience of freedom is not simply related to the degree, the intensiveness of automation, but rather to its specific form, and the quality of interaction. The challenge is not simply to protect human freedom against too much automation, but also to investigate which forms of interaction with technology can be experienced by people as fascinating and meaningful. In the next chapter, these issues raised by smart technologies will serve as a central case.

This completes my elaboration of 'studying', 'testing' and 'exploring' hybridization as three domains where ethical practices of self–formation and transformation in contemporary culture with relation to technology can be found.

37 See www.studioroosegaarde.net

6 Conclusion

There is often a gap between the aims of ethics of defending principles and guarding limits, and the actual practice of the diffusion of technology in society. The perspective of subjectivation contributes to closing this gap. In an ethics as art of existence the principle of ethics does not have the form of obedience to absolute law but of style giving. While laws are less important, ethical practices of elaborating a style of being, self–fashioning, become of central importance. This chapter investigated what are ethical practices in the contemporary context of coping with technology.

First I showed how Foucault discovered the importance in ancient ethics of the care of the self, the practical exercises of ethics that Foucault termed 'technologies of the self'. These activities effectuate the formation and transformation of oneself, which according to Foucault, means the constitution of the subject, subjectivation. Next I addressed how Foucault, by his study of the Cynics' philosophical practice of 'life as a scandal of truth' emphasized a very concrete, bodily dimension of technologies of the self. Foucault regretted that the practice of ethics, the philosophical life, had largely disappeared as a main philosophical concern. In 'What is Enlightenment?' Foucault called for a contemporary philosophical approach (termed critical ontology of ourselves) that would again be directed at experimentation with forming and transforming one's own existence. Foucault thinks that philosophy does not have the task to protect limits given in doctrines about life, but should become aware that the limits (conditions) of human existence are always stretched and shifted.

Foucault also suggests that practices of self–transformation had not altogether disappeared, but were simply no longer considered part of philosophy. The revival of philosophy as a way of living would require the rediscovery of the domains where the practice of ethics takes place and to integrate these practices again with philosophy. The appropriation of technology is one important contemporary domain where practices of self–formation and transformation can be identified. I elaborated three practices that can be seen as domains of ethical practices of hybridization. In 'studying hybridization' I gave content to the critical ontology of ourselves by combining it with strands of anthropological research that focus on gesture and groping and technology domestication. 'Testing hybridization' in user research and pilot projects in design are a second domain. 'Exploring hybridization' by artistic exploration of the effects of new technologies on humans is a third domain.

The philosophical accompaniment of those practices of hybridization is an important challenge for contemporary ethics of technology, which would help to bridge the gap between the theoretical evaluation of technology and the practice of technology diffusion and appropriation. I will elaborate on this conclusion in the last chapter.

Chapter 7
The quality of our interactions and fusions with technology (Telos)

1 Introduction

The last of the four dimensions of Foucault's scheme of subjectivation is telos. In any system of ethics, the elaboration of a style of living proceeds in the light of a goal. Teleology has to do with a goal orientation in history. For an ethics of technology the question is: In what direction are the developments of technology and humans going? And, with regard to subjectivation, our own concern for our way of being, the question regarding the telos that I want to discuss is: What kind of hybrid beings do we want to be? To what degree, or more to the point, in what way, do we want to be dependent upon the technologies that have become part of our way of being? I will focus especially on the theme of freedom. Whereas this study about the influences of technology on humans takes a critical stance against freedom, I will finish by a proposal in defense of freedom, although freedom in a different understanding. The question is: What notion of freedom can guide our strivings if we simultaneously acknowledge the importance of technical mediation and do not think this means a surrender to technology?

This investigation develops the themes introduced in former chapters. Chapter 4 analyzed that we are unavoidably hybrids, which implies that no absolute freedom exists in the sense of a state of independence of technology. Chapter 5 was about the implications for the principles of ethics. Ethics can no longer be understood following the structure of a universal law–like principle that demands subjugation by a fundamentally free subject. Ethics can however be understood differently, as an aesthetics of existence, where the principle is to give style to our hybrid existence. Chapter 6 was about ethical practices and showed where practices of governing and fashioning of the self can be found and how they can be given back a more prominent place in ethics. The telos of this ethics as care for our hybrid self can be seen as the practice of freedom, where we give a considered form to our attachments to technology. But what does such freedom mean in practice? How is it different from absolute freedom? And, what elaboration of our freedom do we think is worth striving for? In short, what do we want to make out of our future lives with technology?

Smart technologies and automation, as can be found in the home, form a relevant case. The promise of domotics is convenience, efficacy and liberation

from effort. But are these promises made true? Do smart technologies not also constrain? In this chapter I will not be concerned with cases of technology which are evidently and purposefully coercive. Instead, I want to elaborate on the suggestion of earlier chapters that the intensification of automation and our dependency of technology need not per definition be in contradiction with the experience of freedom and agency. Still, this does not mean that all technology augments the experience of freedom. Technology can also have the purpose of increasing convenience, without any obvious coercion, and still have behavior constraining effects. If the lighting in offices turns on and off automatically, this is rather convenient, although a slow reaction time may cause people to search for non–existent switches. However, is it also convenient if the refrigerator automatically produces shopping lists, and then matches this with personal health data gathered in the bathroom? In general, what is the ethical significance of the trend that intelligent devices measure everything, profile us and proactively offer their assistance? The aim of this chapter is to arrive at an understanding of freedom that helps us better understand such experiences of helpful and rather too helpful technology.

How to understand this experience of freedom in practice in such a way that freedom is not in absolute terms the opposite of technical mediation? How can we understand freedom, if it is part of a history of progressive hybridization? Which form of hybridization allows for the occurrence of practices of freedom, and which do not? In the following I will develop how freedom can be seen as 'emergent freedom as a practice' instead of a 'state of independence'. The last is contradictory to technical mediation, the first is a technically mediated freedom. However, does this vision of technically mediated freedom not mean a surrender to the power of technology? Doesn't it mean a fall into technology optimism and maybe even utopianism?

For elaborating this concept of technical mediated freedom, I follow Foucault. Foucault speaks of freedom as a practice as an alternative to freedom as a condition free of determination. Freedom as a practice is not a state of independence, but is rather to be understood as achieved mastery in a situation. This freedom has to be gained in interaction with the circumstances. In terms of Foucault's scheme of subjectivation, we can say that this freedom is a quality worth striving for (telos) and not an original state of the subject (in the sense of its substance) that can be lost. Whereas freedom as the Kantian free will is located in the dimension of ethical substance, Foucault's freedom as a practice is located in the dimension of the ethical telos. For investigating this change of conception about freedom I will, towards the end of this study, which draws heavily on the late Foucault, make extensive use of his earlier work. Foucault has hardly written a line on Kant's moral philosophy, but he has extensively studied the problem of freedom and determination in the more practical works of Kant. A discussion of Foucault's *Introduction to Kant's Anthropology* (finished and defended in 1961 but only published in 2008) (Foucault 2008a; 2008b) and the related themes in *The order of things* are very helpful for understanding this different perspective on freedom.

The chapter has the following outline. First I further introduce the case of domotics and the design of our future hybrid ways of living. Through this case I will lay out the problems of usability and freedom and constraint with respect to technologies that are intended only to support and liberate people. Next follows an extensive discussion of freedom in the work of Foucault and Kant. Finally I will compare and recombine this research on freedom with the philosophy of technology, and in that context I will also come back to the case of domotics.

2 The design of our future things and selves

Automation is a key notion in technology domains such as automotive technology, aircraft operation or domotics (Sheridan 2002). In the cases outlined in chapter 6 which related to the discussion of ethical practices, intelligent technologies played an important role. In this chapter I will again use the case of smart technologies for discussing future forms of hybridization, following technical developments, as well as considering the conception of our relation to desired technologies. Smart technologies are a good case for showing the ambiguities of ever more intelligent and active technology. Smart technology can definitely empower people, and enrich their lives, but at the same time it may exhibit tendencies towards too much intrusion by the technical environment.

2.1 Home automation, freedom, and usability

A smart refrigerator which monitors the quality and storage life of supplies, automatic regulation of lightning and heating, communication of computers with audio and video equipment — these are all examples of 'domotics', also referred to as 'home automation', the 'smart home' (and closely related to notions such as 'Ambient Intelligence', 'ubiquitous computing' and 'the Internet of things'). It has been claimed long ago that robots were going to relieve us from household work. This promise has not been kept. The project of domotics as a whole has actually developed much more slowly than was sometimes expected. In a *Domotics* special of the Dutch design magazine *Product* Wim Poelman (2005) has stated: 'Actually, everybody agrees that until now it has not been a big success. People don't need a microwave which can be turned on from within the car or lights that turn off automatically when one leaves the room'.

As a reason for this, Poelman remarks that domotics is very much technology driven. Inventions originate from dreams of what may be technically feasible rather than from concerns about realistic use practices of those inventions. Poelman suggests that engineers have wrongly estimated the nature of human needs. There has been too much emphasis on efficiency, while the needs for domotics application that may exist are rather determined by values, or life orientation. This claim is supported by the research of Somaya Ben Allouch (2008) on ambient intelligence in the home. She concludes that engineers think that prospective users share their enthusiasm about making everyday life easier. As empirical research points out, however, this is not necessarily the case. Ben Allouch further analyzes that engineers do not just react to existing user needs, but instead, the vision of progress that drives the engineering profession contributes to shaping, transforming and producing people's needs.

While some expectations such as the domestic robot may not have become reality yet, home automation is still rapidly developing and is permeating the house in many ways. The computer and the Internet have by now got a central place in every home. Connections are likely to be set up with all the other appliances and some of this connectivity is already available. (As a publicity slogan for '@home', a Dutch Internet provider, states: 'Internet, TV and telephone all in one — just like it is meant to be!') And if many appliances may not yet have become interconnected, they still are progressively becoming computerized. Heating systems are getting smart. Sunshades go up and down automatically. Lighting progressively reacts to sensors. Also there is one domain where domotics is spreading especially rapidly

and that is care for elderly. In the case of people in need of care, the advantages of automation seem more easily to outweigh the negative aspects of constraint. At the same time, the social structure of institutions governing individuals no longer in the peak of health advances the development and implementation of advanced equipment.

The core problem that I want to address in this case of domotics can be illustrated by a very small but emblematic example. In the Philips home lab in Eindhoven, Netherlands, there is a reading lamp next to a couch that is intended to light up automatically when people are going to sit down to read. This is a very nice example of an attempt to provide an advanced kind of convenience by intelligently supportive technology, that at the same time could become an annoying kind of interference with our way of living.

2.2 The design of future things: Donald Norman

In *The design of future things* design theorist and usability expert Donald Norman addresses questions that have to do with automation and the way people will be able to use smart technologies and live their lives (Norman 2007). Norman is best known for the elaboration of the concept of 'affordance', discussed above in chapter 4 as an example of the mediation figure of 'guidance'. In *The design of future things* he adopts a more reflexive, rather philosophical approach. Norman was always aware that technologies guide people (as expressed by his analysis of affordances in design), but he now considers also the question of whether people are changed by technology in a more profound way. Even if technologies guide (and often misguide, as he attested) user behavior, Norman was of the opinion (for example in Norman 1993) that 'technology should conform to us'. Now he asserts: 'I have changed my mind' (168).

Very much in congruence with the approach of technical mediation, Norman affirms that humans do not remain the same while only technologies change. Humans adapt to technologies and this is hardly a new phenomenon, but marks the history of the human kind (169). Domotics forms an important terrain of interest for Norman. Making the house intelligent is not only an advancement, simply serving the existing needs of its inhabitants, but has a more profound influence on how we live. An example that Norman discusses is the 'adaptive house' designed and inhabited by Mike Mozer. In this intelligent house seventy–five sensors measure everything in the environment, which can then adapt to the living patterns of its inhabitant, with the goal of supporting a sustainable and comfortable way of living. The designer and inhabitant of the house, Mozes, has however noted that it is not always the house that is adapting to his requirements. Sometimes when he is staying late at work Mozes realizes that he has to get home because the house is 'expecting' him. The house is automatically 'turning up the heat and hot water', and if Mozes doesn't get home then energy will be wasted and all the good objectives frustrated. As Norman points out about such projects of intelligent adaptive domotics: 'The house trains its owner as much as the owner trains the house' (120).

By adapting to its inhabitant smart houses promise such nice things as 'enhancement' and 'comfort', but as the designer, Mozes, himself observes, intelligent adaptation may actually cause 'annoyance' (121). One 'problem' is that people's preferences depend on their state of mind. For example, the automatic controlling of the home entertainment systems turned out to be a project that did not function to satisfaction — even more so than the automatic heat regulation. The designer estimated that such a system would most likely annoy rather than support inhabitants. The direction in which technical developments are going seems to be towards ever more intelligent systems that try to guess how people live and then aim to support them proactively. With regard to this trend Norman wants to address the question: 'Is this how you want to live your life?' (124).

A main question in the book is therefore: 'How will we relate to all this smartness?' (23). Norman is not against smart technologies. As an attempt to mark the difference between desirable and undesirable developments he affirms that, 'we need augmentation, not automation' (34). Norman imagines that a smart system may collect an enormous amount of information through its sensors, but he insists that still this would not 'give it the ability to read my mind and determine my intentions' (53). A good formulation of the central problem according to Norman is this: 'Machines that try to infer

the motives of people, that try to second–guess their actions, are apt to be unsettling at best, and in the worst case dangerous' (77).

Norman also has suggestions for improving the design of future smart technologies. What has to be avoided is 'overautomation' (107). This is the case when machines are so autonomous that operators have nothing to do, which becomes dangerous as they may become inattentive or fall asleep. Even worse, in Norman's mind is 'half way automation' (113). This is when the intelligent systems allow for no influence of the human user or operator, but at crucial moments they unexpectedly do demand human interference and handling. In general, it is better to strive for 'responsive automation' (86). In this case some form of 'human participation' (116) is retained in the gearing of machines and people.

The kind of interaction and fusion with our future intelligent, active devices that is worth striving for, Norman proposes, is a 'natural, symbiotic relationship' (17). The 'horseback rider' (19) serves him as an example for clarification. The horse and the human horseback rider become a couple, but their united force depends on constant readjustment and reestablishment of their union. By way of a more reflexive conclusion, Norman's remarks about our interaction with future things: 'In the past we merely used our products. In the future, we will be in more of a partnership with them as collaborators, bosses, and, in some cases, servants and assistants' (173). Indeed, this seems very similar to the relation of a human horseback rider and a horse.

To summarize, in *The Design of future things,* Norman is not opposed to the trend of smart technologies in general. Smart technologies can and do empower, but what should be avoided is for humans to become ever more robotized themselves. Instead of programming smart devices with completely fixed programs, where users have no influence, Norman calls for responsive automation, where there is always still the need and possibility of participation of the users or operators. I think the following insight can be drawn from Norman's study. Once, in traditional physical ergonomics, it was the challenge to devise products that fitted human physical characteristics. Similarly, today, in the age of ever more intelligent technology, it is a challenge to design technologies in such a way that they match smoothly with the way humans characteristically carry out their activities. A need for participation, influence, improvisation and change is apparently part of our human (be it hybrid) way of being.

2.3 Augmentation, not automation — And freedom?

Is it possible to have sensors collect data, make machines understand and guess people's activities so that they can immediately, almost proactively assist people? It will be a design challenge to address the theme of automation not only in technical and efficiency related terms, but also in terms of usability and ethics. To what degree and in what form do people want their way of living to be automated? To what degree and what mode of control can they and are they willing to adapt? These questions become pressing now that designers are beginning to create feasible product concepts in domains like domotics.

Norman's contribution to an answer to such questions is to strive for 'augmentation, not automation'. Can this difference also be understood and further explicated in philosophical and ethical terms? Norman believes that automation can augment possibilities and convenience, but beyond a certain point, or rather when designed in the wrong way, it leads to annoyance and constraint of a certain sort. This is a very relevant theme for my discussion of what technically mediated freedom can mean. Freedom as a practice can be found, can emerge in the interaction technologies, but can also be lost.

In the next section I will turn to an investigation of what freedom can mean when it is not seen as in opposition to technology, but at the same time is not found by embracing technology. On the one hand I will investigate further the meaning of emergent freedom as a practice. On the other hand I will investigate in what ways moving with technology can restrict freedom, even when, or especially when, the technology seems to self–evidently serve human purposes.

3 Foucault on Kant: Freedom and the empirical world

In this section I will further explore the problem of freedom. I will discuss Foucault's elaboration of 'free dom as a practice', which is helpful for overcoming the incompatibility of absolute freedom as a condition in ethics and the acknowledgement of our hybrid selves. Foucault's understanding of freedom is deeply marked by the philosophy of Kant. This may surprise, as Kant's moral philosophy appeared so far to be the source of the strong opposition (and the need for separation) between the empirical world and the free moral subject.

Kant analyzed that we assume that morality ultimately concerns absolute laws, universally valid principles. Otherwise morality would be a mere chimeric idea. Morality as obedience to the moral law requires that humans have free will. But humans are part of the empirical world and the physical determinations. So, how can they be free at the same time? Kant did not know how to solve this problem, but in his moral philosophy he articulated the problem of modern moral thinking as poignantly as anybody. His provisory solution, in his moral philosophy is to consider the human subject as taking two standpoints: the subject is part of the empirical world and as such is determined by natural laws, and at the same time it belongs to world of cognition and therefore has free will, meaning that it determines itself (autonomy). In a strict analytical way, the freedom of the moral subject stands diametrically opposed to the nature of concrete human existence (including hybridity).

Foucault made few direct references to Kant's works on ethics. However, he did extensively consider the problem of the freedom of the subject and the determinations of the empirical world. Rather than criticizing Kant's moral philosophy regarding this problem, Foucault focused on how Kant coped with the problem in his more applied works. In the following I will trace and discuss this alternative reading of Kant by Foucault, who wished to see himself as proceeding in the tradition of critical philosophy inaugurated by Kant.

The career–long exchange of Foucault with the ideas of Kant is especially marked by one of his first writings and one of his last. At the beginning of his career, in 1961 Foucault earned the French *doctorat d'état* for which he had to submit two dissertations. His principle thesis was *Raison et déraison* (1961) (*The history of madness*, 2006). His complementary thesis consisted of a translation into French of Kant's *Anthropologie in pragmatischer Hinsicht* from 1800 (*Anthropology from a pragmatic point of view*) with an extensive introduction. Whereas his translation appeared in print in 1964, the introduction on the work was not published until 2008 (Foucault 2008a; 2008b). Back in the 1960's Foucault further elaborated the ideas first developed in the *Introduction* to Kant's anthropology in his acclaimed book *Les mots et les choses* from 1966 (*The order of things,* 1970; my references are to the edition Foucault 2002d). However, *The order of things* proceeds by examining scientific discourses in the human sciences and he refrains largely from detailed discussions of Kant's work or other philosophical texts. Published in the year of his death, 1984, Foucault's essay *What is Enlightenment?,* was, however, an explicit commentary on Kant's famous text 'Beantwortung der Frage: Was ist Aufklärung?' from 1784. This essay can be seen as Foucault's testamentary praise of philosophy, and another affirmation of his recognition for Kant.

In his *Introduction* to Kant's anthropology, also in *The order of things,* as well as in his commentary on Kant's essay on the Enlightenment, Foucault shows himself an admirer of Kant. He appreciates in Kant the discovery of what he thinks is the defining theme, the challenge, of modern philosophy. This theme is that any attempt to gain knowledge of the world is never independent of the knowing subject, and therefore demands a simultaneous self–critique of the knowing subject. Foucault's estimation for Kant is a constant theme in Foucault's work. Still, long–term Foucault's admiration of Kant was also confusing. For Foucault admired something in the Kantian anthropology, but he contested the future of post–Kantian modern and contemporary philosophy due to what he called an 'anthropological illusion'. How is it then that bringing anthropology (knowledge of the human being) to philosophy is at the same time good and bad, a contribution to the necessary self–critique and a deception of it? This anthropological illusion is characterized by Foucault as a neglect of the lesson of the Kantian Critique. How then, was Foucault admiring of Kant's Critique, whereas his work seemed

strongly directed against the notion of an autonomous subject?

The subjectivation approach may be seen as Foucault's final solution to the problem of combining empirical anthropological and philosophical research. With hindsight, the germs of this solution are already fully visible in his introduction to Kant's anthropology. His own point about the anthropological illusion in contemporary philosophy is expressed only very shortly there. And when it was repeated and elaborated, although still in a rather hermetic style, in *The order of things,* any detailed reference to Kant had disappeared. Foucault's introduction to Kant's anthropology is very interesting in that it does already allude to the later subjectivation perspective. However, Foucault did not make the positive account of his approach explicit at that time. Instead the point he made explicitly was about the negative part of his approach: his contestation of the anthropological illusion haunting philosophy since Kant.

I will now first discuss Foucault's allusion to an 'anthropological sleep' or 'illusion' in *The order of things* and the *Introduction* to Kant's anthropology. Next I will show how the perspective of subjectivation already dawns in Foucault's detailed discussion of Kant's thought in the *Introduction,* which is related to the pragmatic point of view taken by Kant. I will conclude this section with a discussion of Foucault's notion of freedom as a practice. This will bring out Foucault's long enduring engagement with the problem of freedom and empirical knowledge about humans, which is very relevant for the contemporary ethical problem of technical mediation and the meaning and challenge of freedom.

3.1 Anthropological sleep

In Foucault's introduction to Kant's anthropology, as well as in his book *The order of things,* that developed out of it, the typical figure that Foucault reveals is that humans can never be independent observers of the world, because they are themselves also part of the world. The problem is that humans can never know that they are in a position of independent observer that allows them to gain absolutely certain knowledge. In 'What is Enlightenment?' Foucault focuses on another variant, or another aspect, of this figure. Human observation and description of events such as the French Revolution, has, by informing human action, an effect on the events which one wants to capture in the form of absolute knowledge. The problem here is that the activities of observing and objectively describing any event have an effect on this very event, so that it can never be entirely objectively captured in a representation.

In *The order of things* Foucault describes how in what he calls the 'classical period' (seventeenth and eighteenth century), European culture embarked on the project of establishing rational knowledge of the world, Enlightenment. The classical period is characterized by a way of thinking which assumed that the task of thinking was to make an inventory of the world, to duplicate and neatly order everything as representation in the realm of thought. Human thinking apparently was assumed to occupy a place outside the world, an independent observation post. The 'modern period', from the beginning of the nineteenth century, is characterized by the emergence of awareness that the assumed independency of the thinking and knowing subject is problematic because this subject does not actually have a place outside the world, but exists in the world, is itself part of the world. Note that the way in which the theme of freedom and technical mediation is articulated in Bentham's and in Kant's thinking frameworks (see chapter 5) marks exactly this development from classical to modern thought. This theme of modern thought of how to cope with the discovery that the application of reason for understanding the world at the same time challenges the assumed possibility of humans as rational subjects, is a very dear theme to Foucault.

The relevance for contemporary philosophy of Foucault's research on this turning point at the turn of the nineteenth century is that Foucault thinks that the discovery that he ascribes to Kant has not been sufficiently acknowledged. Kant had presented his discovery of the problem that to have certainty about knowledge a human self–critique is a prerequisite as the release from a 'dogmatic sleep'. Foucault claims in *The order of things,* like the *Introduction to Kant's Anthropology,* that philosophy has soon fallen back into another 'sleep', namely of an 'anthropological illusion'.

In pre–modern thought, and still in the classical age of reason, the grounds upon which objective knowledge

was secured was believed a transcendent foundation, the realm of God. Knowledge building as drawing an inventory of the world presupposed, in my words, the existence of an observation post (and possibly even control room) that humans could visit and use for their independent observations (a God's eye perspective, an Archimedean point). Modern thought has become aware of the fact that human knowledge of the world emerges in human subjects who are themselves part of the world.

A theme that has emerged in modern thought is that of trying to grasp how human self–consciousness arises by reflection on one's conditioned mode of being. The gradual development of consciousness in the course of history could maybe replace a pre–given secure anchoring of absolute knowledge.

> 'Heralded in positivity, man's finitude is outlined in the paradoxical form of the endless; rather than the rigour of a limitation, it indicates the monotony of a journey which, though it probably has no end, is nevertheless perhaps not without hope' (Foucault 2002d, 342).

The paradox is that the discovery of oneself belonging to a particular time and place, in the historical course of everything, at first seemed to deny the possibility of absolute knowledge of oneself and the world, but immediately gave rise to the hope of still gaining absolute knowledge by grasping the course of historical development.

Modern philosophy has become aware that thought is bound to the course of things in time, that there is an 'insurmountable relation of man's being with time' (365). Since the nineteenth century, thought has tried to ground the possibility of its knowing by an analysis of this mode of being, and no longer on 'representation' (ibid.). And against better judgment, it has also tried to still attain absolute knowledge by grasping the historical development. Absolute knowledge can no longer be based in the belief that human thought takes place independent of the world, because that belief is now seen as illusory. It could, however, still be possible if the knowing subject would in its knowledge of the world account for the historical development of itself as arising from that same world. There is an eschatological belief in a future total comprehension of human consciousness of itself and its ties to the world. By playing on this potential future resolution, empirical knowledge of the human condition of today can count as absolute knowledge, not bound to place and time.

Thinking is no longer merely a representation of the world, but is part of the historical progression of the world. Thinking thus obtains political and ethical effects. An 'imperative' haunts modern thinking 'from within', writes Foucault (356).

> 'Even before prescribing, suggesting a future, saying what must be done, (…) thought (…) is in itself an action — a perilous act' (357).

Foucault affirms that thinking is always related to acting with effects on the world, but he contests that this modern discovery could ever lead to moral prescriptions with any specific, positive content.

In a suggestive passage, Foucault asserts that literary writers like Sade, Nietzsche, Artaud and Bataille understood that thinking doesn't lead to a morality, but produces, opens up a future of new possibilities. 'Hegel, Marx and Freud', also knew, Foucault asserts (surprisingly even assuming Hegel on his side). 'Can we say that it is not known by those who, in their profound stupidity, assert that there is no philosophy without political choice, that all thought is either "progressive" or "reactionary"?' (358). Foucault is here taking argument with philosophical approaches that make philosophical thinking the servant of 'morality', 'politics' or 'humanism' (356). Obviously Foucault is thinking of the never mentioned Sartre who asserted that, 'existentialism is a humanism'. More generally, Foucault contests the way historical and empirical findings are turned into a political destiny and a moral duty in the approach, common at the time, that attempted to merge 'Marxism' and 'phenomenology' (350).

Foucault concludes that Kant's project of a self–critique of human thought to conquer dogmatic beliefs had soon been deceived:

> 'And so we find philosophy falling asleep once more (…); this time not the sleep of Dogmatism, but that of Anthropology' (371).

It is this translation from anthropological research into moral claims, that Foucault terms 'anthropological sleep' and wishes to denounce. Foucault appreciates Kant's discovery that the classical era of reason had

neglected that the subject is itself part of the world, but thinks that modern philosophy has taken a wrong turn at some point. The project of critical self–investigation pointed towards a 'critical anthropology', but has turned into a 'normative anthropology', one could say.

3.3 The pragmatic point of view and subjectivation

With hindsight it is not surprising that Foucault was drawn to Kant's *Anthropology from a pragmatic point of view.* In comparison to Kant's moral philosophy, his work on anthropology is much closer to Foucault's later approach of ethics as arts of existence. In his moral philosophy Kant elaborates an understanding of the free subject able to respond to the rational moral law, and this prompts him to downplay the importance of external influences. In the *Anthropology from a pragmatic point of view,* the focus is on a relation of human thinking and the world that is one of 'use': knowledge of the human being as inhabitant and citizen of the world for practical matters, for improving one's mode of being, realizing it to maximum potential. Anthropological knowledge, that is knowledge gathered about the human beings that we are ourselves, is immediately put to use for transforming oneself. A true anthropology should include this effect, and therefore, so Foucault believes, there is no true anthropology other than from a pragmatic point of view.

In Kant's ethics it is taken for granted that what humans should do, they can do. In his anthropology Kant focuses on 'how' one can do what one should do. Anthropology aims not at 'the description of what man is but what he can make of himself' (Foucault 2008b, 51). The relation between *Können* and *Sollen* (can and should) is singled out by Foucault as a central theme in Kant's anthropology. For example, Foucault observes that in the critiques Kant investigates the capacities of the mind's faculties, whereas his anthropology refers to what can go wrong in practice: from illusions to mental illnesses. In the anthropology the mind is not approached as 'what it is', but as 'what it makes of itself' (63). Exemplary of the difference is that what was called *Elementarlehre* in the critique is repeated in the anthropology as *Didaktik*. The anthropological repetition of the critique's investigation into the capacities of the human mind is not a theory of elements but an exercise book.

> 'There, precisely, lies the articulation of the *Können* and the *Sollen* (…). The art of knowing (…) is therefore not, strictly speaking, a theory of elements but a *Didactic:* it does not discover without teaching and prescribing' (72).

Important to note is that in the couple of 'can' and 'must' in the anthropology, 'must' does not have the character of the categorical imperative, but rather of a lesson and a task. The anthropological investigation provides advice for exercise. The pragmatic knowledge about the human capacities is characterized as 'art' and as 'play', directed both at understanding and at exercise. Anthropological reflection:

> 'will therefore be both, indissociably: the analysis of how man acquires the world (his use, rather than his knowledge of it), which is to say how he manages to take his place in the world and participate in the game: *Mitspielen* and, at the same time, the synthesis of the prescriptions and rules that the world imposes on man, which train him, readying him to take control of the game: *das Spiel verstehen*' (53–54).

This has important consequences for the way freedom is addressed. It appears that in the anthropological exploration of human existence 'nature and freedom are bound up in the *Gebrauch*' (51). An investigation of the capacities of the human mind, from the pragmatic perspective of anthropology, focuses on the mind in action, which is more than 'passivity of phenomenal determinations' (63). For Foucault it is a defining characteristic of anthropology that it considers the human being not as an empirical given, but as always bending back on itself, working on itself. Kant's anthropology as any true anthropology, thinks Foucault, does not aim to 'bring an end to definition of the human *Wesen* in naturalistic terms' (51). Determining the essence of the human being would be to address the human being, fallen asleep or dead (64). Knowledge of humans about themselves remains 'ambiguous', because it always has a return effect on humans themselves. Anthropology must include this effect and cannot be just 'the knowledge of man', but must be also 'the knowledge of the knowledge of man' (117).

The exploration of our own existence from a pragmatic point of view focuses on a 'region', a domain

where determination and freedom do not appear as opposed. Foucault's genealogy of the final text of Kant's anthropology shows that in Kant's later work, thinking gradually changes its position, its perspective and region of concern. In Kant's lecture notes on anthropology dating back to before the conception of the first critique, Kant's conceptions were congruent with 'the accepted division between nature and man' (54). The finally published anthropology, in contrast, 'explores a region where freedom and use are already bound together' (54).

> 'We are touching on the essential point: in *Anthropology,* man is neither a *homo natura,* nor a purely free subject; he is caught by the syntheses already operated by his relationship to the world' (54–55).

In a rather extensive passage on Kant's *Opus Postumum,* Foucault shows how Kant in his later reflections even further explored the pragmatic anthropological perspective of humans, not opposed to, but tied to the world. In these working notes, of a rather sketchy and repetitive character, Kant discusses the relation between God, the world, and man. Foucault cites from the *Opus Postumum*[38] showing how Kant conceives of the human being as ' *"Medius terminus": "Gott, die Welt, und der Mensch als Person, d.i. als Wesen das diese Begriffe Vereinigt"* [29]' (77). Foucault writes that some of the fragments seem to suggest that it is the human activity of thinking that forges unity. This would tend towards the position of idealism, called elsewhere in the commentary the 'Fichtean danger' (39). Overall, Foucault asserts however, that Kant rather affirms that thinking cannot be sovereign,

> 'for man immediately defines himself as a citizen of the world, as "Weltbewohner" [27]: "Der Mensch gehört zwar mit zur Welt [38]". And, completing the circle, all reflection on man involves reflection on the world' (78–79).

These analyses do investigate how humans are rooted in and entangled with the world, but here the point is not to reconstruct and defend the *a priori* possibility of the free subject. These reflections in the *Opus Postumum* do no longer proceed in the framework of an accepted division between nature and human freedom. Rather human freedom is identified exactly with the activity of revealing ones roots.

> 'What is in question are not the determinations, on the level of phenomena, in which the human animal is caught and defined; rather, it is the development of self–awareness and of the "I am": the subject self–affecting by the movement in which he becomes aware of himself as an object: "Ich bin. — Es ist eine Welt ausser mir (praeter me) im Raume und der Zeit, und ich bin selbst ein Weltwesen; bin mir jenes Verhaltnisses bewusst und der bewegenden Kräfte zu Empfindungen (Wahrnehmungen). — Ich der Mensch bin mir selbst ein ausseres Sinnenobjekt, ein Teil der Welt" [63]' (79).

Anticipating his later research into subjectivation, Foucault focuses on fragments in Kant's work which are relevant for the theme of 'becoming subject'. Historical and empirical (anthropological) research that includes the effect that collected knowledge can and will always be immediately surpassed as it will be put to use for self–transformation, does not lead to absolute knowledge of human existence in rest, animalistic, but rather only constitutes in the first place the experience of subjectivity, of freedom.

It is Foucault's conclusion that a region where nature and freedom are not separated, the region that the pragmatic anthropological approach discloses, has become progressively integrated in Kant's philosophy.

Foucault takes as a lesson from Kant and his later turn to anthropology that the questions of the *Critique* about the possibility and scope of *a priori* conceptual synthesis should be transposed to the analysis of human's concrete existence rooted in the world, and bound to the temporal progression of the world.

> 'Kant's *Anthropology* teaches us another lesson: repeat the *a priori* of the *Critique* in the originary, that is, in a truly temporal dimension' (93).

Foucault terms our being rooted in the world and bound to time 'the originary'. The critique of our rooted existence would be about the possibility and limits of passing from an historical and empirical state of being to claims about human being that try to transgress being bound to time. Such a critical anthropology should avert the dogmatic sleep that Foucault contests as the wrong

[38] Foucault's citations to Kant's Opus Postumum come from Kants Schriften: Akademie Ausgabe, vol. XXI, page numbers added between square brackets.

way of integrating anthropological and philosophical research.

This integration of the Kantian critique with Kant's own later growing emphasis on the pragmatic anthropological perspective, allows Foucault to present Kant as a thinker who recognized that philosophical knowledge seeking about our existence doesn't fixate the form of our existence, but is itself a practice of freedom, of self–transformation. In the pragmatic perspective of anthropology truth seeking is practicing freedom.

> 'The originary is not the really primitive, it is the truly temporal. That is, it is at the point where, in time, truth and freedom are bonded' (92).

The conclusion of Foucault's introduction to Kant's anthropology is that the 'trajectory' of the question 'What is man?' would finally be completed with the response which both challenges and disarms it: *der Übermensch'* (124). The answer is not a fixed, absolute model of what humans are and should be, but the notion that humans reinvent themselves. Foucault admits that Nietzsche may not have seen himself as a successor of Kant and that his thinking 'was perhaps not itself aware of what it owed in terms of filiation and fidelity to the old "Chinaman of Königsberg" '(107–108). Still, suggests Foucault, wouldn't it be possible to see Nietzsche's thought as an updated version of Kant's critical project of integrating self–critique and anthropological reflection into philosophy? For, one could 'see there the authentic repetition, in a world that is our own, of what was, for an already distant culture, reflection on the a priori, the originary and finitude' (108).[39]

3.3 The undefined work of freedom

In Foucault's discussion of Kant's anthropology, the pragmatic use of reason is presented as an art. Freedom is here not conceived of as an *a priori* condition required by the assumption of an absolute moral law. Instead, freedom appears as a practice that combines thinking and activity in the world. It is a project of self–transformation which accompanies reflection over one's own existence rooted in the world. In *The order of things* this theme is not further elaborated, but instead the critique of the anthropological illusion or sleep is extended. That project was already introduced in the commentary on Kant:

> 'One day, the whole history of post–Kantian and contemporary philosophy will have to be envisaged from the point of view of the perpetuation of this confusion — a revised history which would start out by denouncing it' (Foucault 2008b, 104).

The positive side of this critique, the elaboration of an alternative to this contested follow–up of the Kantian project was laid aside, it seems. Foucault, however, took it up again later, when he developed his philosophy of subjectivation. The project of a philosophy focusing on subjectivation, is a direct follow–up of the approach already sketched in the commentary of Kant's anthropology. Foucault's early commentary on Kant's anthropology could almost be copied word for word into a later volume of his genealogy of ethics.

As we know, Foucault did actually return to Kant in his later work, but this time focusing on Kant's short essay on the Enlightenment. There one does not find a reprise of all the detailed material on Kant from Foucault's early commentary. It seems that Foucault found that Kant's essay on the Enlightenment, because of its character of a political commentary, offered a shorter route to make his point than the detour by Kant's never finished transcendental philosophy. Even if direct and explicit references from the later to the earlier text are lacking, the relations can be easily traced. Foucault's essay 'What is Enlightenment?' does finally present the outlines of a positive account of how he thinks the Kantian project of critique should be continued today. Of this very rich and dense text, I here focus on the aspects of freedom and subjectivation.

The theme of subjectivation comes in through the notion of modernity as an attitude. Foucault suggests that:

> '(…) the thread that may connect us with the Enlightenment is not faithfulness to doctrinal elements, but rather the permanent reactivation of an attitude — that is, of a philosophical ethos that could be described as a permanent critique of our historical era' (Foucault 2000a, 312).

[39] The promoter Jean Hypolite remarked in his assessment of the thesis that Foucault's approach may have been closer to Nietzsche than to Kant (Eribon 1991, 113–115). The Nietzschean influence is explicitly expressed by Foucault himself (Foucault 2008b, 68; 78).

This attitude, Foucault thinks is an alternative to a dogmatic belief in rationality, what Foucault now calls the 'blackmail of the Enlightenment' (312). Instead of loyalty to some essential kernel of rationality, Foucault thinks that the task of critique is to perform acute historical inquiries oriented to the 'contemporary limits of the necessary, that is, toward what is not or is no longer indispensable for the constitution of ourselves as autonomous subjects' (313). The modern attitude is also conceived as an alternative to humanisms that aim at defining a true human nature or essence. Instead, the attitude favors the 'principle of a critique and a permanent creation of ourselves in our autonomy' (314).

Foucault here repeats that the self–critique of modern philosophy implies the inclusion of anthropological research in philosophy, but the function of this philosophical anthropology should be critical instead of moralistic. The autonomous subject does not have to be respected and defended by a doctrinal, moralistic anthropology. Instead, Foucault explicitly associates the notion of the 'autonomous subject' with this attitude of permanent critique towards the conditions of our way of being (critical anthropology).

To describe the modern attitude positively, Foucault asserts that it is a *'limit–attitude'* (315). Kant's critique of reason aimed to limit the correct use of reason and demarcate it from speculation beyond human possibilities about outer worldly things. Foucault retains the notion of critique as reflection on limits, but gives it a considerable twist. His aim becomes to limit the correct use of anthropological findings, avoiding and contesting deterministic and moralist interpretations and uses. He wishes to bend the 'negative' critique of 'formal structures with universal value' into a 'positive one' that opens up possibilities of practical change. This critique, Foucault writes:

> '(…) will not deduce from the form of what we are what it is impossible for us to do and to know; but it will separate out, from the contingency that has made us what we are, the possibility of no longer being, doing, or thinking what we are, do, or think' (315).

This is a direct follow up on his critique of the moralistic strand in philosophical anthropology that Foucault had contested in his introduction to Kant's anthropology and in *The order of things*. Because humans who seek knowledge of the world are themselves part of the world, self–critique is a necessary component of any striving for knowledge. Foucault affirms that this was and remains the great discovery of Kant.

It has now become clear that Foucault's aim in his earlier work was not to deny freedom, but rather to contest an understanding of freedom that he thought was part of a doctrinal and moralistic use of anthropological knowledge. He saw this route in modern philosophy as a failed attempt to reconcile empirical knowledge about the human being (anthropological knowledge) with freedom. Foucault also thinks that freedom must be understood as part of history, in a teleological way. However, Foucault asserts that a doctrinal belief in a historical development that promises the completion or realization of freedom at the end rather obscures the 'practice of freedom'. For example in *Discipline and punish* he showed that under the guise of philosophical theories of humanitarian progress, in practice people were progressively subjugated to rational procedures and constraining discipline. With reference to the detour by Foucault's later work we can now add: people in the modern West were forgetting about the care of the self and freedom as a practice.

Freedom must be accomplished, practiced; it belongs to the dimension of telos, and not substance, but its realization is not guaranteed and cannot be secured by a philosophy that grasps the developments of the course of human history. Instead the practice of freedom has its place in the persistent critical attitude to the historical developments that we are entangled in.

> 'I shall thus characterize the philosophical ethos appropriate to the critical ontology of ourselves as a historico–practical test of the limits that we may go beyond, and thus as work carried out by ourselves upon ourselves as free beings' (316).

To stand up for freedom does not mean to theoretically demarcate its place apart from the empirical world, nor to theoretically prove its final realization inside history; it means the constant reactivation in practice of a critical exploration and attempts at transformation of the historical and empirical conditions of our existence. And so Foucault claimed in his essay on Kant and the Enlightenment that his philosophy:

'(...) is seeking to give new impetus, as far and wide as possible, to the undefined work of freedom' (316).

3.4 Freedom and ethics as arts of existence

As a conclusion to this section on Foucault and Kant and as a preparation of the next section where I will discuss freedom in relation to technical mediation, I will explicate Foucault's notion of 'freedom as a practice' in the context of his 'ethics' as aesthetics of existence.

In his late work, Foucault thus comes to call for a revaluation of freedom. His work from his period on knowledge (*The order of things*) and his work on power (*Discipline and punish*) have often been interpreted as vehement attacks of the notions of freedom and autonomy, and thereby a negation of the possibility of ethics. Foucault himself had explicitly doubted the possibility of an ethics and asserted in passing in *The order of things:* 'Modern thought has never, in fact, been able to propose a morality' (Foucault 2002d, 357). We could say, that although Foucault had already found the notion of subjectivation in Kant's works, his thinking about anthropological knowledge seeking of humans about themselves had not considered how subjectivation could be a core notion of ethics. Indeed, neither did Kant himself in the texts that Foucault studied consider any possible importance of anthropology for moral philosophy. While the late Kant did attempt to integrate philosophy and anthropology, he stayed to his conviction that morality is associated to and dependant upon a universally valid principle to which every reasonable being had itself to recognize as being subject to. Neither did Foucault at the time of his commentary on Kant's anthropology see the possibility of an alternative ethical principle. But he did see the impossibility of recombining empirical anthropological knowledge with the absolutely free subject and thus concluded, for the time being, that the formulation of a moral philosophy was impossible in modern thought.

It was only through his encounter with the example of the ancient ethics as arts of existence, that Foucault was able to see the importance of his long enduring interest in human practices of seeking self–knowledge and the implied practices of self–transformation could be the key to formulating an ethics. In the ancient arts of existence he found the example of a different ethical principle: to subject oneself to the call of giving 'style' to one's existence instead of to the universally valid moral 'law'. This means transferring the critical approach of Kant (self–critique) from the domain of morality as universally valid law needing a free subject to the domain of the practical art of living.

Now we can see how for the late Foucault the question of freedom and of ethics is (surprisingly) still largely the Kantian question about the meaning of the freedom of the subject that is not entangled by the determination of the physical world. Contrary to Kant, in his moral philosophy, Foucault does not however think that defending freedom means a demarcation (limitation) of freedom from the determinations of the physical world. Instead, freedom is a practice, and means us giving style to our attachments with the world. In an ethics of stylization freedom as a practice can be considered the telos. Acknowledging the principle of style giving means a use of reason for giving considered form to freedom, reflecting how one wishes to be attached. I think this is how one can understand the following fragment of the interview 'The ethics of the concern for self as a practice of freedom':

> 'Q. You say that freedom must be practiced ethically (...)?
>
> M.F. Yes, for what is ethics, if not the practice of freedom, the conscious *[réfléchie]* practice of freedom?
>
> Q. In other words, you understand freedom as a reality that is already ethical in itself.
>
> M.F. Freedom is the ontological condition of ethics. But ethics is the considered form that freedom takes when it is informed by reflection' (Foucault 2000h, 284).

Foucault here stresses his commitment to the importance of freedom, but also that it is not a state, the limits of which must be respected and defended, but instead a work of form–giving, stylization. Freedom needs to be given content. It is with regard to this notion that Foucault also emphasizes in the same interview that contemporary social movements should not only be striving for liberation from repressive structures, but also conceive and invent new ways of living. Foucault stresses the need to 'emphasize practices of freedom over processes of liberation' (283).

Freedom as the telos of ethical practices of self–formation implies work, the practice of giving content to freedom. This does not result in a state of independence, after all, but the result should rather be articulated as an experience of mastery. In *The use of pleasure* Foucault qualifies freedom, with reference to the *Politics* of Aristotle as the striving towards the achievement of mastery over oneself in the context of the exercise of political power. Foucault writes:

> 'This individual freedom should not, however, be understood as the independence of a free will. Its polar opposite was not a natural determinism, nor was it the will of an all–powerful agency: it was an enslavement — the enslavement of the self by oneself. To be free in relation to pleasures was to be free of their authority; it was not to be their slave' (Foucault 1992, 97).

This explanation of freedom as self–mastery echoes Kant's call to majority, to think for oneself, as it equally was considered to be a 'way out' of enslavement by oneself, minority.

This closes the circle, from Foucault's interest in the problem of freedom in the empirical world in Kant, via the discovery of an alternative ethics in the ancient example of the arts of living, back to Kant again. Foucault had found attempts in such a direction in Kant's own work, in his anthropology, in his more practice oriented essays, as well as in his posthumous notes. Therefore he could suggest that his alternative conception of critique was still very much in line with the tradition of Kant's critical philosophy and stressing as much as Kant the importance of the notion of freedom:

> 'I continue to think that this task requires work on our limits, that is, a patient labor giving form to our impatience for liberty' (Foucault 2000a, 319).

4 Freedom as the telos in the ethics of technology

It is now time to return to the question of whether freedom can be the telos of a contemporary ethics of technology. What sort of interactions and fusions with technology are worth striving for? The challenge is now to conceive of freedom as a practice which acknowledges technical mediation, without surrendering to technical utopianism. Acknowledging and moving along with technical developments entails a flirt with the utopian conception of technology. One important aim of this chapter is to investigate this pitfall. A conception of freedom as emerging in practice allows one to get away from technical dystopianism and the Kantian requirement of the absolute free subject, without having to adhere to the other extreme and embrace technical progress as a moral telos in itself (the pitfall of technical utopianism).

4.1 Telos in the history of the philosophy of technology

Teleology plays an especially prominent role in the early philosophy of technology, which was inspired by the dialectical philosophy of Hegel and attempted to explicate the interdependent historical development of humans and technology. In the fully utopian conception of technology the path of technical progress is considered itself of ethical value, as a self–evident model worth striving for. As I showed in chapter 5, in the framework of Bentham's utilitarian ethics and his Panopticon model of government technology can perfectly promote morality. Bentham, however, did not address as Kant did how human freedom and agency can be understood. This dialectical philosophy also promises a way out of the opposition in Kant's moral philosophy between determination in the physical world and freedom of the moral subject. In the philosophy just after Kant (Fichte, Schelling, Hegel) freedom is not seen as a given state opposite of the empirical reality, but freedom is seen as a vista. Freedom is only gradually being realized in a historical process in which consciousness, the spirit, gradually overcomes its determining conditions by becoming conscious of them. How is this teleological theme of the evolution of technology and human freedom interwoven in the history of the philosophy of technology? And what does freedom mean as a telos for a contemporary ethics as care for our hybrid selves?

The utopian conception of completion of the human being by means of technology is very much a teleological theme. In the dialectical framework technology can effectuate human completion, which ultimately means

the realization of freedom, the human spirit having mastered its conditions. The evolution of technology may even deliver the model of ethical improvement: because we are contained in a historical progression of ongoing hybridization we should also affirm and advance this development. This is what some transhumanist and techno–enthusiasts hold. Most people with trust in technology would hold only a weaker version of this view, namely that technology is a convenient and harmless means to achieve values that remain properly human values (liberty, equality, etcetera). The embracement of the reality that technical progress itself provides an ethical model to strive for is precisely an example of the anthropological sleep, elaborated in the last section after Foucault.

In the dystopian view of technology, however, technical progress is considered the highest danger which should definitely not be attributed positive ethical value. Technical progress is not a model to strive for, to the contrary, ethics should stand up against technology. This is related to a return to the Kantian conception of morality, which revolves around the necessity of the freedom of the subject to be able to respond to the call of an absolute moral law. As much as early modern culture applauded technical progress, by late modernity it was starting to be viewed as a dangerous system with the potential to run out of control. Following the conception of absolute freedom of the moral subject from Kant's moral philosophy, it was considered that freedom was a firm foundation of ethics and needed to be defended against interference by technology. This dystopian vision of technology and the accompanying assumption of freedom from technology implies however ultimately the total neglect of our hybrid mode of being.

The contemporary philosophy of technical mediation, entertaining the figure of ambivalent hybridization, has brought to the fore, once again, the problem of freedom and technology. Compared to the confidence in the ideal of absolute freedom of modern ethics which assumes the task of limiting technology, the notion of hybridization challenges this fundamental assumption. The concept of a hybrid self seems to be incompatible with the concept of absolute freedom, as put forward by Kant. The challenge of the philosophy of technical mediation is therefore to elaborate anew a notion of freedom, agency, and the acting subject. In the conception of ambivalent hybridization it is acknowledged that humans are part of a historical development, and it is inside this development that an understanding of human freedom must be sought.

4.2 The practice of freedom and technical mediation

Applying Foucault's idea of freedom as a practice means that freedom is no longer a given state of independence from technology but the practice of coping with the technical influences on our existence. This freedom as a telos is an experience of mastery of one's own hybrid mode of existence that emerges in the practice of exploring the effects of technology that guide and change us, and the simultaneous attitude to let oneself not be altogether governed by those effects. Important aspects are that this freedom only emerges when it is practiced, and that it does not ultimately mean liberation from technology, but rather choosing and elaborating an attachment to technologies oneself. Now I will see what visions on freedom and technical mediation have been proposed, and how Foucault's notion of the practice of freedom as a telos may help to elucidate these proposals.

An important proposal for a notion of technically mediated freedom is the concept of 'libertarian paternalism'. Richard Thaler and Cass Sunstein (2008) have proposed this as an ethical vision that can guide the design of technologies that influence ('nudge') human choices and actions. With the term 'paternalism', they wish to take into account the constant mediating effect of technology on people's behavior. They argue that the point is not to try to avoid this, but to make good use of it. With the term 'libertarian', they stress that nudges should be designed in such a way that they are not compelling, but still leave people the choice to refuse them, 'to opt out'. Pragmatically, this seems indeed a feasible and helpful middling position with regard to freedom and technical mediation. Philosophically, there remains the problem that there is no clear distinction between nudges that set people free and nudges that compel. The appeal to the possibility of an opt out, just does not make explicit that freedom in relation to tech-

nical mediation means not avoiding but coping with the influences of technology.

Bruno Latour strives to avoid reversion to an idea of absolute freedom and strongly emphasizes the importance of technical mediation over freedom. He asserts that if 'emancipation' in relation to our conditioning circumstances is what we desire, then we should know that 'it does not mean "freed from bonds" but *well–attached*' (2005, 218). As usual however, Latour is not very empathic with the concern of moral philosophers and sociologists to stand up for a notion of freedom or autonomy. Discussing if we are not just playthings of larger structures he asserts: 'The strings are still there, but they transport autonomy or enslavement depending on how they are held' (217). Latour avoids the notion of a subject that experiences autonomy, from fear that this will always lead to the neglect of technical mediation and a return to the idea of absolute freedom as a state of independence.

Also in the context of science and technology Andrew Pickering has advanced a notion of freedom that emerges from social and material structures that our existence is tied to. Referring to Foucault, Pickering conceives of 'existing culture' as, 'literally *the surface of emergence* of the intentional structure of human agency' (Pickering 1995, 20). For Pickering material constraints are not the negation of human agency, but human agency 'struggles with material agency' (20). In the interaction there proceeds a 'reciprocal tuning of human and material agency' (21). This tuning takes the form, Pickering thinks, of a 'dance of agency' (21). Pickering's notions nicely express that freedom can emerge in the practice of coping with the effects of technology. Another helpful philosophical understanding of freedom in relation to technical mediation is offered by Carrie Noland, already referred to in chapter 6. Noland understands agency as the experiences of (new) 'I can's' arising from performing gestural routines and improvising new variations. This experience of an 'I can', does not appear in the absence of technologies, but arises as a sense of mastery in performing technically mediated gestures. Both accounts noted are insightful in the way they facilitate discussion about the ethical subject and technical mediation simultaneously.

An approach very much in line with my proposal of an ethics as care for our hybrid selves after Foucault, can be found in the work of philosopher of technology Michel Puech, *Homo sapiens technologicus* (2008). Puech states: 'Nous ne pouvons plus nous permettre ni d'être conservateurs, attachés aux valeurs des continuités, ni d'être progressistes, attachés aux bienfaits des discontinuités. Nous devons inventer' (381). Puech brings to the philosophy of technology a notion that can also be found in Foucault's late work, that the invention of new modes of being is the necessary and even more important complement of liberation. This insistence on invention can also be seen as another way of expressing that freedom needs content, that it is as much about deliberately attaching as about detaching, liberation. For him too 'usability' (60) is not just a superficial phenomenon, but has ethical relevance, in the sense of giving content to freedom, that concerns the invention of good forms of interaction and fusion with technology. Furthermore, in line with Foucault, Puech thinks that what we have to strive for is 'maîtrise de soi (la sagesse)' (383), self–mastery, or what Puech also calls technological prudence, wisdom.

These are some of the approaches in the ethics of technology that are relevant for understanding the meaning of a technically mediated freedom that emerges through the practice of coping with the influences of technology. From this perspective analysis of our dependency on technologies in terms of 'quality of interaction' (Verbeek 2011a, 156) and of the experience of 'attachment to technologies' (Hennion 2007) obtains ethical relevance. The framing of the practice of freedom as a telos in Foucault's scheme of subjectivation shows how these notions can be compared to moral philosophy. Freedom should not be framed in the dimension of ethical substance as the negation of technical mediation, but as a telos: an emergent experience of mastery in caring for the quality of the interactions and fusions with technology.

4.3 Augmentation, not automation: The pitfall of utopianism

What does the philosophical elucidation of freedom in relation to technology contribute to the understanding of the case of domotics and automation? Or how does this case illustrate the philosophical elaboration about

the kind of technically mediated freedom, which is worth striving for?

If freedom is not understood as independence from technology, but as a quality of a certain mode of hybrid existence, then the question becomes: What is the content of freedom? Donald Norman does not exactly discuss the philosophical problem of freedom and technology; he focuses rather on usability. In that context, reflections about the kinds of interactions and fusions we should strive for in the design of our future things and lives become highly relevant. Norman's study is an important contribution, from the side of design, to the question of what content we can give to our freedom. An important challenge for ethics as well as for design is to learn what freedom can mean when we acknowledge our technically mediated mode of being (so that freedom cannot mean a state of independence). The content of freedom can be expressed as convenience in use, a symbiotic, natural relation to technology. However, the endorsement of maximum convenience, does not guarantee maximum freedom, but can instead lead to annoyance and constraint.

Relevant for my study, Norman addresses that smart technologies have user guiding and changing effects. He focuses in particular on the effect that smart technologies second–guess user's motives and demand them to comply to the guessed line of behavior. A simple but typical example would be the reading lamp that thinks it knows when we are going to read. Designers would not address such use aspects of this kind of product in ethical terms. For, such a device is just intended to assist people in doing more easily and effectively what they themselves were already doing, or already wanted to do. The lamp was not intentionally charged with ethical values. Still it has a conditioning effect and therefore bears moral significance. The small example of the reading light stands for a much larger trend. Intelligent technologies progressively react to the user; they measure and profile the user to give personalized assistance. The enthusiastic developers may think that by such technologies users become ever more themselves, as they are being assisted in what they already wanted to do. In this way, the rationale of these technologies is to discourage improvisation, initiative, change, mood, and all those human characteristics out of people's lives.

In terms of my model of figures of technical mediation, intelligent environments hardly physically 'coerce', but they do 'structure our routines and gestures'. Not only are our behaviors in the sense of our moves and gestures changed, but also on a deeper level our way of behaving is being changed. Intelligent, adaptive environments display the effect of 'environmental conditioning of subjectivity'.

Norman distinguishes between augmentation and automation, desirable and undesirable smartness of machines. How can this distinction be better understood and compared to ethical theory? To begin, both augmentation and automation have to do with humans as hybrids, dependant on technology. There is no question of an absolute human freedom that is the opposite of hybridization (a substance–freedom). One can however speak of technically mediated freedom when freedom is understood as being a practice, a striving (telos–freedom). This mediated freedom as a practice emerges in interaction with technology. Technically mediated freedom is not about a separation from technology but about care for the quality of our interactions and fusions with technology. This does not however imply an embracement of hybridization. An uncritical, positivistic, or even utopian project of conveniently gearing humans and technology, may lead to constraining automation instead of an augmentation of human activities. Knowledge and use of technical mediation may contribute to the emergence of freedom, but may also put freedom into a sleep, in the sense of Foucault's notion of an anthropological sleep.

5 Conclusion

In this chapter I have considered the question of the telos of an ethics of technology. Even if we are enrolled in a process of ongoing hybridization, we can still ask the question what kind of hybrid beings we want to be. The case of smart technologies in the home showed how in a practical way our possibilities can be augmented, but a kind of automation that attempts to guess our intentions and assist pro–actively often turns out to be experienced as annoying and constraining. With regard to this issue it still makes sense to speak of freedom

in relation to the ethics of technical mediation. The question is therefore still the Kantian question of how freedom and technical mediation can be acknowledged at the same time. Unlike in Kant's moral philosophy however, the domain of pure morality is not defined as separate from the empirical domain. I discussed Foucault's work on Kant's anthropology, and elaborated after Foucault and Kant an alternative understanding of freedom in relation to our empirical reality. Freedom can be understood as denoting the experience of people that accompanies their practices of giving their own twist to the historical path which at the same time guides their lives. Freedom is the practice of wandering off course.

Such an understanding of freedom as a practice allows one to see how freedom does not mean having or acquiring a state of independence, but should be understood as choosing for oneself how one attaches oneself to technology. Freedom in this sense needs content. For this reason design for usability, socially engaged design and the striving for improving the quality of our interactions and fusions with technology are practices closely associated to the striving for freedom as the telos of an ethics of technology. The telos of an ethics of mediation is the achievement of hybrid modes of being, in such a way that technical devices are not experienced as constraining or alienating, but become our own, allow for an experience of mastery of our hybrid selves. This does not imply being free of technologies, but the practice of striving to achieve mastery in interaction with technologies. Limiting the intensity of technology matters less than caring for the quality of interaction, be it with primitive or highly advanced technologies. As Donald Norman (2007) puts it, the challenge is to devise technologies that allow for 'natural' or 'symbiotic' interaction.

However, what should be added is that the experience of natural interaction is not an original, pre–technical state of being, but rather is an achievement at the end of a process of successful training and fashioning oneself in relation to technologies. Norman does not acknowledge or explicate this. In the same way, the telos set by Thaler and Sunstein, libertarian paternalism, should not be understood as 'nudges that still let people free', but as a mode of interaction that has the quality of allowing for the experience of mastery. Foucault's understanding of freedom as a practice provides a better understanding of what applying technical nudges along the lines of libertarian paternalism could mean. The kind of freedom that Thaler and Sunstein want to preserve is not as they themselves somewhat suggest a clearly determined disposition (between coercion and respect for freedom). Rather it must be understood as the situated experience and striving of people to achieve mastery over their own actions in Foucault's sense.

While freedom as a practice is not hostile to technology, this does not mean that all technology promotes the practice of freedom. Hybridization should not be embraced as an ethical telos in itself. Progressive automation, leading to ever smarter technologies that measure and profile us and guess our minds to assist us pro–actively constrains rather than facilitates the practice of freedom. This would be a use of empirical data about our way of being that turns what we are into what we should be. Such use of data about humans puts freedom in an anthropological sleep, thinks Foucault. With regard to technical mediation I called this the pitfall of utopianism.

All in all, this means a re–evaluation of a Kantian moment: a return to the question of how freedom and determination can both be acknowledged, as well as an insistence on the importance of freedom for ethics. The notable difference is however that freedom is understood as emergent in practice. The freedom worth striving for is neither the technology–hostile absolute freedom of Kant's moral philosophy, nor the utopian embracement of technology as the path to a final realization of freedom by human completion. The freedom sought after is a critical attitude towards our technically conditioned way of being. In other words, the striving for freedom in relation to technology comes down to concern for the quality of our interactions and fusions with technology.

Chapter 8
The design of our own lives: Ethical accompaniment of practices of use and design

1 Introduction

In this final chapter I will continue to develop the themes introduced in the previous chapters, draw conclusions, and discuss the possibilities for practical application. I will start by summarizing the trajectory that I have followed so far from the question of behaviour guiding design to improve usability, through socially engaged design and the history of utopian design, to the development of the framework of technical mediation and subjectivation that occupied the last five chapters. Then I will further elaborate the results by defining the ethical accompaniment of technology development as a task of philosophy, on the one hand by focusing on practices of technology domestication and on the other hand by developing a product impact tool for designers.

To bring the results closer to practice I will then extensively discuss the case of network technologies, especially RFID, and issues of privacy and freedom. One section provides a general introduction. Next follows a section on ethical accompaniment of practices of hybridization concerning RFID and network technologies. Then I turn to an illustration of how the product impact tool for designers, developed by me, can help assess the Dutch RFID public transport e–payment system (OV chip card).

The chapter closes with final conclusions from this study.

2 Summary and results

This research started with the question of whether and how user guiding and changing effects can be employed in design for improving product usability. This has implications for the profession of the designer as it means that decisions of designers affect users, their way of using products and their way of living. Design converges with politics and ethics: design involves social engagement. Recent proposals for design that explicitly employs user guiding effects, such as 'moralizing technology' (Achterhuis) and 'nudge' (Thaler & Sunstein) however face fierce critique. Doesn't the application of user guiding design lead to a totalitarian technocratic state? Shouldn't users themselves remain free, and fully responsible and accountable for their behavior? The application of user guiding and changing design brings up important political and philosophical questions. Who governs who by technology? And what does it mean if our human existence depends upon and is profoundly marked by technology?

In the second chapter, I took a historico–cultural approach and discussed movements of utopian engineering and design as earlier examples of socially engaged design. How did utopian engineers and designers see technology as a driver of social change? A characteristic of utopian design was that technology was viewed as the answer to universal human needs. Technology was in itself good and the challenge was to employ it to the equal benefit of the whole society. This utopian view was however challenged when the negative sides of technical progress appeared, such as the nuclear bomb, environmental problems, over–bureaucratization and social control. The project of improving society by design gets bogged down in the contradictory views of utopian hope and dystopian fear about technology. Hans Achterhuis termed this the utopia/dystopia syndrome that haunts thinking about the meaning of the influence of technology. My perspective is that it should be possible to acknowledge and make use of user guiding and changing effects of technology without concluding that human existence is nothing more than the plaything of the conditioning technical environment. However to develop this understanding would require more in depth study of the interdependencies between humans and technology.

2.1 Technical mediation and subjectivation

The third and central stage of my research concerned a philosophical research about the influences of technology on the human ways of living and mode of existence. What is needed is an account of human subjects that allows acknowledgement of how they are technically mediated. For this I followed the work of Michel Foucault, who elaborated an understanding of human freedom which is not, as in modern moral philosophy after Kant, an absolute free subject opposite of the influences from the empirical world. For Foucault ethics could also be about subjectivation, the subject's own concern about its dependency of its environment and practice of coping with it in order to achieve a sense of mastery. This conception of the subject and of ethics allows for an approach to technology where technology is not set in opposition to the moral subject, but where coping with the influences of technology belongs to becoming a subject. Foucault discerned four aspects of subjectivation: ethical substance, mode of subjection, ethical elaboration and telos. In four chapters I investigated the aspects of subjectivation after Foucault in relation to technology, to elaborate my approach of 'technical mediation and subjectivation'.

In the chapter on the 'hybrid self' I elaborated on our explorations of the influences on our way of being as the ethical substance of an ethics of technology. I articulated 'figures of technical mediation' collected from different scholarly fields. I arranged these figures according to different modes of interaction, ways by which the influences of technology affect us: before–the–eye, to–the–hand, behind–the–back, or above–the–head. The result was a model that collects the various ways in which we have explored 'what things do to us'. In a utopian view technical mediation effectuates the completion of the human being. In a dystopian view technology is accumulating into a commanding system. In the view of ambivalent hybridity we are profoundly bound to technology, but this is not ultimately good or bad. The ambivalent conception of technology leaves room for recognizing multiple concrete figures of technical mediation. That our mode of being is technically mediated does not mean a threat to ethics; rather the hybrid self is

the very material of ethical concern and self–fashioning.

Between law and style was the theme of the next chapter treating the aspect of the mode of subjection. The modern understanding of ethics predominantly concerns the exigency of an ultimate principle, the moral 'law', by its foundation in universally valid reason. Bentham's ethical principle of utility seemed to him compatible with technology. Technology could enlighten the relation between actions and consequences and thereby correct for flaws in human use of reason. Kant emphasized that the moral subject must be assumed free in order to be able to obey the demands of a universally valid principle. This theme, which has since remained part of the modern understanding of ethics, renders ethics and technical mediation incompatible. Following the example of ancient ethics as aesthetics of existence, it is however, also possible to recognize oneself subject to a call to give 'style' to one's existence. An ethical principle that rather has the form of 'style' than of 'law' allows one to see ethics beyond the structure of the subject that must be free to obey. Ethics can now be understood as the stylization of one's hybrid self.

The chapter on ethical practices of hybridization discussed by what practices people form and transform their hybrid selves, in line with the aspect of ethical elaboration. In an ethics as aesthetics of existence, unlike in modern ethics of the universally valid rational principle, ethical practices of self–fashioning are an important aspect of ethics. Humans and technology are in a constant process of hybridization and in an ethics as care for the hybrid self these practices become valued as ethical practices. I elaborated three domains where ethical practices of hybridization can be found. 'Studying hybridization' applies anthropological research approaches focusing on the body and gesturing in relation to the domestication of technologies. Pilots and user research in design are places of 'testing hybridization'. Meanwhile artists concerned with possibilities and the societal effects of new technologies have often contributed to 'exploring hybridization'.

The fourth aspect of subjectivation is telos, the goal of ethical fashioning of oneself as subject. In the context of an ethics of care for the hybrid self the telos concerns the kind of interaction and fusion with technology that we find worth striving for. Ongoing hybridization is a historical process. In the dystopian vision of technology ethics should defend absolute freedom and stand against hybridization. In the utopian vision technical progress is embraced as the ethical goal that promises the gradual realization of freedom through technology. Freedom in relation to technical mediation can be understood alternatively as an experience of sufficient mastery that emerges by actively coping with the influences of technology. This is not a given freedom of the subject as substance, but freedom as the telos of subjectivation worth striving for. This freedom is not the liberation of bonds, but the well considered attachment to technology. The acknowledgment of hybridization as inescapably part of human history should not lead, however, to the pitfall of utopianism by embracing it as an ethical goal. Freedom as a telos concerns the deliberate care for quality of our interactions and fusions with technology.

The model elaborated in chapter 4 can serve as a concise summary of the framework of technical mediation and subjectivation. It expresses how humans explore the effects of technology on them, by different modes of interaction. This framework and the model of technical mediation and subjectivation can both be used for ethical accompaniment, both of user practices of hybridization and of the practice of socially engaged design that accounts for the user guiding and changing effects of products.

In the following I will discuss the application of the framework of technical mediation and subjectivation for ethical accompaniment in both domains. On the one hand I will elaborate an ethics of technology use and on the other hand I will elaborate on the application of the framework in design.

2.2 Ethical accompaniment of user practices of hybridization

The framework of technical mediation and subjectivation has resulted in an ethics of care for our hybrid selves. In this conception ethics is not centered on absolute principles, which must be protected and which could demarcate acceptable from unacceptable technology. Ethics is here understood in the broader sense of subjectivation, of governing and fashioning oneself as ethical subject. The task of philosophers, therefore,

can be seen as the accompaniment of subjectivation with regard to technology. Ethics of technology in the modern tradition has often assumed the task of warning against technology exceeding limits. For this it drew on the principles of autonomy, equality and privacy, and ultimately the idea that reason forms a universally valid foundation. Ethics as accompaniment remains equally alert to the challenging of borders by technology. However its assumed task is no longer to only guard limits, but rather to offer to our culture an understanding of how we are historically bound to technology and how we fundamentally change ourselves by the design and integration of these new technologies into our lives.

In defining the ethical accompaniment of hybridization as a task of philosophy, I follow the approach proposed by Gilbert Hottois (Hottois 1996), which Peter–Paul Verbeek has recently given new impetus (2011, 153). Paul Rabinow (2011) too has recently spoken of 'accompaniment' of the endeavors of science and technology in 'assembling the contemporary'. In an earlier study, about the sequencing of the human genome, Rabinow asserted that there are many reasons to doubt the success of guarding borders. A 'dogmatic stance', Rabinow thinks, 'posits that nothing will emerge from all this new knowledge that will — or could — radically change our self–understanding as humans' (Rabinow 1999, 110). Instead Rabinow sets the task for his philosophical anthropology as demonstrating how a changing understanding of ourselves, our human dignity, is part of the assemblage of the contemporary world where our existence is marked so much by science and technology. Philosophical or anthropological accompaniment may help address the question: 'How does such assemblage operate?' (111).

As I hope to show, ethical accompaniment does not mean that ethics can only follow, accept and justify whatever technical developments. The ethics as philosophical accompaniment of the process of hybridization can remain equally critical and vigilant about the effects of technology on our human way of existence as ethics in the past. However, instead of remaining helplessly watching from the side as technical developments rush past and change people's lives, in the approach put forward in this study ethics takes on the task of accompanying those processes. Three ways for the ethical accompaniment of hybridization practices were elaborated in chapter 6, namely 'studying hybridization', testing hybridization' and 'artistically exploring hybridization'. An illustration of this approach will be given in the section on the case of network technologies and privacy.

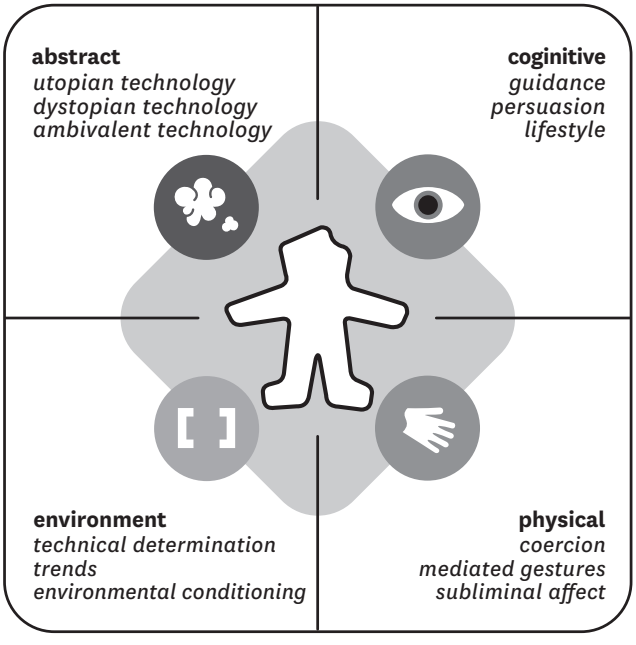
2.3 A product impact tool for designers

This study on design theory and history and the philosophy of technology has resulted in an interdisciplinary, design and use oriented perspective on the interrelations between humans and technology in today's society. The model and repertoire of figures of technical mediation, elaborated in chapter 4, are especially relevant for design. The model and the repertoire of exemplary mediation effects it represents form a contribution to theories and methodologies in design for understanding and improving human–product interaction and usability. Here I will discuss the result of the attempt to translate this research on technical mediation to design practice with a product impact tool.

The questions regarding the kind of methods that are most applicable in actual design practices have been the topic of several workshops in the course of the *Design for Usability* project of which my research was a part. During these workshops the design practitioners have given input for research questions and they have also commented on the researchers' concepts and plans. Some of the lessons learned included the desire of designers for tools with clear purposes and benefits (return on investment). A low threshold to implementation was also cited as desirable. A tangible object in the form of a model, booklet or a card set that can have a place on the designer's desk, would improve adoption. A model should not be overly complete and complicated; rather it should offer a simplified framework for seeing the world.

The tool that has been conceived comprises a *model* and a format for a *session* that provides instructions on the application of the model. At the core of the tool is the model from chapter 4 that comprises the figures of technical mediation. The session format gives directions for applying the model during assessment and design of user guiding technology.

Product Impact Model



Interaction mode: What is the contact point between technology and user?
Exemplary influence: What kind of effect does the technology have on users?

abstract (above–the–head)
Views about how technology drives history

cognitive (before–the–eyes)
Cues to the mind to change decisions

environment (behind–the–back)
Influence on users without direct contact

physical (to–the–hand)
Changing gestures through bodily contact

Product Impact Session

Explanation
> In a Product Impact Session, a product is analysed with the purpose of discovering and designing user–changing effects.

Preparatory questions
> Is the product necessarily encountered so that it can enforce behavior? Or, is it a consumer product that can be easily avoided, and can rather only seduce users?
> Are there specific behavior goals: usability, energy–saving, social empowerment?
> What are critical use actions that must be avoided or assured?

Assess and re–design
> *Mind set: Think the other way around!*
– Do not go from user needs to technical solutions, but from a product (or concept, prototype) to user guiding and changing effects.
> *Use the model*
– Make a round along the quadrants of the model.
– Do the interaction modes apply, and what effects can be identified?
– Consider design alternatives to better guide users.
– Try changing between cognitive and physical interaction.
– Try to improve connection to trends in the technical environment.

Results
> *Wrap up*
Identified effects
Design alternatives

In a product impact session a design team can apply the product impact model. The session consists of four stages. The 'assess and re–design' stage makes up the kernel. The other stages serve to get started and to conclude a session. A product impact brainstorm session helps to assess and redesign user guiding and changing effects that are behind many usability issues. The abstract category of effects of technology helps mainly for understanding debates about issues such as freedom and privacy which are important for technology acceptance. For evaluating and improving the every day practices of user–technology interaction the concrete quadrants of product impact analysis are crucial.

In the next section I will introduce the case of RFID and privacy issues. Further on, after a section on ethical accompaniment of user practices of coping with new RFID technologies, I will illustrate the use of the product impact tool for assessing the design of the Dutch RFID public transport e–payment system (OV chip card).

3 Introduction to the case of RFID and privacy

The case of RFID technology (and other network technologies) and issues of privacy and freedom may serve as a good example for showing what is missed when the practice of ethics is neglected. RFID is a technology based on radio waves that permits a 'reader' to identify 'tags' from a distance. The prox card used for building access since the 1980's is probably the most commonly known example of an RFID application. Today there are many RFID applications and RFID will soon be omnipresent in our daily lives. For example, public transportation companies around the world are introducing RFID–based payment cards: the London *Oyster Card*, the Paris *Passe Navigo* and the *OV–chipkaart* in the Netherlands are just some European examples. RFID is also entering our lives in the form of the Electronic Product Code (EPC). EPC is an RFID based system for replacing the bar codes in retail. This will allow for fast

scanning of products during transport and retail. Even after sales service could benefit from RFID, because the product brought in for service could be scanned and identified instantly even without contact, and, for example, be correlated with a service history database.[40]

The contactless reading of information and the (utopian) visions about the ubiquitous application of its propagators have made RFID the issue of much controversy and political debate (see Garfunkel & Rosenberg 2005). Critics, like the action groups *Spychips*[41] and *FoeBuD*[42] warn and protest against the application of RFID, because it would allow for unnoticed but ubiquitous tracking of goods and persons. This would make RFID a technology perfectly suited for installing panoptic surveillance. The strategy of many critics is indeed to identify RFID with Big Brother.

Protests against Metro Future Store in 2004

The reference to the principle of privacy is, however, problematic as soon as one is prepared to allow for detail and nuance in one's investigations. By using credit cards and GSM people have been leaving extensive traces for more than 15 years. Moreover, there is another trend, where people deliberately choose to show to their friends, and the rest of the world, where they are and what they do (Twitter, Google Latitude, Facebook and comparable services). There is a huge gap between people's every day actual behavior, and the principles they say they wish to obey.

These technologies do raise issues of privacy and freedom, but in practice they have been widely accepted and are not experienced as constraining and controlling. Obviously a task of ethics is to be vigilant, to make people aware of negative effects, and attempt to support this critique by argumentation. But if this results in an ethics that upholds theoretically conceived principles, but has little or no impact on society, then it is worth attempting to develop an alternative ethics that understands the driving forces of actual user practices, in which people as much reinvent principles as follow them. The ethical accompaniment of practices of hybridization and of design practice aspires to this task. In using new technologies like RFID applications, people explore the mediating effects and they experiment with the integration in their way of living and being. In the course of doing so they decide (by action, rather than by reasoning) on a desirable form of interaction and fusion of their way of being with technology. Rather than preserving theoretically conceived principles of autonomy, freedom and privacy, they choose and elaborate a certain style of hybrid existence that they find convenient for living. The theoretical approach tends to make these practices disappear from sight. The practice oriented subjectivation approach aims to upgrade this domain of mixed thought and activity to a central aspect of ethics.

In the next two sections I will elaborate how ethics can accompany user practices of hybridization and design practice. First I will discuss how subjectivation can be addressed in user practices of coping with network technologies such as RFID. Next I will turn to an illustration of how a product impact tool can help to address user guiding and changing effects in the case of the Dutch OV chip card system.

4 The ethical care for our hybrid selves and the case of RFID

In recent years, the OV chip card and also for example the voting computer (cf. Pieters 2008) have become emblematic symbols of privacy–threatening technologies in the Netherlands. Exciting stories about cracking the encryption of the OV chip card made it to the news-

40 See Dorrestijn (2006) for a more elaborate description of the technical details, history and ethical issues concerning RFID.

41 See: www. spychip.com

42 See: www.foebud.org

papers and TV, which strongly influenced public opinion and repeatedly led to debates in parliament. In the USA and Germany the use of RFID tags in retail has stirred up commotion. A picture in the last section showed a demonstration in Germany against RFID with slogans such a 'Stop RFID', 'Hands off Privacy' and '1984–2004' (referring to Orwell's Big Brother). When people think and talk about privacy, the message is always that the rush of technology is a great danger: a threat to privacy. The same people, however, in practice fully embrace products such as Twitter and GPS navigation through which they scatter all kinds of information about themselves. There seems to be a big gap between the everyday experiences and behaviors regarding the use of network technologies on the one hand and evaluative considerations in thinking and speaking about such technologies on the other hand. How can this gap be better understood and bridged? Can the shift from law–like principles to the principle of style, coupled with bringing the ethical practices of hybridization to the fore, help?

Fear for the end of privacy is often coupled with fear of the fall of public space. Public space is space that is not owned and used for living or working by private persons, but owned by nobody or by the state. People think that there is a right to move as free citizens in public spaces and to be oneself, whatever that implies as long as anyone's personal freedom does not infringe too much with the freedom of other people. The Internet is considered an extension of public space where privacy is a fundamental principle. However, for historical and philosophical reasons this insistence on Internet privacy in analogy of freedom in public space is too hasty and highly problematic. Historically it is not correct that in public spaces, precursors of the Internet, everybody's privacy was warranted. To the contrary, as Wolfgang Schivelbusch in his history of artificial lighting shows there were for example many laws and practices concerning going on the streets in medieval cities (Schivelbusch 1988, 82). Before public lighting was widespread it was forbidden to go on the street without bringing a torch. Torch bearers made their living by accompanying people who could afford assistance. Going secretly, in the dark, was deemed dangerous for the community, strictly forbidden, and breaching these laws was severely sentenced. To go in public space, required or meant to make oneself visible.

This example is no exception, but complies with a historical and philosophical analysis of the meaning of private and public. In *The human condition* Hannah Arendt (1958) is concerned with the private and the public spheres (typically the family household and the Agora as political arena in classical Athens). Both have their function and value. For Arendt the highest human activities are concerned with action and speech in the interaction with others, in the public domain. The condition for this was the existence of a public space, meaning a place (a technical arrangement, the Agora) in which everybody appears openly, and the purpose and reward of action was exactly the expression of oneself as a person amongst other people. Historically, it is therefore not without problems to apply a philosophical principle of privacy as defense for the right to privacy on the Internet. The Internet can be seen as a new form of technical arrangement that creates a public space, where traditionally one does not enjoy the same kind of privacy as one might in one's own home. The fascinating but problematic characteristic of the Internet is the merger of private and public spheres. The challenge is to acknowledge the provisory or obsolete character of any known principle and, subsequently, the need to conceive of new models. Caring for privacy cannot be simply the respect for a timeless universal principle but rather must take the form giving style to our hybrid selves.

4.1 Studying hybridization

Now I consider how the before elaborated notions of studying ethnographically and historically, testing in design, and exploring artistically can throw light on the practices of hybridization that are involved. I start by studying hybridization. Two studies, *Check in / check out* (Van 't Hof, Van Est & Daemen 2011) and *Regulation of the observing gaze* (Dubbeld 2004) are especially relevant as they consider the changing conceptions of privacy due to new technologies. Both studies provide elements for a contemporary approach directed at hybridization and subjectivation, which I will employ and extend for analyzing privacy and network technologies such as RFID.

Check in / check out (Van 't Hof, Van Est & Daemen

2011) is concerned with the issue of conceiving new ways of understanding privacy in relation to the specific character of today's technical developments. In the introduction Christian van 't Hof and Rinie van Est present the outline of the book and the research approach that was followed. Networked technologies, such as e–payment cards, dynamic road pricing, and smartphones with Internet connection and GPS spread rapidly, and raise all kinds of social issues, notably concerning privacy. Many of today's new products, from security cameras to e–payment cards, are connected to networks (the Internet or GPS). Moreover, existing products, such as telephones and cars are progressively being connected to networks too. And the different networks are also increasingly interconnected. No longer do we sit before the PC screen to go 'on the net', but evermore we are 'in the net'. For, many of our everyday products are part of a large network that surrounds us (16).

A central notion in the book is 'identity management', together with 'privacy' and 'empowerment'. As we are now 'in the network', our identity is linked to all kinds of numbers and accounts. Next to a 'physical identity', we have an 'increasingly richer virtual identity' (29). In this situation it is important to find 'a good balance between giving and taking control — privacy and empowerment' (ibid). The book thus takes a pragmatic approach to privacy. This means that the goal is not to define the universal criteria of privacy, that will determine if new technologies should be approved or rejected. Instead, privacy is considered as a balance in a play where new technologies increase human capabilities, but also subject people to limits and control. The goal of the approach is to make people better aware of this play and improve people's abilities of actively participating in the play: a 'social–constructivist vision on identity management' aiming to help people 'get a grip' on how they govern themselves and others by means of all these cards, numbers and networks. The approach of *Check in / check out* acknowledges that to benefit from handy services implies the abandonment of 'privacy old style', and with 'identity management' it offers a valuable attempt to develop an updated alternative.

Check in / check out thus acknowledges that the principle of privacy is of an evolving nature. The genealogy of this principle is very clearly described in Lynsey Dubbeld's research of surveillance cameras (CCTV). CCTV and RFID have in common that both are feared for the violation of privacy. Dubbeld combined observations of how such systems are actually being operated with a historical overview of privacy legislation and conceptualization. The historical part revealed that conceptions of what privacy entails have changed every time new technologies have emerged. Privacy was first conceptualized in the 1890's as 'the right to be left alone' as a reaction to the then emergent use of pictures in news papers (Dubbeld 2004, 26–27). In the 1960's privacy was reformulated with respect to 'data protection' in reaction to the threat of data storage by the emergent information and computer technologies (34). In reaction to the emergence of medical technologies the principle of privacy has been widened to include protection against 'body intrusion' (50).

The research of Dubbeld shows that it is hardly convincing to conceive of a universal principle of privacy with the help of which the human sphere can be protected against privacy violation by new technologies. Instead it is more suitable to conceive of privacy as a provisory answer that people give at a certain time to the question of how much interference they find acceptable, and how they should conceive of their own individuality. Indeed, Dubbeld's empirical research on the operation of a CCTV system does not reveal *Big Brother* concretized, but the everyday practice of operators, sometimes annoyed and now and then making jokes about people that they have to observe. Especially when research into the experiences of the observed is added, this kind of research can contribute to the articulation of a provisory, style–like concept of privacy appropriate to our time.

This is exactly what *Check in / check out* intends to offer. A philosophically strong point of the book is the conceptual innovation, namely the introduction of the term 'identity management'. It helps to bridge the gap between philosophical principles and practice. Now, from the perspective of ethical practices of hybridization, the pragmatic conception of privacy (as identity management) can and should be even further extended. To manage one's identity as elaborated in the book comes down to a kind of bookkeeping of data about

oneself from behind a desk in the evening. However, integrating Twitter or the OV chip card in one's life is not only a matter of the management of data, but also of getting used to new routines and practices. Identity management does acknowledge the importance of coping with new technologies in every day practice, but its own practice (technology of the self) is a kind of afterward bookkeeping, as an afterward rational reflection and management of what has already happened in practice. As a method this is very much congruent with the ancient practices of keeping notebooks. A further step is to address the hybridization practices of coping with the technologies, when life itself challenges existing principles.

For example, it is clear that RFID technologies do infringe with our activities and way of being, but how do we experience and evaluate this in practice? The possibility of ubiquitous tracking does not directly imply total control or a sentiment of repression in practice. First of all, ubiquitous inspection of people will not be easy to realize. Most RFID systems only allow for a reading distance from centimeters to several meters (a technical characteristic, constraint). For ubiquitous tracking the earth would have to be totally covered by a network of interconnected readers. This is not the case so far and will not be in the near future. Moreover, even if the amount of tracking continues to increase, it is not at all certain to what degree this will lead to panoptic control over individuals. Mobile phone technology, widespread for about fifteen years, already allows for ubiquitous tracking of people. Still, this has not yet simply turned everybody into helpless victims of 'the system'. Likewise RFID will not create fixed power relations. Users of RFID do however engage in strategic relations with companies and institutions. Easy reading of RFID tags will result in recording ever more data, for example of buying habits in stores. In combination with a customer card, or the credit card number, product data can be correlated with specific persons, which in turn permits profound customer profiling.

Ubiquitous tracking by GSM is being regulated in such a way that it has proven to be acceptable to telephone users. Users are not even aware of the fact that they are being tracked. This is maybe not especially a good thing, but it is only fair to see it at least also as a sign that tracing is not experienced as privacy invading *per se*. The police do sometimes use GSM data for crime investigation. In Amsterdam the police had an sms sent to everybody in a certain area asking them to give a sign if they had seen a fugitive walking around with a weapon. As it happened this was close to a primary school. Many children received this message and this caused panic at the school. This anecdote obviously brings to light how tracking by GSM can sometimes have undesirable effects. However, to abandon tracking does not really make sense. For, at the same time there is another trend, where people deliberately choose to show to their friends, and the rest of the world, where they are and what they do. I am thinking of Twitter of course, and of Google Latitude and comparable services that are undeniably spreading. Legislation that would strictly curtail the use of CCTV, GSM and RFID prevent the tracking of people is hard to imagine and not what most people would wish after all. For, in the practice of every day consuming, people deliberately embrace new technologies based on the kind of tracking they have their representatives in parliament and government make legislation against.

4.2 Testing hybridization

Pilot studies and user tests provide a second way of testing activities in hybridization. I will briefly refer to one relevant example with respect to RFID and use practices. The Metro Future Store is a pilot project that started in 2003 in Germany.[43] In this experimental shop all kinds of new technologies are being tested. Checking technical functioning is a main objective, but the pilot setting allows for testing the user experience in a close to real situation. In this Future Store the shopping carts welcome their users by name as soon as their RFID customer card is read. In such a configuration it is possible to record shopping habits and product preferences of customers. These can and will be used for optimizing stock management, but also for person specific advertising. Many will consider this kind of personalized advertising as tending towards manipulation. Still, this manipulation does not have the form of an inescapable 'coercion'. The manipulative rather comes in the form

43 See: www.future–store.org

of 'guidance' and 'persuasion', organizing and reorganizing in rather gentle ways every day shopping practice with habits and routines. It is not by coercion, but in the course of developing semi–reflexive shopping routines that consumers correlate themselves to technologies. If we acknowledge that existing principles of privacy and freedom are hardly helpful for accepting or rejecting the spread of RFID technologies, the question then becomes: What style of merger with these technologies will be experienced as desirable, acceptable, and which forms of interference cannot be lived with. Experiments in the Metro Future Store definitely allow for this kind of research.

4.3 Artistic explorations of hybridization

Explorations in art and technology have been identified as a third domain for research in subjectivation and technology, of which I will also give a short illustration. A relevant example for the case of RFID and localization is the project *Amsterdam Realtime* by Esther Polak in 2002 (see Polak 2007).[44] Polak equipped people with a GPS responder. Their movements through the city of Amsterdam were registered and the movements of all participants together drew up a map of Amsterdam. In another project, *Milk* from 2004, she followed milk in different stages, from a cow in Latvia to a cheese in Utrecht (see Polak 2007). Both projects show how artists can in an explorative way research the effects and possibilities of ubiquitous localization technologies. The Milk project gathers people's lives and stories around a process that has otherwise become more and more industrialized over the last century. The Amsterdam Realtime map, drawn from people's movements, reintroduces the perspective of man as a pedestrian in cartography. It shows thick lines where many people have gone and quiet places in the city hardly appear on the map. Both projects have given rise to enthusiastic reactions by the participants. Contrary to the critical suspicion that all tracking can and will be dangerous, such a project makes us aware of the degree that we are already being tracked, and moreover it helps to explore the accompanying sentiments. Instead of saying that tracking is dangerous and still embracing all kinds of technologies in practice, artistic projects of exploring the effects on us are a way of making the practices of hybridization more reflexive, ethical practices.

44 See also: realtime.waag.org

4.4 Conclusion

In conclusion, the case of RFID offers a good illustration of the importance of ethical practices. In this thesis it was shown that acknowledgement of our hybrid mode of existence and of user practices of transforming themselves by attaching themselves to technologies suggests another understanding of principles such as privacy and freedom. For seriously characterizing the mediation effects of RFID applications, it is better to avoid too hasty presumptions of panoptic control and Big Brother. To overcome the conflict between constraining technology and the principle of reason, it is necessary to turn more radically to ethics in practice, to the 'practices of hybridization'. By using RFID and related network technologies people in practice explore and give style to a specific way of being dependent of technology. Privacy is not a fundamental principle that defines the limits of intrusion by technology in our private sphere; it should rather be seen as a provisory choice of a style of merging with technologies into hybrid beings. Freedom and privacy are not principle states that can be lost, but are ways of being that must be exercised and accomplished. I accessed the hybridization practices in three ways. Studying the history of technology and privacy revealed the provisory and evolving character of such a principle. I also showed how pilot projects and artistic explorations can be seen as domains of ethical practices where new hybrid modes of existence are being elaborated and evaluated.

5 The product impact tool and the case of the OV chip card

Now I want to turn to an illustration of how the product impact design tool, can help to address user guiding and changing effects in the practice of design. A good case is the Dutch public transport e–paying system (OV chip card). This system employs RFID technology, already discussed above. Travelers are expected to have a card and they need to check in and also to check out again

every time they embark or get off a train, bus or tram way. Buses and trams are equipped with a reader at the entrance and exits. In the case of the train and metro the readers are on the stations, either on the platforms close to the trains or at the entrance of the stations. Some stations are gated at the entrance, so that people have to check in before they go to the platforms. The OV chip card is being introduced nationwide in all the public transport companies' buses, trams, the subway systems, and trains. This is a special feature of the Dutch system with the special challenge of cooperation between all the different companies that operate different means of public transportation and companies that operate the same means of transportation in different cities or regions.

The introduction has seen many problems, which have made the news headlines many times. In 2007 the Dutch Data Protection Agency (CBP) investigated the handling of data by the Amsterdam public transport company and concluded that too many data were collected and stored. Data were also insufficiently protected, for example against consumer profiling for personalized publicity (CBP 2007). Next, in 2008 computer security experts from Nijmegen University hacked into the RFID technology of the card (Broek, van den 2008). They were able to read and duplicate cards and to open gates. This attracted much media coverage and commotion. Later, when the public at large was introduced to the system (2009), practical user problems attracted a lot of critical attention too, especially the problem of *forgetting to check out* (a new and extra procedure compared to the old paper ticket system). When in 2011 hackers struck again, the security issue once again dominated the debates.

This anecdote may show some of the problems that resulted from the need to check in and check out. A woman wanted to travel on the metro. She was a in a hurry because it seemed that the metro was about to leave. It wasn't immediately clear where the check in card readers were located and when she finally found one, there was a queue of people. Just when she finally had checked in, the metro left.
On the other side of the platform of the combined train and metro station a train arrived, of another company (NS). The train was heading in the same direction and the woman decided she would take that train instead. She now had to check out of the metro and check in for the train. Checking out appeared to be impossible. The card reader screen just displayed the message: you have already checked in. The woman now recalled that you can only check out after having waited for three minutes. The train would depart in one minute. What to do? So her frustration as a customer was that this system, that promises flexibility and usability, had now totally nailed her down.
The escape from this situation that she opted for was to still get on the train without checking in or checking out. The train travel went well; she wasn't checked on the train. However, at the end station of her travel (again a combined train and metro station), she was faced with the next problem; she wanted to check out for the metro. At this station she could freely exit the train platform, but there were gates at the metro platform and there was no way for her to access the card reading machines at the exit for the metro.
She decided to ask the help of another traveler. By reaching over the gate she handed over her OV chip card to someone on the other side of the gate. This person could check her out of the metro and the card was given back.

The critique about the OV chip card, concerning the problem of data protection as well as security leaks focuses very much on the problem of privacy. This is definitely an important issue. Still, as discussed above, it is questionable if the debate in terms of a dangerous technology threatening a fundamental right to privacy is accurate to understand the problems as well as to contribute to improvement of the system. If the point is not to guard fundamental principles, but to care for the way users and technology are attached to each other, then practical use problems of a system such as the OV chip card may be just as important. The case of the OV chip card is a clear example of a mismatch between the estimations of the technical possibilities and consumer needs by the developers. Partly, this mismatch stems from technical setbacks that can be overcome. The

OV chip card case, however, also shows how easily the effects of the technology on the 'way of travelling' and the efforts demanded from consumers to learn new routines are underestimated. An analysis concerning the behavior guiding and changing effects with help from the product impact tool can contribute to understanding and to diminishing this mismatch.

5.1 Format for a product impact session

To illustrate how a product impact session can be carried out, I will in the following go through the different blocks of the session format and use the OV chip card as a case.

Explanation
> In a Product Impact Session, a product is analysed with the purpose of discovering and designing user–changing effects.

The first block in the session format gives a short explanation of the product impact session. A session can be carried out at every stage of a project, although the objectives and results will be of a different kind. In the early stages of the design of new products it can support the definition of use scenarios. In the end stage or in the case of redesign it can help to identify actual use problems.

Preparatory questions
> Is the product necessarily encountered so that it can enforce behavior? Or, is it a consumer product that can be easily avoided, and can rather only seduce users?
> Are there specific behavior goals: usability, energy–saving, social empowerment?
> What are critical use actions that must be avoided or assured?

The second stage of the product impact session format consists of preparatory questions in order to determine the specifics of the design project. The OV chip card concerns a typical example of a system that can hardly be avoided and is necessarily encountered by consumers. Such a system can be designed with strong 'coercive' elements. In the extreme case of very coercive technology the challenge is to design a system in such a way that while the coercion may be strong, users still retain an experience of comfort and not too much intrusion. At the other extreme, many consumer products or web services are easily avoidable and therefore the user guiding effects should rather be focused on attracting users in the first place. In that case the figures of 'persuasion' and 'lifestyle expression' are more applicable for guiding users.

The next question to be asked is if there are specific goals with respect to guiding and changing user behavior. Product impact can be used to improve human–technology interaction and usability, as well as to promote other social interests, such as sustainability or social cohesion and empowerment.

> The problem of forgetting to check out can be illustrated by my own experiences. Curious about the OV chip card I was happy to try it, as soon as the system was first introduced in Rotterdam and Amsterdam (in 2009). At first the standard procedure for charging the card, and getting on and off a bus or tram seemed self–evident and easy. All the rest proved rather difficult however: extra subscription procedures for first use on the trains, very unclear installation of automatic money recharge, etcetera.
> In a second instance, it appeared that also the basic procedures for checking in and out cause major problems. After I used the card a few times, I did not feel confident anymore and was far from sure that I was using the card in the right way. When I got a printout of my travel log at a machine, it appeared that I made mistakes with checking out and changing trams on all the four occasions that I had used the card.
> Every time people check in, a deposit is taken from the card. I had lost the 4 euros deposit on four occasions. My clumsiness was no exception. In September 2010 it appeared that the public transport companies took half a billion euros in deposit money due to 'incomplete transactions' (*Financieel Dagblad*, September 24, 2010) [45].

Any design assignment has many aspects. Therefore it is good to identify critical behaviors. In the case of the OV chip card the problem of 'forgetting to check out' is such a critical use procedure.

45 See: fd.nl/Archief/2010/09/24/reizigers–verliezen–iedere–maand–half–miljoen–euro–door–chipkaart (accessed 9–29–2012)

Assess and re–design

- > *Mind set: Think the other way around!*
  - Do not go from user needs to technical solutions, but from a product (or concept, prototype) to user guiding and changing effects.
- > *Use the model*
  - Make a round along the quadrants of the model.
  - Do the interaction modes apply, and what effects can be identified?
  - Consider design alternatives to better guide users.
  - Try changing bewteen cognitive and physical interaction.
  - Try to improve connection to trends in the technical environment.

In the central phase of the product impact session a product is assessed to discover user guiding effects. First of all, an important aspect is to adapt the product impact mindset and consider the actual behavior effects of a product — irrespective of the designer's intentions and assumed user needs ('Think the other way around!').

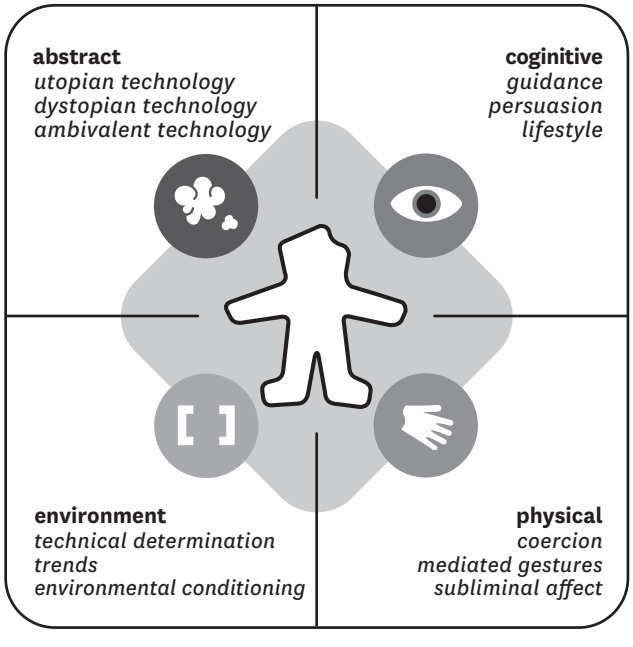
Results

- > *Wrap up*

  Identified effects

  Design alternatives

In the last phase of the product impact session the results are to be wrapped up. The OV chip card is a rich case that features a range of issues of usability and societal acceptance that I will discuss below, after I have considered the product impact model.



5.2 Product impact model

As part of the tool the product impact model, based on the research in chapter 4, serves to structure the exploration of user guiding and changing effects. The model represents exemplary influences of technology on humans (which I also termed figures of technical mediation). In the product impact model a human being, a user, is represented, receiving influences from different sides, through different modes of interaction. In this way the model represents its use for exploring 'what technologies do to us', that is, how design guides and changes people.[46]

The classification follows the notion: If users are being influenced by technical products, then one question of concern is what is the exemplary type of influence, and a further question concerns how the influence reaches users (interaction mode).

Interaction mode: What is the contact point between technology and user?
Exemplary influence: What kind of effect does the technology have on users?

The visualization consists of a human in the middle and four quadrants referring to different modes of interaction: physical, cognitive, environment, and abstract.

abstract (above–the–head)
Views about how technology drives history

cognitive (before–the–eyes)
Cues to the mind to change decisions

environment (behind–the–back)
Influence on users without direct contact

physical (to–the–hand)
Changing gestures through bodily contact

This modes of interaction model reflects an analysis of human–technology relations which is based on a phenomenological method for qualitative research from philosophy and behavioral sciences. It is however equally possible to use the model without much reference to these background theories. The interaction modes can also be described in a more design and exact science oriented vocabulary, as I will do here. The model unfolds itself if one distinguishes physical from cognitive interaction (both forms of direct interaction), then distinguishes indirect from direct influences, and finally discerns abstract views about technology from

[46] A web–based version of the tool with a repertoire of effects and many examples is also in preparation in collaboration with Tjebbe van Eemeren.

the former which were all about concrete examples.

It is common in ergonomics to distinguish between cognitive and physical interaction. Physical interaction is about holding handles, pushing buttons, the height and comfort of chairs and desks, or the hard safety measurements of locks, helmets, fences and the like. Cognitive interaction is not about bodily contact with technologies, but about the perception and processing of information that is also part of employing products. Behavior guiding through cognitive interaction means giving suggestions for use, by aiming for self–evident forms and colors, by adding arrows and text etcetera. The influence can also be more intrusive and slip from suggestion to persuasion, as in the often–annoying case of pop–up banners on websites. In either case technology addresses the human decision making process. Technical products can also shortcut cognition and push or subtly guide the user's body and gestures. Speed bumps coerce car drivers rather physically to reduce speed whereas a bicycle or pencil has become embodied and only structures our gestural use routines.

Apart from influences that arrive at humans through direct contact, employment of products, influences can also function indirectly. Indirect influences come from the technical *environment,* which is there in the background, regardless of whether or not there is direct interaction. It is generally not possible to redesign a whole product environment, although 'system innovation' is a strategy that is successfully employed to some degree to ensure diffusion and acceptance of big leap innovations such as electric cars. Equally in 'product service design' the environmental factors of use and maintenance are taken into consideration and included in the design problem and deliverables. A context analysis is however always helpful for explicating 'trends', even if these trends cannot be influenced at all. 'Trend congruence' is a chance for success, whereas a 'conflict of trend' forecasts failure. The technical environment also 'conditions the subjectivity of users'.

The three interaction modes, physical, cognitive and environment are all about concrete relations between humans and technologies. This means that there are always concrete cases and examples at the base of the analysis. Contrasting with the analysis of *concrete* interactions, is the *abstract,* theoretical approach that looks at the relations between humans and technologies in general. *Abstract* analyses do not necessarily refer to concrete cases, and examples. Abstract analysis is therefore the place for general theoretical questions about technology. What is the nature, or the essence, of technology? Does technology determine the course of human history, or do humans determine the course of technological developments? Obviously it is not in the power of neither the designers, nor the users to be able to change how technology influences humans throughout history and on a worldwide scale. Grasping the interdependency of technology and society this general level remains speculative. At least, opinions are very diverse and often contradictory. Still the relation between humans and technology on a general, abstract level determine people's visions on technology.

In the following I will discuss user guiding and changing effects in the case of the design of the OV chip card in the four different quadrants of modes of interaction between humans and technology.

5.3 Abstract product impacts

Abstract, generalized ideas about product impact are relevant in the case of the OV chip card with respect to the issues of privacy and security. The debate prompted by the card hackers makes allusion all the time to the fear of a 'definitive demise of privacy' and the need for an 'absolute secure chip'. The idea that technology can be completely secure and controllable is a 'utopian view'. The counterpart, the conception of the chip card system as the next big step towards Big Brother is a 'dystopian view'. These ideas about technology at an abstract level tend to dominate the debate about the OV chip card card.

In practice, the success or failure of the OV chip card will probably hardly depend on the current fuss about absolute security. Whereas this debate falls pray of the 'utopia/dystopia syndrome', the ongoing process of appropriation of the system on more practical levels may be much more decisive. As with many technologies before, the abstract debate will probably never find a real conclusion but will vanish when in practice users and technology have mutually adopted and reached an equilibrium of new practices. In the practice of finding one's way with the system people tend to have an 'ambivalent

conception' about the effects of technology. Whereas for understanding the debate the abstract category of mediation figures dominates, the categories of concrete interactions and effects are more pertinent for grasping the actual practice of technology appropriation, which often passes largely unnoticed.

5.4 Indirect product impacts — Environment

The technical mediation figures of 'trends' and the 'environmental conditioning of user subjectivity' help understanding the usability problems with the OV chip card. In a similar way as a computer operation system sets requirements and possibilities for individual computer programs, a technical environment conditions users to behave according to a certain format and to think in a certain way. The OV chip card system means the introduction of a new operating system and users are not yet compatible with it.

The OV chip card promises ease of use: fast and easy checking in and checking out, jumping on and off trains, switching between train and subway, etcetera, while payment goes automatically. This flexibility indeed fits a trend of our time, conditioned by all kinds of network technologies in our 'environment'. We have permanent access to the Internet for the weather forecast, banking, e–mailing etcetera. As soon as people become used to the e–paying card, the activity structure of pre–planning a trip for the whole day, buying a ticket accordingly, and then sticking to the plan for the day, will very soon begin to feel outdated. Freedom is increasingly being associated with flexibility.

In addition, one can forecast, that the ticket controls on the train will also increasingly be experienced as outdated and paternalistic, referring to a 1950's style of discipline, a form of morality of duty from the past. The old paper ticket was as much as the new chip card part of a regime that structures our behavior, and that conditions particular experiences of freedom and privacy. Even the fact, that the new system still requires people to go searching for a checkpoint, belongs to an old structure of moral behavior and does not appear congruent with the new trend of flexibility. People will be prepared to connect their OV chip card to their bank account for automatic payment, but will be annoyed if instead of the promised 'flexibility and automatic payment' they are confronted with difficult and demanding procedures for checking in and out.

5.5 Physical and cognitive product impacts

The user influencing effects in the physical and cognitive interaction categories are helpful for conceiving concrete options for design improvements. Applying (cognitive) signs or (physical) constraints is always the most obvious way of introducing behavior guiding and changing elements. Alternating between the two options is a good strategy in brainstorming about redesign. OV chip card developers have hugely underestimated the practical obstacles due to the necessary investments of users to embody new travel gestures, to learn the check in / check out procedures. So can assessing and redesigning cognitive and physical product impacts help?

Ultimately, the chip card and other components of the system should become part of the 'user routines'. In routine–like behavior users have an intuitive relation with technology. They don't have to think about how to use the technology. In the current period of exercise and customization users need extra help. Checking out with the OV chip card is not yet part of user routines. The OV chip card gates applied in many subway stations are obvious examples of physical coercion. In a closed subway system, 'coercion' imposed by the gates makes sure that travelers exercise the right procedures of checking in and out. The design challenge of such a system is to combine coercion with sufficient user–friendliness. A closed system is however no option for the Dutch public transport card system as a whole, as it includes all the buses and train platforms across the nation.

If physical coercion is not an option the exemplary types of influences of 'guidance' and 'persuasion' are other options. The pink color coding that is much employed in the OV chip card system, is a good example and helps to attract the attention of OV chip card users to guide them to the check in/out points. However, the system can and should be made to guide travelers towards the right procedures much more than it currently does. In the current system the sometimes illogical placement of checkpoints makes people 'forget' to check in and out. Improved placement of these points would help people 'not to forget'. This adaptation

requires organizational investments but is otherwise rather easy and feasible. Moreover, it promises to reduce enormously the numbers of check out 'faults'.

'Persuasion' is now applied mainly through advertising campaigns and announcements on trains and buses. Persuasion can however also be attempted more directly in the interaction with the system. In workshops related to this research project participants considered how the card and gates themselves could persuade the traveler to check in and out by making the interaction more challenging. Introducing a game element, 'every tenth passenger travels free', was one of the ideas.

5.6 Conclusion

The fuss surrounding the OV chip card has meant that privacy and security issues have dominated the news about the new ticketing system. Security and privacy obviously deserve attention. However, it is typical and perhaps unfortunate that this issue takes total precedence over attention to practical use problems. Problems of use, due to difficulties in concrete interactions with the system, are equally important and over all perhaps more decisive than the security issue for the success or failure of the system. The OV chip card promises an increase of flexibility and comfort to travelers. There are however so many practical obstacles to this potentially great advantage, that so far the system is a usability horror.

Instead of considering principles like privacy as absolute principles threatened by technologies like the OV chip card, the product impact research focuses on the quality of interactions and fusions with technology. The question is not if privacy is respected or not, but how we give style to our hybrid selves, how we attach ourselves to technologies. In this case the practical issues concerning the details and problems of daily use of the OV chip card system become much more important. The application of the product impact model helps to show how our experiences are conditioned by the OV chip card system and the wider technical environment of today. Meanwhile, our notions of freedom, agency and privacy were shaped by the former ticketing systems as well. An analysis in terms of user guiding and changing effects of technology can help users and designers to become aware of this. Practical details determine the quality of our attachment to technology how we experience our privacy and freedom in relation to the system. The success of failure of the system will probably more depend on the question of whether people are comfortable with the new use routines and the style of being a traveler conditioned by the system, than on the question of whether the system respects existing ethical principles.

For advancing the successful domestication of the OV chip card by users, the question of usability is therefore all important. This question of usability should, according to the product impact research be interpreted in a broad sense. It concerns the question of whether all the functions of the system are well perceived and understood by users, and if the buttons and arrows are well designed, as well as the larger question of whether the system allows for successful integration in people's way of living. However, the solutions to these larger questions have everything to do with the details of the design.

At some point a spokesman for the Dutch Railways announced on TV that they wished to increase surveillance on trains, to make sure that 90 percent of people would be motivated to check in and out. This seems an impossible attempt to maintain in the new technical environment a way of behaving regarding ticket buying and showing the ticket on the train that was conditioned by the old system. If more control is needed, this shows how the system fails to make true its promise of augmented flexibility and automatic payment. An analysis of the technical environment helps to understand this problem of usability, in the broad sense of successful adaptation in user routines. The same spokesman also said that a lot more checkpoints were to be placed and routings improved. This indeed seems to be the only right solution for improving the chip card system, and shows the importance of design for usability and accounting for product impact also for coping with broader problems of use and acceptance.

6 Final conclusions: The design of our own lives

This research started with the question about what knowledge exists about product impact on user behavior, how this knowledge could contribute to design for usability, and how design with behavior influences could be ethically evaluated. These questions were reformulated in terms of socially engaged design. I considered usability as part of a tradition of social improvement by means of design and the good adaptation of humans and technology. This is however, ultimately a broad philosophical question. In what ways are we, humans, merged with technology, and what does the understanding of ourselves as hybrid beings mean for ethics? I will end by summarizing the conclusions about my philosophical research on the relation between humans and technology and by drawing conclusions with respect to this contribution to socially engaged design today.

6.1 Technical mediation and subjectivation

In response to the question of how human behavior can be understood in relation to technology, I have developed a general framework of 'technical mediation and subjectivation'. This approach allows one to see how human existence is profoundly marked by the influence of technology. Contrary to dominant, modernistic, approaches in moral philosophy, the framework of technical mediation and technology, allows one to give an account of the ethical subject which is not in opposition to the influences of technology. Instead, the focus is on the emergence, self–constitution of the ethical subject through practices of coping with its own conditioning circumstances. This is both a contribution to the philosophy of technical mediation, and to the scholarship of the work of Michel Foucault showing the relevance of Foucault's work in the field of the philosophy of technology.

The result is a contribution to an ethics of technology inspired by Foucault's proposal for a contemporary aesthetics of existence. Technical mediation is considered in Foucault's fourfold framework of subjectivation. In this ethical perspective, technical mediation and hybridization are not seen as opposing the genuinely human, but as the very material of ethical activity and reflection (ethical substance). The ethical principle is not the universal moral law of reason that requires absolute freedom of the subject, but a will to give style to the way one is transformed through engagement with new technologies (mode of subjection). The practical efforts and skills needed to accommodate and integrate technologies into our modes of existence become a pivotal aspect of ethics as an alternative to mere resistance against intruding powers (which seemed for a long time the typical ethical attitude one could derive from Foucault's work). This approach explores the active form–giving activities of subjects with respect to their hybrid mode of being (ethical elaboration). The aim of this ethics of technology is to establish interactions and fusions with technologies in such a way that they are experienced as one's own, not obstructing but becoming part of one's experience and performance of freedom and agency (telos).

An ethics in the sense of subjectivation cannot and need not act as a border guard, maintaining fundamental principles and preventing their violation by the introduction of new technologies. Ethics is about subjectivation and the ethics of technology has the task of ethical accompaniment of practices of subjectivation in relation to technology. This puts proposals for design that take into account product impact on behavior, such as Achterhuis' call for 'moralizing technology' and the concept of 'nudge' by Thaler and Sunstein, into perspective. These theories are valuable contributions to an ethics as care for our hybrid selves. The ethics of technology developed here after Foucault focuses on care for the quality of interactions and fusions with technology. Hybridization is central to the approach: it is not to be rejected, neither is it the greatest danger, but it does deserve the greatest care.

6.2 Socially engaged design today: Moderate goals but effective tools

What are the results of this research with respect to user guiding and changing technology in the practice of design? The developed product impact tool is a contribution to the understanding of human–product interaction and design for usability. Compared to other methods and approaches of human–product interaction, a distinguishing characteristic of my product impact

tool is its broad scope, from concrete human–product interaction to wider social and ethical issues. It helps to address the ways in which designers interfere with the behavior and lives of the users of their products. A broader societal benefit is therefore that the perspective of product impact gives new impetus to the social engagement and responsibility of designers.

In chapter 2 it was elaborated how the project of designing for product impact on user behaviour could be placed in a history of socially engaged design. The best examples from history concern a tradition of utopian social engineering and utopian design. This tradition has been discredited as the general conception of the contribution of technology on society reversed from utopian to rather dystopian. Using the model of interaction modes and figures of technical mediation (chapter 4), it can now be concluded that the utopian designers aimed for radical transformation, revolution, and that for understanding the power of technology for social change their plans mainly entertained broad, abstract figures. My research proposes a fuller repertoire with more concrete and detailed figures for understanding technical mediation. In this chapter I elaborated how this model can be used in the practice of design to assess and design behavior guiding and changing effects of technology.

This means that Achterhuis' call for 'moralizing technology' and the approach of 'nudge' (Thaler and Sunstein) are also valuable as contributions to design, for reviving or continuing a tradition of socially engaged design by means of accounting for the user guiding and changing effects of design. These approaches converge with design theorist Victor Margolin's proposal to broaden the objective of design from 'products' to 'action organizing product milieus'. The philosophical analysis along the fourfold framework of technical mediation and subjectivation finally provides an escape route from the utopia/dystopia syndrome (Achterhuis) and opens the way for a new form of socially engaged design, with moderate goals, but more detailed and effective tools to understand and apply the user guiding and changing effects of design.

Finally the message of this research on user guiding and changing design and of the approach of technical mediation and subjectivation is that we are encouraged to become aware of the importance of design as a condition of our lives. And this acknowledgment prompts us to reflect on the design of our lives today and to attempt to give a well–considered form to the design of our future lives. We are called upon to care for the design of our own lives.

Summary

The design of our own lives: Technical mediation and subjectivation after Foucault

This study is about the social and ethical significance of technical products. How do technologies influence the way we live, modify the way we interact with others, change how we think about ourselves, and affect or change the meaning of notions such as privacy and freedom? These questions are both questions of design methodology and of theoretical, philosophical reflection on technology. The shared interest of both fields is the problem of how technology and people are best adapted to each other. This research intended to bring out the social and ethical significance of design and provide theories and tools for advancing the practice of social engagement in design. The first stage of the project concerns a discussion of the state of affairs in applying knowledge about product impact on user behavior for design for usability. In a second step, the historico–cultural dimension of this project is considered by placing it in a tradition of socially engaged and utopian design. The third and central stage concerns a philosophical and ethical research on the interrelations between humans and technology in a framework developed after the work of philosopher Michel Foucault.

Chapter 1 starts with the question of whether and how user guiding and changing effects of technology can be employed in design for improving the usability of products. This project has implications for the profession of the designer as it means that decisions of designers affect users, their way of using products and their way of living. I discuss how usability is framed in design theory and how this is related to the broader question of technology accommodation in society. And I introduce initiatives to translate research about the behavior influencing effects of technology into the practice of design. Recent proposals for design that explicitly employs user guiding effects, such as 'moralizing technology' (Achterhuis) and 'nudge' (Thaler & Sunstein) however face fierce critique. Doesn't the application of user guiding design lead to a totalitarian technocratic state? Shouldn't users themselves remain free, and fully responsible and accountable for their behavior? The application of user guiding and changing design brings up important political, ethical and philosophical questions. Who governs who by means of technology? And what does it mean if our human existence depends upon and is profoundly marked by technology?

Chapter 2 takes a historico–cultural approach, the second stage of my research, and discusses movements of utopian engineering and design as earlier examples of socially engaged design. How did utopian engineers and designers see technology as a driver of social change? A characteristic of utopian design was that technology was viewed as the answer to universal human needs. Technology

was in itself good and the challenge was to employ it to the equal benefit of the whole society. This utopian view was however challenged when the negative sides of technical progress appeared, such as the nuclear bomb, environmental problems, over–bureaucratization and social control. The project of improving society by design gets bogged down in the contradictory views of utopian hope and dystopian fear about technology. Hans Achterhuis termed this the 'utopia/dystopia syndrome' that haunts thinking about the meaning of the influence of technology. To acknowledge and make use of user guiding and changing effects of technology without concluding that human existence is nothing more than the plaything of the technical environment requires a more in depth philosophical study of the interdependencies between humans and technology.

In chapter 3 the focus turns to the third and central stage of this research which concerned the philosophical analysis of the influences of technology on the human ways of living and modes of existence. What is needed is an account of human subjects that allows acknowledgement of how they are technically mediated. For this the work of Michel Foucault proves of valuable use. Foucault's work contains contributions to the study of the mediating effects of technology, and especially his work on ethics allows for an original extension of mediation theories. The influences of technology are difficult to recombine with the free subject that is commonly considered a requirement for ethics. For Foucault ethics could also be about subjectivation, the subject's own concern about its dependency of its environment and practice of coping with it in order to achieve a sense of mastery. This conception of the subject and of ethics allows for an approach to technology where technology is not set in opposition to the moral subject, but where coping with the influences of technology belongs to becoming a subject. Foucault discerned four aspects of subjectivation: ethical substance, mode of subjection, ethical elaboration and telos. Over four subsequent chapters the aspects of subjectivation after Foucault are treated in relation to technology, building up a framework of 'technical mediation and subjectivation'.

Chapter 4 contributes to the philosophy of technical mediation and addresses how humans have explored their 'hybrid self' (thus covering the ethical substance of an ethics of technology). What may be referred to as 'figures of technical mediation' (or exemplary effects of technical mediation) are gathered from different scholarly fields including the philosophy and history of technology and psychology. These figures are arranged in a model according to different modes of interaction, ways by which the influences of technology affect us: before–the–eye, to–the–hand, behind–the–back, or above–the–head. The result is a model that collects the various ways in which we have explored 'what things do to us'. In a utopian view technical mediation effectuates the completion of the human being. In a dystopian view technology threatens to accumulate into a system that takes command. In the view of ambivalent hybridity humans are considered inextricably bound up with technology, but this is not ultimately good or bad. These are generalizing, abstract claims about technology, but the ambivalent

conception of technology leaves room for recognizing multiple concrete figures of technical mediation. In the concrete interaction with products they can 'guide' or 'persuade' us, they can physically 'coerce' our movements or subtly 'structure our gestural routines'. In the framework of ethics as subjectivation the technically mediated self is not in opposition with ethics; rather the hybrid self is the very material of ethical concern and self–fashioning.

Moral theories and ethical principles (mode of subjection) in relation to the theme of technical mediation are the concern of chapter 5. The modern understanding of ethics predominantly concerns the exigency of an ultimate principle, the moral 'law', by its foundation in universally valid reason. As examples of modern moral theories I discuss the work of Bentham and Kant, and I analyze the implications for the ethics of technology. Bentham's ethical principle of utility seemed to him compatible with technology. Technology can illuminate the relation between actions and consequences and thereby correct for flaws in the human use of reason. Kant emphasized that the moral subject must be assumed free in order to be able to obey the demands of a universally valid principle. This theme, which has since remained part of the modern understanding of ethics, renders ethics and technical mediation incompatible. Next to be discussed is Foucault's alternative to modern ethics, that is an aesthetics of existence. Following the example of ancient ethics as aesthetics of existence, it appears also possible to recognize oneself subject to a call to give 'style' to one's existence. An ethical principle that has the form of 'style' rather than of 'law' allows one to see ethics beyond the structure of the subject that must be free to obey. Ethics can now be understood as the stylization of one's hybrid self.

In chapter 6 a discussion on ethical practices of hybridization explores by what practices people form and transform their hybrid selves. In an ethics as aesthetics of existence, unlike in modern ethics of the universally valid rational principle, ethical practices of self–fashioning (ethical elaboration) are an important aspect of ethics. I show how Foucault discovered the importance of the 'technologies of the self' as part of ancient ethics, how he was fascinated with how Cynic philosophers dared the truth by life itself and how he wished a revaluation of this attention for the transformation of ourselves in contemporary philosophy. The constant process of hybridization of humans and technology is a relevant theme with respect to contemporary practices of self–transformation. In an ethics as care for the hybrid self these practices become valued as ethical practices. I discuss three ways to access the domains of ethical practices of hybridization. 'Studying hybridization' applies anthropological research approaches focusing on the body and gesturing in relation to the domestication of technologies. Pilots and user research in design are places of 'testing hybridization'. Meanwhile artists concerned with possibilities and the societal effects of new technologies often contribute to 'exploring hybridization'.

The goal of ethical fashioning of oneself as subject is the subject of chapter 7

(ethical telos). In the context of an ethics of care for the hybrid self the telos concerns the kind of interaction and fusion with technology we find worth striving for. Ongoing hybridization is a historical process. In the dystopian vision of technology ethics should defend absolute freedom and stand against hybridization. In the utopian vision technical progress is embraced as an ethical goal in itself that promises the gradual realization of freedom through technology. Freedom in relation to technical mediation can be understood alternatively as an experience of sufficient mastery that emerges by actively coping with the influences of technology. This is not a given freedom of the subject as substance, but freedom as the telos of subjectivation worth striving for. This freedom is not the liberation of bonds, but the well–considered attachment to technology. Freedom as a telos concerns the quality of our interactions and fusions with technology. The acknowledgment of hybridization as inescapably part of human history can however lead to the pitfall of utopianism if it is embraced as an ethical goal in itself. Only by a critical attitude in coping with technical mediation can freedom as a practice be exercised.

In chapter 8 the results of the philosophical enquiry into technical mediation and subjectivation are summarized and their practical application is discussed. The framework of technical mediation and subjectivation can be used for ethical accompaniment, both of user practices of hybridization, and of the practice of socially engaged design that accounts for the user guiding and changing effects of products. I illustrate the ethical accompaniment of user practices of coping with new technologies with reference to the case of network technologies as RFID (Radio Frequency Identification). As a contribution to design for usability and the ethical accompaniment of design practice a product impact design tool was conceived, and I illustrate its application with regard to the case of the Dutch RFID public transport e–paying system (OV chip card).

The philosophical analysis along the fourfold framework of technical mediation and subjectivation finally provides an escape route from the utopia/dystopia syndrome (Achterhuis) and opens the way for a new form of socially engaged design, as well as providing detailed and effective tools to aid understanding and application of the user guiding and changing effects of design. The ethics of technology developed after Foucault focuses on care for the quality of interactions and fusions with technology. Hybridization is central to the approach: it is not to be rejected, neither is it the greatest danger, but it does deserve the greatest care. We are called upon to care for the design of our own lives.

Samenvatting

(Summary in Dutch)

Het ontwerp van ons eigen bestaan: Technische mediatie en subjectivering in het voetspoor van Foucault

Deze studie gaat over het ethische en sociale belang van technische producten. Hoe beïnvloeden technische producten onze manier van leven, hoe veranderen ze onze omgang met elkaar, de wijze waarop we onszelf zien en hoe zijn ze van invloed op de betekenis die wij geven aan principes zoals vrijheid en privacy? Deze vragen betreffen zowel ontwerpmethodologie als theoretische, filosofische reflectie op techniek. De gedeelde vraag is wat de beste wederzijdse afstemming tussen mensen en techniek is. Dit onderzoek heeft als doel de sociale en ethische relevantie van het ontwerpen naar voren te brengen en met theorieën en methoden bij te dragen aan de praktische beoefening van sociaal engagement in het ontwerpen. De eerste stap van het onderzoek is een beschrijving van de stand van zaken met betrekking tot het toepassen van theorieën over de invloed van techniek op gebruikers om gebruiksgemak te verbeteren. In een tweede stap wordt de cultuurhistorische dimensie van het project onderzocht door het in een traditie van sociaal geëngageerd en utopisch ontwerpen te plaatsen. De derde en centrale fase van het onderzoek betreft een filosofisch en ethisch onderzoek naar de onderlinge verbindingen tussen mensen en techniek volgens een onderzoekskader ontleend aan de filosoof Michel Foucault.

Hoofdstuk 1 start met de vraag of en hoe sturende effecten van techniek op mensen kunnen worden gebruikt in het ontwerpen met als doel het gebruiksgemak van producten te bevorderen. Dit project heeft gevolgen voor het vakgebied van het ontwerpen omdat het inhoudt dat ontwerpers invloed hebben op hoe gebruikers producten gebruiken en hun leven leiden. Ik onderzoek hoe usability in de ontwerptheorie wordt begrepen en hoe de relatie is tussen usability en bredere vragen over de accommodatie van techniek in de samenleving. Daarnaast bespreek ik bestaande initiatieven om onderzoek naar de beïnvloeding van gebruikers door techniek naar de praktijk van het ontwerpen te vertalen. Recente voorstellen om gebruik te maken van gedragsbeïnvloedende techniek, zoals de 'moralisering van apparaten' (Achterhuis) en 'nudge' (Thaler & Sunstein) stuitten echter op ernstige kritiek. Zou de toepassing van gedragbeïnvloedende techniek niet leiden tot een totalitaire technocratische staat? Moeten gebruikers niet vrij gelaten worden en zelf volledig verantwoordelijk en toerekeningsvatbaar blijven voor hun gedrag? De toepassing van gebruikersbeïnvloedende techniek roept dus belangrijke politieke, filosofische en ethische vragen op. Wie bestuurt wie met behulp van de techniek? En wat betekent het voor het menselijk bestaan als het zo diepgaand door techniek wordt bepaald?

Hoofdstuk 2 volgt een cultuurhistorische benadering, de tweede fase van het

onderzoek, en richt zich op bewegingen van utopisch ontwerpen als voorbeelden uit het verleden van sociaal geëngageerd ontwerpen. Hoe zagen utopisch ontwerpers techniek als een voertuig voor sociale verandering? Karakteristiek voor het utopisch ontwerpen is dat techniek werd gezien als een antwoord op universele menselijk behoeften. Techniek was in zichzelf goed en de uitdaging was om de gehele samenleving te laten profiteren van de technische vooruitgang. Deze utopische techniekopvatting werd echter op de proef gesteld toen negatieve effecten van techniek duidelijk werden, zoals de atoombom, milieuproblemen, bureaucratisering en sociale controle. Het project om middels techniek de maatschappij te verbeteren raakte verstrikt in de tegenstelling tussen utopisch geloof en dystopische angst. Hans Achterhuis noemde dit het 'syndroom van de utopie/dystopie' dat telkens opspeelt bij het denken over de invloed van techniek. Voor het erkennen en gebruiken van beïnvloeding van mensen door techniek zonder te concluderen dat de mens alleen maar een speelbal is van de technische omgeving blijkt een diepgaandere filosofische studie nodig naar de onderlinge afhankelijkheid van mens en techniek.

In hoofdstuk 3 begint het centrale deel van het onderzoek, het filosofisch onderzoek naar de invloed van techniek op het menselijk bestaan. Er is een begrip van het menselijk subject nodig dat toestaat om te erkennen dat het subject verweven is met de techniek. Hiervoor blijkt het werk van Michel Foucault behulpzaam. Foucaults werk bevat bijdragen aan het onderzoek naar technische mediatie en met zijn werk over ethiek kunnen mediatie–theorieën bovendien op een originele wijze worden uitgebreid. De invloed van techniek laat zich moeilijk verenigen met de vrijheid van het subject dat doorgaans als noodzakelijke voorwaarde van de ethiek wordt gezien. Volgens Foucault kan ethiek ook betrekking hebben op subjectivering, de zorg van mensen zelf over de invloeden op hun bestaan en de praktijk om daarmee om te gaan en zo een ervaring van beheersing of meesterschap na te streven. Deze opvatting van het subject en van ethiek laat een benadering van de techniek toe waarin techniek niet tegenover het morele subject staat, maar waarin het omgaan met de invloeden van techniek behoort tot het zichzelf tot subject maken. Foucault onderscheidde vier aspecten van subjectivering: ethische substantie, onderwerpingswijze, ethische uitwerking en telos. In vier opeenvolgende hoofdstukken worden de verschillende aspecten van subjectivering van Foucault behandeld in relatie tot techniek om zo bij te dragen aan het onderzoekskader van 'technische mediatie en subjectivering'.

Hoofdstuk 4 is een bijdrage aan de filosofie van de technische mediatie en gaat over hoe mensen hun 'hybride zelf' onderzoeken (om daarmee de ethische substantie te behandelen in het kader van een ethiek van de techniek). Uit verschillende onderzoeksdisciplines, van de filosofie en geschiedenis van de techniek tot de psychologie worden 'figuren van technische mediatie' (of voorbeeldeffecten van technische mediatie) verzameld en uitgelicht. Deze figuren orden ik in een model van verschillende wijzen van interactie: voor–ogen, ter–

handen, achter–de–rug en boven–het–hoofd. Het resultaat is een model dat de verscheidene wijzen weergeeft waarop door mensen is onderzocht 'wat dingen met ons doen'. In de utopische opvatting vervolmaakt mediatie door de techniek de mens. Volgens de dystopische techniekopvatting telt alle techniek op tot een systeem dat de mens overheerst. In de opvatting van ambivalente hybriditeit zijn mensen onlosmakelijk verweven met techniek maar wordt dit niet als alleen maar goed of slecht beoordeeld. Zulke uitspraken over techniek zijn generaliserend, abstract, maar de figuur van ambivalente hybriditeit nodigt uit om ook aandacht te schenken aan de vele mogelijke invloeden van techniek in concrete gevallen. In de concrete omgang met producten kan techniek ons 'gidsen' of 'overtuigen', op fysieke wijze onze bewegingen 'dwingen', of onopgemerkt onze 'routineuze gebaren van gebruik structureren'. In het kader van een ethiek als subjectivering is een technisch bemiddeld zelf niet onverenigbaar met de ethiek; het hybride zelf is juist het materiaal waar de ethische zorg en vorming zich op richt.

Ethische theorieën en ethische principes (onderwerpingswijze) met betrekking tot techniek zijn het thema van hoofdstuk 5. De moderne opvatting van ethiek draait voornamelijk om een hoogste principe als morele 'wet', gefundeerd door de universele geldigheid van de rede. Als voorbeelden van moderne moraaltheorieën behandel ik het werk van Bentham en Kant en kijk ik naar de implicaties voor de techniekethiek. Bentham meende dat zijn ethische principe van het 'nut' goed verenigbaar was met techniek. Techniek kan de relaties tussen handelingen en de gevolgen beter transparant maken en daarmee onjuist gebruik van de rede corrigeren. Kant benadrukte dat het morele subject vrij moet zijn om gehoor te kunnen geven aan de roep van het universeel geldige principes van de rede. Dit is sindsdien een centraal thema gebleven in het moderne denken over ethiek, maar het zorgt ervoor dat technische mediatie en ethiek onverenigbaar schijnen. Vervolgens wordt Foucaults alternatieve 'ethiek als bestaansesthetiek' besproken. Naar het voorbeeld van de ethiek als bestaanskunst in de oudheid is het ook mogelijk onszelf als subject beschouwen van een roep om 'stijl' te geven aan ons eigen bestaan. Dit ethische principe, dat eerder het karakter van 'stijl' heeft dan van 'wet', laat een opvatting van ethiek toe voorbij de structuur van het vrije subject dat de roep van de universele rede gehoorzaamt. Ethiek kan nu ook worden gezien als de stilering van het hybride zelf.

In hoofdstuk 6 over ethische praktijken van hybridisering wordt onderzocht in wat voor praktijken mensen hun hybride zelf vormen en omvormen. In een ethiek als bestaansesthetiek, in tegenstelling tot de moderne ethiek van het universeel geldige principe van de rede, zijn ethische praktijken van het vormgeven aan zichzelf (ethische uitwerking) van het grootste belang. Foucault ontdekte het belang van 'zelftechnieken' in de ethiek van de oudheid en in de waarheidtartende levenspraktijk van de Cynische filosofen en hij riep op tot een herwaardering van de omvorming van het eigen bestaan in de hedendaagse filosofie. Het voortdurende proces van hybridisering van mens en techniek is een

relevant thema met betrekking tot hedendaagse praktijken van de omvorming van het zelf. In een ethiek als zorg voor het hybride zelf worden deze praktijken naar voren gehaald als ethische praktijken. Ik bespreek drie toegangsdomeinen of manieren om deze praktijken te benaderen. Het 'bestuderen van hybridisering' kan door antropologisch onderzoek dat zich speciaal richt op het lichaam, gebaren en activiteiten toe te passen op de domesticatie van techniek. Pilots en gebruiksonderzoeken vormen een plek voor het 'testen van hybridisering'. Kunstenaars die zich richten op het uitproberen van de mogelijkheden en effecten van nieuwe techniek dragen vaak bij aan het 'verkennen van hybridisering'.

Het doel (telos) van ethische vormgeving van zichzelf als subject is het onderwerp van hoofdstuk 7. Met betrekking tot de zorg voor ons hybride zelf betreft de telos de vraag welke wijze van interactie en verwevenheid met techniek we nastrevenswaardig vinden. Voortgaande hybridisering is een historisch proces. Volgens de dystopische techniekopvatting moet ethiek de absolute vrijheid bewaken en zich teweer stellen tegen hybridisering. In de utopische techniekopvatting wordt de techniek omarmd als een ethisch doel in zichzelf dat de geleidelijke bevrijding van de mens door de techniek belooft. Vrijheid in relatie tot technische mediatie kan op alternatieve wijze worden begrepen als een ervaring van een voldoende mate van beheersing die ontstaat in het actief omgaan met de invloeden van techniek. Dit is niet een gegeven vrijheid van het subject als substantie, maar een vrijheid die nastrevenswaardig is, als telos van subjectivering. Deze vrijheid betekent niet bevrijding van alle banden maar de weloverwogen verbinding aan techniek. Vrijheid als telos betreft de kwaliteit van onze interacties en verbindingen met techniek. De erkenning van de onvermijdelijkheid van hybridisering kan echter tot de valstrik van de utopische techniekopvatting leiden, namelijk wanneer hybridisering wordt omarmd als een doel in zichzelf. Vrijheid als praktijk wordt alleen uitgeoefend door een kritische omgang met technische mediatie.

In hoofdstuk 8 worden de resultaten van het filosofisch onderzoek naar technische mediatie en subjectivering samengevat en de praktische toepassingen besproken. Het kader van technische mediatie en subjectivering kan worden gebruikt voor de ethische begeleiding van zowel gebruikerspraktijken van hybridisering als de praktijk van sociaal geëngageerd ontwerpen. De ethische begeleiding van gebruikerspraktijken illustreer ik aan de hand van de case van netwerktechnologieën zoals RFID. Als een bijdrage aan ontwerpmethoden voor gebruiksvriendelijk ontwerpen en de ethische begeleiding van het ontwerpen is de product impact ontwerptool ontwikkeld waarmee gebruikersbeïnvloeding door techniek kan worden geanalyseerd. Het gebruik ervan licht ik toe met als voorbeeld de OV–chipkaart.

De filosofische analyse aan de hand van de vier termen van het kader voor technische mediatie en subjectivering biedt een manier om te ontkomen aan

het syndroom van de utopie/dystopie en biedt uitzicht op een nieuwe vorm van sociaal geëngageerd ontwerpen, met gematigde doelen, maar effectievere methoden. De techniekethiek, ontwikkeld in het voetspoor van Foucault, richt zich op de kwaliteit van de interactie en verbinding met techniek. In deze benadering staat hybridisering centraal. De ethiek moet de hybridisering van mens en techniek niet vermijden; en ook niet bestrijden als het grootste gevaar, maar hybridisering verdient wel de grootste zorg. De uitdaging waar we voor staan is om zorg te dragen voor het ontwerp van ons eigen bestaan.

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