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Considerations on the Value of Aging, Death and their Technological Mastering

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STATUTORY DECLARATION

I declare that I have authored this thesis independently, that I have not used other than the declared sources / resources and that I have explicitly marked all material which has been quoted either literally or by content from the used sources.

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(1) ALL MEN ARE MORTAL

All men are mortal. Socrates is a man. Therefore Socrates is mortal. This simple and valid deduction is a classic in philosophy. Currently there is no example that disproves the first premise. There are no immortal humans. The average life-expectancy in developed countries for is males about 75 years and for females 80 years (Kalache et al. 2005; Harman 1991). There is just one person known in the last millennium that became older than 120 years even though populations in western societies are aging and life-expectancy is increasing. Although the average life-expectancy has increased over the last century the maximum life span has not changed. The claim of fighting death and prolonging lives is as old as the claim one should accept and deal with the fact that man is mortal (Gruman 1966). In his monumental work on the history of death Philippe Ariès claimed that death is out of sight of the public in the modern age (Ariès 1980, p. 746). Ariès argued that the medicalization of death was caused by the displacement of death from the houses to the hospitals. Physicians, coroners and funeral parlors took on the responsibility of handling the dead. The system surrounding these professions can be referred to as 'death management'. Death management endorsed an adjustment in the responsibility of handling dead and dying people. Ariès thesis of the suppression of death in modernity has earlier and prominently been expressed by Sigmund Freud shortly after the beginning of the First World War (Lacina 2009, p. 48; Adorno, Ebeling 1979). The possible application of technology to master the human body and his assumed obsolescence – especially his mortality – is more and more often envisioned since the beginning of modernity. It is not clear whether this is an affirmation of Freud's and Ariès' observations of the suppression of death or proof of the contrary. The overcoming of aging and death by technological means it is contemporarily expressed more than ever. Previously the group which was striving for life-prolongation had improvements in hygiene, the multiplication of sexual activities and alchemistic approaches as life-prolongation tools in mind (Gruman 1966). The fountain of youth is also one of these

visions (Schade-Tholen, Franke 1998). Contemporary life-prolongation visions are predominantly technology focused. These visions do not imagine and pursuit life-prolongation per se but the prolongation of a healthy and productive life. Today, the processes in the field of biotechnology make it probable that at least the average life span could be increased much further than before. Several authors assume that even bigger steps are probable. They envision that not only life-expectancy could be increased but the complete mastering of death would be possible. It was the English biologist Julian Huxley who first described the vision of a comprehensive mastering and intentional shaping of the human body following the deepest desires and purposes of humanity in his essay *Biology and the Physical Environment of Man* from 1931:

> *'Most of us would like to live longer; to have healthier and happier lives; to be able to control the sex of our children when they are conceived, and afterwards to mould their bodies, intellects and temperaments into the best possible forms; to reduce unnecessary pain to a minimum; to be able at will to whip up our, energies to their fullest pitch without later ill effects. It would be pleasant to be able to manufacture new kinds of animals and plants at our pleasure, like so many chemical compounds, to double the yield of an acre of wheat or a herd of cattle, to keep the balance of nature adjusted in our favour, to banish parasites and disease germs from the world. And there have been Utopians from Plato's time and before it, most of whom have dreamt of controlling the stream of the race itself not merely in its volume and quantity, but in its quality, so that humanity would blossom into a new character.'* (Huxley 1931, pp. 5–6)

This passage clearly demonstrates the ideal of 'engineering' our bodies and our environment in the most desirable way. It is not just accidently that life-prolongation opens Huxley's list of desirable goals. The 'scientific humanism' of Huxley's earlier works was later titled "Transhumanism" (Heil 2010a). The demands for a prolonged life and the

control of unpleasant physical conditions by technological means are still in the center of this vision today. Progresses in anti-aging medicine and the debate on the possibilities of Nanotechnology gave Transhumanism new creative impulses and made it topical again. In his introduction to the EMBO Report on the *Science of Ageing and Anti-Ageing* Halldór Stefánsson described the desires and the agenda of some scientists in the gerontological community:

> *'If nihilists used to complain that 'life is a disease with death as its only cure", it now seems that more and more people seriously propose turning this depressing slogan around, claiming that physical ageing is basically a curable disease. In their view, what is needed to overcome the ill effects of ageing and to fulfil the promises of science is a change in mindset among decision-makers and members of the public.'* (Stefánsson 2005, p. 2)

Stefánsson gives an account of the view of a few researchers who suggest that curing aging and defeating death is only a question of research policy and societal willingness nowadays (see also: Vincent 2013). Some of these researchers in gerontology have a strong affinity to Transhumanism. John Harris expresses the underlying desire of these kinds of radical technological vision clearly when he said: 'The Holy Grail of enhancement is immortality' (Harris 2007, p. 59). In the biotechnological debate we are confronted with arguments which conclusively say that we should develop and apply biotechnologies to increase our life-span, overcome aging and that in the best case we could (once) reach immortality (Ehni 2009, p. 50). Whether this is possible or not, the progresses in anti-aging sciences and technologies do raise moral questions. These questions are for instance: why should we apply or develop technologies that are able to cure aging? Why is it good to have a long life? What is the value of death? What does it mean to have a long life? Does long life mean an eternal life? Is it desirable to have an eternal life? How would our society change if we could overcome aging?

Promoters of these extreme technological visions like Transhumanists assume positive results if we keep on following the biotechnological process and they argue for the desirability of a Posthuman state of being. No matter how far-fetched these visions seem to be at the moment, their promoters raise expectations in technological discourses (Simakova, Coenen 2013), strive as scientists, engineers and entrepreneurs (McCray 2013) for the fulfillment of their vision and therefore shape techno-scientific processes. Moreover, Transhumanists refresh an old philosophical debate about the value of living and dying on the basis of current biotechnological developments. In this thesis I want to explore in more detail how Transhumanists present and justify their approach. This should lead to a better understanding of this vision and its picture of aging and dying and the resulting desires that sometimes drive the anti-ageing research. On the basis of such an understanding a profound critique can be developed. Hence, the next chapter describes the vision of Transhumanism and its core elements. The third chapter deals with the transhumanistic ideas of Nick Bostrom. In his article *The Fable of Dragon Tyrant* he attacks 'conservative Bioethicists' and expounds why death is an evil. Bostrom assumes this because there are people who suffer when grieving. In the chapter 'The Reign of the Dragon' I want to show that the 'argument of side-effects' is a paper lion in the discussion about life-prolongation. The fourth chapter investigates the fear of death. Not all of us fear death but some do and it is a question whether this fear is justified or not. I shall assume that the fear of death is rational when there are good reasons for the evil of death. There are examples of fears which show that fear is not a sufficient condition for badness. But even though one could find arguments for the position that death is an evil I want to argue that referring on the fear of death is futile for the discussion about life-prolongation.

When we ask 'Death where is thy sting?' in the fifth chapter we want to explore the value of an individual death. The question of the previous chapter leads us to the Epicurean approach on the value of death. Epicure started his analysis by observing that people are

concerned and afraid of death. In Epicure's view these people waste their time with an unnecessary dejection. He argues that death means nothing to us because it is the end of the subject. Amongst others, we will have a look on the counterarguments to the Epicurean view of Thomas Nagel. In his deprivation theory death is bad because it deprives us of our lives. Even people who suffer in horrible pain are deprived of lives which have an intrinsic value. While Nagel uses good examples to argue against the 'no-subject'-argument he fails to explain why death is something worse for a person who dies younger than older. Although he agrees on the truth of this strong intuition he gives no plausible explanation for it. Nagel concludes subsequently from his theory that he would be glad to live forever (Nagel 2012, p. 387). Immortality is for Nagel a desirable state.

The sixth chapter explores the arguments of some opponents of this suggestion. Bernard Williams famously argued in his article 'The Makropulos Case' against the desirability of an immortal life. His arguments are based mainly on the plausibility of the Makropulos story. We want to raise some objections against the evidence of this approach. In the following chapter seven we want to have a look on the value of aging and the assumption that aging needs to be overcome because it leads to terrible diseases and death. We want to argue for a more balanced and broad picture of aging which includes not only biological facts. The eights chapter explores some shortcomings in argumentations that identify the omission to prolong a life with killing. These argumentations usually start from a utilitarian perspective of moral obligations. I want to uncover some problems concerning this view.

Chapter nine contains the conclusions of this thesis and an outlook for further discussions. The numerous social issues that may occur as a side effect of an aging society such as generation conflicts and overpopulation are beyond the scope of this thesis (Fukuyama 2003, pp. 57–71; Johnson 2005). Technological progresses did not only influence the debate about life-prolongation. Due to the technological development in

neurosciences the criterion to testify death changed from the heart-lung criterion to the brain-death criterion. In this thesis I will not argue whether this is a good or a bad criterion. But this leads to the crucial and familiar question: what actually is death? Of which kind of status are we talking about in the following chapters? For this thesis I want to propose that death is the permanent and irreversible cessation of life (Fischer 2009). It is necessary to stress that in this definition death is irreversible and permanent to exclude near-death experiences or situations where people wake up after a long period of unconsciousness. These people are not dead from this point of view. However it is hard to find a reliable criterion for death in such cases. I assume that for instance Socrates is indubitable dead. Although there are other conceptions of death that suppose there is an afterlife or the rebirth of an individual in a different form of existence, we want to stick to the concept for several reasons. The first one is rather pragmatic. All of the discussed approaches are in a weak sense 'monistic'. They suppose a necessary connection between brain and consciousness. I hope to review them and by this find the implied errors. The second reason for this is that just like the discussed approaches expresses we assume that our subjective point of view and our physical brain is inseparably connected. However the exact relation between our subjectivity and our brain can be described appropriately, all available evidences show that a working brain is a necessary condition for consciousness and subjectivity. Bertrand Russell put this in a nutshell:

> 'We all know that memory may be obliterated by an injury to the brain, that a virtuous person may be rendered vicious by encephalitis lethargica, and that a clever child can be turned into an idiot by lack of iodine. In view of such familiar facts, it seems scarcely probable that the mind survives the total destruction of brain structure which occurs at death.' (Russell 2004, p. 44)

It is not in the scope of this thesis to discuss this in more detail. But nevertheless I want to agree on the plausibility of this thesis as a starting point. A third reason for my

assumption should conclude this introduction. If death is bad because it deprives us of our lives or the possibility to realize our wishes, the assumption that there is an afterlife does not change anything about it. And whether this is a good reason for the negative value of death or not has to be explored first.

(2) TRANSHUMANISM – THE VISION OF AN IRRESISTIBLE AND ALMOST PERFECT FUTURE

Transhumanism is an extreme technological vision that has received great public interest since the debate about converging technologies (CT) emerged (Coenen 2009; Paschen et al. 2004). The NBIC (Nanotechnology, Biotechnology, Information Technology and Cognitive Science) report entitled *Converging Technologies for Improving Human Performance* (Roco, Bainbridge 2003) that followed the first conference of the CT-initiative of the United States in 2001 is one of the most important documents for understanding the debate. The report describes CT as the synthesis of Nanotechnology, Biotechnology, Information Technology and Cognitive Sciences and the use of their possible synergetic effects to better and improve the human condition. In the context of the NBIC report Transhumanism as the incarnation of a vision of technological enhancement became topical again and was broadly publicly discussed. The basic idea of the transhumanistic vision, however, is much older than the initiative (Heil 2010b). As already mentioned, Julian Huxley can be seen as a forefather of Transhumanism. Some writers argue that Transhumanism, understood as the desire to overcome human boundaries, is as old as mankind (Bostrom 2005b, pp. 4–5). This seems a bit exaggerated in respect of the focus on the power of technology in the process of improving human capacities of most of the contemporary Transhumanists. Other and older visions of improving human capacities are not technology focused in the same manner. Activities such as Tantra, Yoga or sports in general probably improve human capacities, but do not focus on technological means (for an overview see: van Dülmen 1998). The basic idea of enhancing mankind can also be found in these older streams, however, the central role of technology in enhancement visions rapidly increased in the modern era (Mittelstrass 1970, pp. 349–353). It is beyond doubt that in the last quarter century Eric Drexler's book *Engines of Creation* from 1986 and his focus on the possibilities of Nanotechnology gave the vision of Transhumanism new impulses and a new direction (Drexler 1986). Drexler is the initial author of contemporary Transhumanism. The CT and especially Nanotechnologies seem to be the most promising basis for the project of a comprehensive shaping of the human

condition. Although one might say that Transhumanism is a heterogeneous endeavor that exists in a great variety of forms, some general features can be named: Transhumanists seek to improve human capacities by technological means. They promote the expansion of humanity into space, the development of artificial intelligence and the overcoming of pain, aging and death (for an overview see: More, Vita-More 2013). The vision that immortality is a possible human future is a central idea in Transhumanism (Heil 2010a, p. 128). In the *Transhumanist Declaration* one can find the following passage that sums up the basic transhumanistic ideas:

> *'Humanity stands to be profoundly affected by science and technology in the future. We envision the possibility of broadening human potential by overcoming aging, cognitive shortcomings, involuntary suffering, and our confinement to planet Earth. […] We believe that humanity's potential is still mostly unrealized. There are possible scenarios that lead to wonderful and exceedingly worthwhile enhanced human conditions.'* (Various 2013, p. 54)

The state of being when all of these aspects become reality is called "Posthumanity" (Broderick 2013). Transhumanists argue for the plausibility and desirability of such a future. Although the transhumanistic vision seems to be far-fetched, the promoters claim to predict a plausible future scenario. Transhumanists usually extrapolate Moore's law to justify this claim (Broderick 2002, 2001). Moore's law from 1965 describes the linear development of the computing power as function of production costs. At the beginning it was quite successful with its predictions. But these types of predictions are based on shaky grounds especially when the predictions cover huge socio-technological systems (Nye 2004). The prediction of the Transhumanist covers the future of the whole civilization. Moore predicts technological enhancement for all mankind. Nevertheless Transhumanism is one of the few technological futures which raise pessimistic and optimistic expectations and thereby shape socio-technological systems and the technological development (Grunwald 2008, 2012). As

stated in the introduction chapter a few Transhumanists are engaged in social and political enterprises to extend the realization of their vision. Nick Bostrom and David Pearce founded the World Transhumanist Association in 1998. Gianni Vattimo for instance is a member of the Italian parliament and Aubrey de Grey, described in chapter seven, founded an anti-aging research institute. These examples are just a selection that can be extended with numerous others. Transhumanists are in this respect 'visioneers'. The term 'visioneer' describes a set of activities including publishing, prospecting, engineering and fostering the visionary community. The term was invented by Patrick McCray to capture the complexity of the activities of persons like Eric Drexler. It fits perfectly to the Transhumanists and their social location:

> *'The visionary aspect is essential to understanding visioneers' motivation. O'Neill, Drexler, and the communities they helped foster imagined that their technologies could shape future societies, upend traditional economic models, and radically transform the human condition. [...] visioneers' faith in particular technological future provided a valuable and hard-won space in which other scientist and engineers could mobilize, explore, and push the limits of the possible. [...] Not content with just speculation, O'Neill, Drexler, and others who shared their visions did research to help advance the technologies central to building their imagined futures. Visioneering connects this emphasis on design, engineering, and construction to a more distant time horizon and an expansive view of a future determined by technology. [Visioneers'] writings attracted like-minded enthusiasts eager to imagine and perhaps live in these technological futures. [...] These texts helped educate and define visioneers' communities while their supporters used them to launch further debate [...].'* (McCray 2013, pp. 10–11)

These remarks underline the significance of this kind of vision for the techno-scientific development however it is unlikely that they appear at first sight. They accompany other

activities which are relevant for the socio-technological process. These remarks may also satisfy philosophers who argued that it is futile to spend time in the assessment of those far-fetched visions (Nordmann 2007). Some Transhumanists provide odd ideas about our future with weak arguments. Nevertheless, they provoke dissent and as a social movement they are significant for socio-technological developments. In contrast to classic utopian scenarios technological visions such as Transhumanism do not criticize the contemporary social order by envisioning a future which is fundamentally different from our present age (Coenen 2007; Saage 2007). While Thomas Morus' *Utopia* for instance developed the narrative of an ideal society, it also implicitly criticized the predominant political and social order back then. On the contrary, the technological vision of Transhumanism accepts the structure and values of the contemporary socio-economical order such as efficiency and accomplishment and carries them on toward excess. The becomes especially clear in respect of its negative evaluation of aging which is considered in chapter eight. The Transhumanist considers aging as great misfortune because it rules out the values of improvement and efficiency (Jones, Higgs 2010). These values are often considered as typically modern. Much more could be said about Transhumanism. In the following the focus will be on to two main aspects: the central transhumanistic theme of immortality and the basic philosophical argumentation of the Transhumanists and its similarity to utilitarianism. One Transhuman variation of immortality has been defended by Robert Hanson (Hanson 1994). He envisioned a future in which we live as 'uploads", bodiless spirits in a huge machine. Already in 1991 the artificial intelligence scientist Hans Moravec shocked the world with a comparable vision of an uploaded mind. He describes the process of transcending our bodies his article *The Universal Robot*:

> *'The surgeon's hand sinks a fraction of a millimeter deeper into your brain, instantly compensating its measurements and signals for the changed position. The process is repeated for the next layer, and soon a second simulation resides in the computer, communicating with the first and with the remaining brain tissue. Layer after layer*

> *the brain is simulated, then excavated. Eventually your skull is empty, and the surgeon's hand rests deep in your brainstem. Though you have not lost consciousness, or even your train of thought, your mind has been removed from the brain and transferred to a machine. In a final, disorienting step the surgeon lifts its hand. Your suddenly abandoned body dies. For a moment you experience only quiet and dark. Then, once again, you can open your eyes. Your perspective has shifted. The computer simulation has been disconnected from the cable leading to the surgeon's hand and reconnected to a shiny new body of the style, color, and material of your choice. Your metamorphosis is complete.'* (Moravec 1999, p. 122)

The idea that our consciousness can be simulated, transferred or matched to computer hardware is common in Transhumanism[1]. This idea is the basis for the suggestion that our new physical shape provides a longer life with fewer handicaps and infirmities. Other authors described slightly different ideas. Williams S. Bainbridge for instance suggested in his vision that so called 'Transvatars' enable man to have multiple and complex personalities. This should offer man the opportunity to live different lives with a multiplicity of pleasures and goods (Bainbridge 2013). The value of a distinctive individuality, also a typically modern phenomenon, underlies Bainbridge's idea. Proponents of Cryonics assume that the damage of a 'dead' and frozen physical body can be healed by Nanotechnology (Hughes 2004, p. 30; Krueger 2010). For the Cryonicist the frozen body is just an intermezzo till the time of resurrection and until real immortality is possible. All of these writers assume that radical life-prolongation in an either organic or non-organic condition is likely to obtain. Transhumanists assume everyone has this desire, as also the quote of Julian Huxley in the previous chapter showed. One of the basic suppositions of Transhumanism is that everyone wants live longer life. All men are mortal and none of them like it. For the most Transhumanists the question: 'who would not prefer to live longer', is actually rhetorical.

[1] It is not in the scope of this work to examine if this scenario already gets in the way of the typically materialistic point of view of most Transhumanists. However, the idea that 'separating' the mind from the body is possible contradicts that a substantial foundation is necessary for consciousness.

There are empirical studies that underline this assumption. A recent report of the *Pew Research Center's Religion & Public Life Project* in Washington showed that 70 percent of Americans would prefer to live between 80 and 100 years (Funk, Lugo 2013). The average life-expectancy in the United States is about 79 years. Therefore factually a huge group of people desires a slight prolongation of their lives. Nevertheless the same study showed that only 38 percent of Americans would like to become 120 years old. Interestingly these people assumed that most other Americans would want to become 120 years and more. This is an interesting bias in the evaluation of other people desires concerning live-prolongation. However, these studies provide a solid basis for the transhumanistic assumption that a slight life-prolongation is desired by the majority. The Transhumanist seeks immortality and these empirical studies also prove the resistance of the majority on the desirability of this radical outlook. The average of the Americans does not want to become older than 90 years. If the Transhumanist wants to take the wishes of average people into account then they either have to find an explanation for it or lower their claims in respect of radical life-prolongation. Nick Bostrom faced this problem in his work *Why I want to be Posthuman*. He argued:

> *'Many people will, if asked about how long they would wish their lives to be, name a figure between 85 and 90 years [...]. In many cases, no doubt, this is because they assume that a life significantly longer than that would be marred by deteriorating health - a factor from which we must abstract when considering the desirability of healthspan extension. People's stated willingness to pay to extend their life by a certain amount does in fact depend strongly on the health status and quality of that extra life [...]. Since life beyond 85 is very often beset by deteriorating health, it is possible that this figure substantially underestimates how long most people would wish to live if they could be guaranteed perfect health.'* (Bostrom 2013, p. 33)

It is indeed not unlikely that the prospect of a very long life under good health condition has an effect on our wishes and expectations for the future. We may stretch the projects we

launch to suit them to an alleged long life-expectancy without physical and mental constraints. However, to use the assumed willingness of the average of people as an argument for life-prolongation requires further argumentative effort. Why do the desires of the majority of the people count as an argument and what about the desires of the other 30 percent who do not want to live beyond the average age? In the transhumanistic 'philosophy' we will not find elaborate answers to this question. Nevertheless the attempts to give an answer are diverse. Some Transhumanists are rather liberal. They assume that people should choose whether or not they want to apply life-prolonging technologies and engage in their development. This approach is supposed to strengthen individual interests in decision making processes. It is probably self-defeating as it is unlikely that there will ever be a majority voting in a democratic process for the ubiquitous and radical transformation Transhumanists envision. The other approach is rather paternalistic. It assumes that life-prolongation is a good for all of us in the sense that the majority would benefit from it. This is not tragic for the 30 percent who do not want to prolong their lives as long as the total amount of respected interests and therefore the welfare of our society could be increased. On the surface this thought is similar to the basic structure of utilitarian reasoning. And indeed, several authors agree with the observation of this similarity. Nick Bostrom said that Transhumanism has more in common with the philosophy of John Stuart Mill than with the philosophy of Friedrich Nietzsche (Bostrom 2005b, pp. 4–5; More 2013a, p. 13). At first glance Transhumanism shares an affinity to the efficiency of empirical sciences with Utilitarianism (Eckensberger, Gähde 1993). Utilitarians find it attractive that crucial questions of social policy are turning into questions of the empirical social sciences (Williams, Bubser 1978, p. 96). Admittedly, there are several versions of utilitarianism (for an overview see: Höffe 1975). These differ for instance in the way they evaluate rules. J.J. Smart has pointed out that the more extreme Utilitarianism takes rules as classes of actions into account either as rules of thumb or when breaking established rules has an effect for the assessment. He calls the more modest form 'restricted utilitarianism' (Smart, J. J. C 1956).

Besides the already mentioned sympathy to the empirical sciences, a fundamental aversion of pain and suffering is common in both schools of thought. Utilitarians favor acts that lead to the minimization, or if possible absence, of pain. In Jeremy Bentham's version of Utilitarianism, fortune is considered as the absence of pain (Bentham 1975). Just as fortune and joy have a positive intrinsic value, pain has a negative intrinsic value for a Utilitarian. Of course there are also different versions of utilitarianism in respect to the goods that need to be maximized. At least Bentham's version Utilitarianism promotes the maximization of goods which are defined as the absence of pain. Few Transhumanists stress that one of the main goals of 'moral' acting is abandoning all bodily displeasures. The above quoted passage of the *Transhumanist Declaration* speaks therefore of the overcoming of 'involuntary suffering'. Transhumanism promises the end of any bodily obsolescence, suffering and pain. The Transhumanist James Hughes calls this claim an ubiquitous 'controlling of our body' (Hughes 2004, p. 11). We can often find the idea of 'engineering' and 'mastering' the human body. The quest to avoid bodily displeasures can in such a scope only be found in Christian Gnosis (Coenen 2006). In his analysis of 2005 Oliver Krueger examined the Transhumanist approach of overcoming the biological or respectively organic body. Most Transhumanists have an understanding of the body as an informational processing system (Goertzel 2013; Clark 2013). While Gnosis is deeply rooted in a dualistic conception of the mind and the body Krueger states that Transhumanists have their roots in the functionalist and materialistic tradition. Krueger concludes that the argumentations of the Transhumanists are rather utilitarian than Christian:

> *'Neither the idea of man, nor the motives for overcoming the human body, nor the physical utopias of virtual existence can be named Gnostic. Deconstructing the posthumanist sources, we can recognize very clearly that the Platonic dualism of body and mind is not accepted by the materialistic philosophy of posthumanism […]. The arguments are not Gnostic but utilitarian!'* (Krueger 2005)

Generally speaking as we discussed so far Krueger seems to be right with this conclusion. The similarities between philosophical utilitarianism and transhumanistic argumentations have implications which will be explored in the eighth chapter. The development of new technologies attribute a responsibility to our whole society to increase the total amount of pleasure and interests. This faces objections which will be discussed in the second to last chapter. Before we conclude this chapter I want to have a second look at the previous quote of Nick Bostrom. Bostrom makes a difference between lifespan and healthspan. The Transhumanist does not just want to prolong the lifespan. He or she wants to extend it in a qualitative manner. They want to prolong the years of vitality, health and life in a good quality. Bostrom assumed in his article 'Why I want to be Posthuman' that we already produce and use technologies to extend our lifespan (Bostrom 2013, p. 33). He names the airbag as a confirming example for this supposition. Indeed an airbag could increase the lifespan if it protects a person of injuries or direct death. But this is not necessarily true for all technologies. A wheelchair for example has no effect on the longevity of a life. Nevertheless it can increase the quality of the life of persons who are older, disabled or injured. The claim to increase the health span includes two distinct goals: the increasing of quality and the increasing of longevity.

This chapter wanted to sketch the Transhumanistic vision. What became clear is that Transhumanism is a modern and radical technological vision that prospects the expansion of humanity into space, the development of artificial intelligence and the overcoming of pain, death and other physiological boundaries. Transhumanists promote a comprehensive mastering of the physical constitution of human body including aging and dying. Transhumanists as 'visioneers' seek for the realization of their visions. Transhumanists shape the technological development and provoke moral dissent in our society, which makes them an interesting subject of observation. Immortality is a central theme in Transhumanism. The Transhumanist assumes that he or she speaks for a majority of society in respect of this goal. This focus on overcoming all bodily displeasures and concept of welfare forces the

comparison with utilitarianism. Several authors state obvious similarities between these schools. Transhumanists claim to combine the increasing of the quality of life and the increasing of lifespan.

(3) THE REIGN OF THE DRAGON

With the fable of the Dragon Tyrant, Nick Bostrom originally and lucidly attacks bioethicists, who argue that death is nothing bad, nothing to be afraid of or that death gives life a meaning. In the fable mankind is oppressed by a terrible dragon that eats humans. To control and tranquilize the dragon and to protect the majority of the people a dragon feeding industry is established. Every evening thousands of people are brought to a mountain and thrown in to the throat of the beast to keep him calm. Mankind accepts that people have to be slaughtered by the dragon and the attempts to create a technology to defeat the dragon are challenged by people who assume that running the dragon-feeding industry gives human life a meaning. These skeptics doubt that the attempts to kill the dragon will ever be successful. They argue that due to that prospect one should rather invest time and money in other more urgent issues. From their point of view for instance it is urgent to improve the feeding transportation and administration system. However, Bostrom describes that in the end a wise king is courageous enough to launch a rocket that destroys the dragon after several centuries of a horrifying regime. The terrible dragon that kills people is a metaphor for human mortality and the objections raised against the usage of technology to destroy the dragon are in fact the same as the arguments of the so called 'Bioconservatives'. With the fable Bostrom argues that these kinds of objections prevent or delay the desirable development of technologies that eventually may result in the overcoming of human mortality. Bostrom assumes that just like the dragon mortality is a hard opponent but it is not undefeatable. The story starts with the description how terrible the beast looks and how he slaughters people:

> *'The dragon stood taller than the largest cathedral, and it was covered with thick black scales. Its red eyes glowed with hate, and from its terrible jaws flowed an incessant stream of evil-smelling yellowish-green slime. It demanded from humankind a blood-curdling tribute: to satisfy its enormous appetite, ten thousand men and*

> *women had to be delivered every evening at the onset of dark to the foot of the mountain where the dragon-tyrant lived. Sometimes the dragon would devour these unfortunate souls upon arrival; sometimes again it would lock them up in the mountain where they would wither away for months or years before eventually being consumed.'* (Bostrom 2005a, p. 273)

Bostrom draws a frightening image of the dragon. This picture supports the feeling that something horrible is happening here. But what exactly is so terrible about it? The people are slaughtered and their bodies are crunched by the teeth of the dragon while they are still alive. What Bostrom describes here is not death, but dying. That is a crucial distinction. Dying is a process that happens when people are alive and usually they are aware of what is happening to them. Death is, as defined in the first chapter, the end of this life. If dying would always be accompanied with unbearable pain of the sort Bostrom describes it would be a good reason to fight it. But dying in the real world is not always accompanied with pain. A lot of people die when they are asleep. Moreover, if painful dying would be the only reason to stop the reign of the dragon there is an easier way to deal with this problem. A plausible solution would be for instance to make people unconscious or sedate them before they are killed by the dragon. Then the accompanied pain and suffering would have been avoided and the reign of the dragon could continue. However, Transhumanists seek immortality and not only to overcome the unpleasant side effects of dying. They want to overcome death itself. As we saw: claims against the process of dying do not imply a reason for the undesirability of the state of being dead. Bostrom assumes that there are other reasons to overcome the tyranny of the dragon:

> *'The ethical argument that the fable presents is simple: There are obvious and compelling moral reasons for the people in the fable to get rid of the dragon. Our situation with regard to human senescence is closely analogous and ethically isomorphic to the situation of the people in the fable with regard to the dragon.*

> *Therefore, we have compelling moral reasons to get rid of human senescence.'* (Bostrom 2005a, p. 276)

Are the moral reasons to get rid of the dragon really so obvious? As we mentioned earlier: the fact that people get mauled in the mouth of the dragon is rather a feature of dying then of death itself. However, Bostrom continues to argue 'there were the mothers, fathers, wives, husbands, children, and friends that were left behind to grieve the loss of their departed loved ones (Bostrom 2005a, p. 276)' which justifies the evil of death. According to Jonathan Glover we can call this argument an argument from the side-effects of someone's death (Glover 1977, p. 40). People lose their friends, relatives and colleagues through death and suffer from this loss. This is the reasons why death is 'bad'. We do not know much about the people in the fable. We can, however, assume that without the interference of the dragon they are immortal in some sense. There is a misunderstanding in this presupposition, and we should explore how to understand the immortality of the population in the fable. If the people were immortal in a mythical sense, let us say like some suppose the Christian God to be, they could neither be harmed nor killed by the dragon. If this is not true, then they are not immortal in this mythical sense. The distinction between immortality in the sense Bostrom is using it in the fable and mythical immortality is not trivial (Heil 2010b, p. 45; Horrobin 2005, p. 15). It is often mixed in the transhumanisic vision and has a crucial impact on Bostrom's argumentation line.

Let us examine the difference between invulnerability and immortality in more detail with some examples. In other myths or fables vampires and elves are immortals. The use of the term 'immortal' in both cases is misleading though. Count Dracula can be killed by impaling his heart with a picket. He also suffers from sunlight and can die when he is exposed to it for too long. The fact that he will die if he does not drink human blood gives him a reason to wander around in the night in search of victims. There are only a few creatures in the history of European ideas that are immortal in a mythical sense. We can assume that not even the

ancient gods would survive being sucked into a black hole or crashing with the sun. The great wars of the Titans against Zeus would otherwise have been more or less pointless enterprises. Odd entities like the Christian God who is not at all physically compound may laugh about such confrontations and also survive an all-embracing black hole. The people in the fable may therefore have an eternal life, but they remain vulnerable. What does that mean for the argument of the side-effects of death? Death cannot be overcome. People will die and suffer in grief sooner or later, however the situation may be. This is true for the people in the fable, for us and for Posthumans. When someone pulls the trigger of the unit in which the Posthumans live as uploads, or whatever shape they have, they will die. As long as humans are mortal, no matter how long they live, the argument of grieve due to the loss of relatives and friends is as such a paper lion. The fact that people suffer from the loss of their loved ones is just postponed and Bostrom does not argue why it would be better loosing someone later than earlier. On the contrary we can imagine some cases in which the loss of a certain good or value is due to its duration an even greater evil: if a philosopher been writing on his *opus magnum for* 45 years and spent all his effort and intellectual strength in it he will probably be even more upset when he loses the manuscript then if he had lost it after only writing on it for 2 months. If this is true then it is not necessary that the unpleasantness of a loss decreases through time. But besides the raised objections one could think about an unpleasant but not impossible case of someone who has no friends and relatives anymore. What is wrong about throwing such a person into the mouth of the beast if he or she is unconscious and no one mourns for him or her? Does such a death have no negative value? This is a crucial question. If the value of death depends only on the negative experiences of the relatives of a person such a death would not be considered bad.

To summarize this chapter: Bostrom illustrates his approach on life-prolongation and the value of death with the innovative and illustrative story of a society that is haunted by a cruel dragon. This story develops the thought that distrustful and skeptical objections on life-prolonging technologies are unjustified and impede overcoming unpleasant and unnecessary

suffering and pain. The story suggests that the moral reasons to overcome death are obvious. Yet as we see from the arguments above this is not the case. We differentiated between death and dying. The agony of a painful dying cannot be used as an argument against death. We differentiated between immortality and an eternal life and this distinction is crucial. The moral obligation to overcome death due to its 'side-effects' of grief is futile insofar as these unpleasant feelings are just postponed. There are even cases in which the loss of a certain good gets worse over time. And as described 'side-effect' arguments do not apply to people who have no relatives or people who care about them.

(4) The Fear of Death

Bostrom mentions one side-effect of the appearance of the Dragon that may lead to a convincing argument for the evil of death. He says that the people are afraid of it. In the fable spiritual men comfort those who are afraid of being eaten with stories of an afterlife (Bostrom 2005a). Is it not true that the fact that we fear death is a good reason to conclude that death is something bad? In his book *The Hedonistic Imperative* the Transhumanist David Pearce seems to argue for this belief:

> *'Our fear of ageing, death and dying is simply too deeply rooted in the Darwinian psyche for us to perpetuate the senile holocaust into the era of mature genomic medicine. Renouncing the option of quasi-immortality may be conceivable in theory. Yet who'll opt to live (and die) as a disposable Darwinian 'crumbly' if one can live and look like a Greek god?'* (Pearce 1995)

In the *Hedonistic Imperative* David Pearce argues further that it would be good to develop drugs that relieve pain permanently and comfort us with everlasting happiness. Pearce calls this the 'Abolitionist Project'. The project aims to abolish all sorts of pain and displeasure. He argues that we are obliged to develop new technologies and drugs to provide happiness. It is odd that in a world in which pain and grief are abundant by an enhancement drug something so unpleasant like the fear of death still exists. The fear of death should actually be cured if mankind would follow the *Hedonistic Imperative*. This amongst others is one of the most apparent contradictions in Pearce's philosophy. But nevertheless the question remains what we exactly fear when we fear death. Do we just fear a hurtful dying? If this is true, as argued before, death itself is not what we are concerned about and a death in the absence of pain for instance when we are asleep would not be an evil. To come closer to the question about the fear of death it is helpful to differentiate between two forms of mortal fear (Tugendhat 2001, p. 70). The first type can be called the 'vegetative fear of death'. It is an affective fear of death and we share it with other beings that are not human. The vegetative fear of death

occurs in situations that are more unlikely to happen such as being chased or sitting in a dropping airplane. It is plausible that other animals which are facing death do have the same fear as we have when we are in a car accident no matter if it is deadly in the end or not (Singer 1994, p. 88). The vegetative fear of death lacks in content since it is not a feature of death or death itself that we fear in these situations. It is hard to say what this fear is, because it is an effect rather than a conceptually related fear. The other type of fear occurs also in complete safe situations for example when we lie in bed in the evening. This is merely a conceptual fear. Its content is the thought that oneself will be dead one day. People are scared by this thought although they do not suffer from a deadly disease and they are far from the age average people die. This distinction is crucial insofar as people do have answers to the question why they fear death even though they are not in an acute danger to die. Nevertheless, the majority can answer the question why they fear death. However, the various answers are often pretheoretical, which means they are rare based on unconsidered common knowledge (Tugendhat 2001, p. 83).

A look at a more theoretical approach can be helpful to form a convincing answer. Ernst Tugendhat explored the fear of death in his article *On death* (Tugendhat 2001, p. 87). At the end of this article he assumes that facing death means an adjustment of one's standards. In everyday life we take ourselves, our preferences and our values extremely serious, as if they are a complete picture of the universe. Thinking about death lets us recognize the error of this thought. From an outside perspective it becomes clear that all of this takes place on the stage of our 'theater of life'. Facing death makes us aware that it is not only a figure on the stage of this theater that vanishes when we die. We also become aware that it is rather the theater as a whole that ends. This is at least for some of us a terrifying finding (Tugendhat 2001, p. 88). The advantage of Tugendhat's approach is that he can explain why some rather egocentric characters that tend to center themselves in the middle of the universe struggle harder with the discovery of their future non-existence. If we understand him correctly, Tugendhat pleads for an ongoing readjustment of one's position in the universe. Tugendhat

wants us to find a place between taking our lives convulsively seriously and not taking care of this life at all. There is vivid story that illustrates this phenomenon quite appropriately. In William Golding's novel *Pincher Martin* of 1956 the protagonist Christopher Martin is a sailor who almost drowns because of his sinking ship offshore (Golding 1984). While the narrator of the story writes about Martin's body washing ashore on a small rocky island and his fight to regain his physical strength and mental power the previous occurrences on the ship before it sank are told. From what we learn about Pincher Martin we can say that he apparently has a selfish and egocentric character and uses his friends for his own ends (Eagleton 2011). In the final chapter of the book the reader finds out that Martin's physical existence already ceased after the ship sank. His selfish spirit clinches on to his life and survives in an alternate state between life and death until he loses his sanity.

> *'Presently it will be daylight.*
> *I must move from one point to another.*
> *Enough to see one move ahead.*
> *Presently it will be daylight.*
> *I shall see a wreckage.*
> *I won't die.*
> *I can't die.*
> *Not me-*
> *Precious.'* (Golding 1984, pp. 190–191)

Pincher Martin refuses to die. He is afraid of losing what has been the closest for him all his life: his own existence. For an egocentric character the prospect of an own death seems to be terrible. We all take our lives and preferences seriously in everyday life. This makes the perspective of losing exactly this life quite scary. It is important to mention that people do not all fear the temporary cessation of their consciousness in the same manner. Qualitatively this is a different fear. Some people may be afraid of sleeping but this is rather eccentric as long as they are not chronically haunted by nightmares. As presupposed in the introduction:

we are talking about the image of death as the permanent and irreversible cessation of our existence. To exclude other forms of temporary unconsciousness Frances Kamm calls this the 'Exctinction Factor' (Kamm 1998). If Tugendhat provided a correct description of what happens when we face death - that we step outside ourselves and recognize that the center of our everyday universe will cease to exist - the question remains whether this is a good reason to fear it? If we ask for a good reason to fear death we make a stronger claim then if we just ask why we fear death. This is a normative question: is there a 'good' reason to fear death? Is the fear of death rational so to say?

We suppose that Tugendhat's description of what is happening when we face our mortality is right. When we step outside of our everyday perspective and reflect upon our death, scary realizations from this perspective appear. But if we get used to this position it is not clear anymore what is so bad about it. The crucial distinction between a correct description of how a fear occurs and the rationality of its existence can be made explicit by the following example: Hannah Matthews suffers from a terrible phobia, called Koumpounophobia. This phobia is also known as the 'Button Phobia'. Since the age of five she has been afraid of wearing, seeing and touching buttons. She is therefore not able to wear a school uniform.. When she comes into contact with a button she starts to panic and says that 'there is just something about the shape and the texture' that makes her freak out (Moye 2012). We can suppose that Hannah Matthew's phobia is irrational and the reason is that there is nothing bad about and around buttons. There is no good reason to fear them. Nevertheless, Hannah can describe quite precisely what happens when she sees a button and what she dislikes about them. But we would disagree that the odd texture and the shape of a button is something one needs to be scared of. With regard to death that means that the fear of death would be rational if death would be something bad (Murphy G. 1993)[2].

[2] It is unfortunately not in the scope of this thesis to discuss further necessary conditions for the rationality of a fear. This is for instance the likelihood of the appearance of a bad event or situation. If we consider for example

This is still an unresolved question. There may be some of us who state that they fear death only because they are afraid that their friends and relatives will suffer from their death. It is not contradictory to fear that someone else gets hurt due to a person's disappearance. But this also presupposes that something bad happens to someone regardless whether it is the same person who bears the fear. We can conclude that it is therefore not sufficient to fear death to attribute a negative value. If the fear of death is rational then this presupposes that death is something bad. At this point we can also bring the difference between invulnerability and immortality back into mind. This crucial distinction described in the last chapter led us to the conclusion that 'side-effect'-arguments are futile to argue for life-prolongation. The same is true in this case. If the fear of death would be used as an argument to prolong life it would face the same objection: as long as we remain vulnerable we would be afraid of death. Why should we not fear that a comet destroys the earth when we reach the age of 176? To pronounce this claim a bit more with another rhetorical question: why should I fear death less in 100 years? An answer to these questions is needed to complete the argument and it is hard to imagine one. No matter how long one lives the fear of death cannot be overcome by life-prolongation.

To sum up the results of this chapter: the vegetative fear of death was distinguished from a rather conceptual fear of death. We found out that it is not obvious what the fear of death is. There are some useful descriptions of how the fear of death occurs like Tugendhat's approach. But these attempts do not provide reasons why the fear of death is rational. It was explained that not all fears are rational and that the rationality of a fear can be judged by the badness of its content. Therefore it is not sufficient to have a fear of something to value it as an evil. It was presented that the fear of death is an insufficient argument for life-prolongation if one takes the distinction between invulnerability and immortality seriously. If and why death is something bad will be looked at in more detail in the next chapter.

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unemployment as bad experience then it is not yet rational to fear it, especially when someone has a permanent position in a successful company. For further readings see: Murphy G. 1993.

(5) DEATH WHERE IS THY STING?

Losing the fear of death would be of practical value (Murphy G. 1993). Epicure started his argumentation on the value of death with this observation. He found it unnecessary and irrational that men waste their lifetime in fearing something that is not bad at all. There are many philosophers in the Stoic tradition like Lucretius, Cicero and Seneca who strongly denied death's badness (Lacina 2009). Epicure seems to be the most famous and influential of them. He argued that the fear of death unnecessarily decreases the quality of life. He assumes that evilness depends on the ability to experience it. He concluded that we should not be concerned by our death, because death is the end of the existence of the perceiving subject. Epicure's argument concerns the value of death for the individual who dies, in contrast to the argument of 'side-effects' like grieve and suffering of the bereaved, which was considered in chapter two. Irrespective of the fact that people suffer from the loss of relatives through death it is still an open question whether death is something bad for an individual who assumedly has no relatives. What is the value of death of such a person and in general for the person who dies? Is death something bad for the one who dies? Epicure denies this. We can find this argumentation in his letter to Menoeceus[3]:

> *'Accustom yourself to believe that death is nothing to us, for good and evil imply awareness, and death is the privation of all awareness; therefore a right understanding that death is nothing to us makes the mortality of life enjoyable, not by adding to life an unlimited time, but by taking away the yearning after immortality. For life has no terror for those who thoroughly apprehend that there are no terrors for them in ceasing to live. Foolish, therefore, is the person who says that he fears death, not because it will pain when it comes, but because it pains in the prospect."* (Epicurus, Krautz 1980)

[3] Besides the 'No-Subject-Argument' there is a second argument in the Stoic tradition presented by Lucretius which is known as the 'symmetry'-argument. For there is no sense in the notion of wanting to be born earlier we cannot make sense of the wish to live longer. This argument is beyond the scope of this thesis. For a closer dealing with it, see: Ehni 2009, pp. 52–56; Parfit 1984, p. 165.

The Epicurean view is still appealing and today it is defended for instance by Stephen Rosenbaum (Rosenbaum 1993). If the Epicurean argument would be valid, then life-prolongation would mean nothing to us. It would follow that death is not the evil the Transhumanists consider it to be, and the irrationality of our fear would finally be uncovered. The Epicurean argument does not imply that a slow death due to a horrible disease is not a bad thing but a sudden death at any age is nothing that we should worry about according to the Stoic tradition. This is at least true if our death is not caused by the hand of another person. The Stoic tradition may have developed other reasons that argue against killing people, for instance out of respect for their autonomy or the harm (bad conscience) the one who kills could experience[4]. Epicure's focus is on what we could call a 'natural death'. Not the first but some challenging doubts on the Epicurean view have been expressed by Thomas Nagel. In his classic article on the subject from 1970 he tackles Epicure's premise that only the things we can experience are bad. He uses a lucid analogy to pinpoint that there are cases in which the involved beings are incapable of perceiving what happened to them yet we would nevertheless say something bad occurred to them:

> *'Suppose an intelligent person receives a brain injury that reduces him to the mental condition of a contented infant, and that such desires as remain to him can be satisfied by a custodian, so that he is free from care. Such a development would be widely regarded as a severe misfortune, not only for his friends and relations, or for society, but also, and primarily, for the person himself.'* (Nagel 1993, p. 65)

[4] This is what Epicure could have responded in case of this objection. This is mentioned later in chapter nine. Several authors have interpreted the relation between a value and an act that leads to the loss or damage of it unreasonably strong. Christine Overall for instance followed Richard Momeyer and Jay Rosenberg in stating that if life has an intrinsic value we would be obliged to sustain this value by all means (Overall 2005, p.98). But while it is not implied which value a life has if it has a value and which value death has if it has a value it is not clear whether we should always strive for its sustainment or in the case of death abolishment. What I want to indicate in this passage is that the respect for autonomy or the steadiness of the state could be stronger values than neutrality of death. Furthermore for a moral theory it could for the sake of argument be assumed that it could be reasonable to sustain the life of many for the life of one which would contradict the reading of Overall that the value of life is 'absolute'.

If this analogy is correct then it would be wrong to say death is nothing to be concerned of just because there is no experience or no subject of experience anymore in the very moment when we are dead. In the relevant aspect of imperceptibility the injured person is in the same situation as the dead. The situations are analogue in respect of the awareness of a certain negative sensation by the affected person. The dead and the injured both lack this awareness. And if we agree that something bad occurred to the injured person in Nagel's case then we could also conclude that something bad happened to a person who died although this person ceased to exist. Joseph Brueckner and John Fischer argued in a comparable manner by using the analogy 'betrayal behind one's back'. When someone is betrayed behind their back they are not aware of any negative sensation. Nevertheless we would argue that something bad happened to them (Bruekner, Fischer 1993, p. 229)[5]. Epicure supposed that it is necessary to be aware of a certain situation to value it as an evil. These examples provide evidence against the assumption of the Stoics. As such these are just counterarguments against the Epicurean view. They show that the evil of an object or situation does not necessarily depend on its perceptibility. This is not in itself an argument for the evil of death. Nagel's own approach to this question has two aspects. At the beginning of his article he states that the value of life is rather positive than neutral even though either good experience can make life more worthy and bad experience less worthy living:

> *'The situation is roughly this: There are elements that, if added to one's experience, make life better; there are other elements that, if added to one's experience, make life worse. But what remains when these are set aside is not merely neutral: it is emphatically positive. Therefore life is worth living even when the bad elements of*

[5] These examples are often named in a row in this context although there are obvious differences between them. Whereas a betrayal happens when a person is still alive but unaware of it, we cannot say that the deprivation by death occurs to someone. There is no person anymore to whom it happens (Bruekner, Fischer 1993, p. 229). This difference is not relevant for our concerns.

> *experience are plentiful and the good ones too meager to outweigh the bad ones on their own.'* (Nagel 1993, p. 62)

Thomas Nagel emphases this at the end of his book *The View from Nowhere* (Nagel 2012, p. 388). There he writes, following Richard Wollheim, that death is even then an evil and a loss when the life is not worth living anymore. Ernst Tugendhat has put his finger on the passage quoted above because this statement has no justification (Tugendhat 2001, p. 77). Nagel just takes it for granted that life has a positive value without reasoning for this assumption. It is not obvious why we should follow Nagel here. Does the life of a person in a permanent coma really have an intrinsic value (Glover 1977, p. 45)? Nagel may exclude some forms of living like being permanently unconscious to respond to this example. He may say that perceptions and experiences are the things that give life intrinsic value (Nagel 1993, p. 62)[6]. If this is true then the life of a comatose has no intrinsic value. In return we could attribute animals an intrinsic value. They do have experiences. But why should we follow Nagel in his argumentation? We can easily imagine a person who lives in a state of comprehensive lethargy. His state is neither full of negative experience nor of any sort of suffering or pain. Nevertheless he would probably be perplexed when someone tells him that his life is emphatically positive. The argumentation on the intrinsic value of life is not justified in Nagel's analysis.

At the end of this chapter we will come back to this assumption and provide a thought experiment, which may erase the last doubts that life has an intrinsic value. There are other attempts in showing that death deprives us of something valuable. Some should be considered before coming back to Nagel's argumentation. A few arguments for the intrinsic value of life have religious foundations. Writers in the Christian tradition argued for example

[6] It has to be mentioned here that there a 'stronger' and a 'weaker' Nagel. One can extract both views from his argumentation. On the one hand he says, as in the quoted passage above, that after detracting the negative from the positive goods life is still emphatically positive. On the other hand there is a passage in the article in which he links this to the ability to experience, which is apparently not necessarily connected. Emphasizing this contrast in his argumentation is not essential for our objections. Rather the focus is on the theory of deprivation no matter if it aims on goods or the value of life in general.

that a human life is a gift of God that deserves our respect and falls under divine prerogative. But there are also numerous secular approaches to justify the intrinsic value of life (Link 2012). Other authors stated that it is rather the value of the person that is erased by death than the sheer value of a life. Frances Kamm for instance argued that death is bad because it destroys the person. The lives of persons seem to have an intrinsic value. Death erases this value:

> *'Death involves destruction of the person [...]. Because of death, something of value that already existed is taken apart. It suffers a defeat.'* (Kamm 1998, p. 39)

This quote bring forward the suggestion that Kamm attributes an intrinsic value to persons. In a later passage of her analysis she focuses on certain goods that seem to be common to persons. In a previous passage she says: 'What makes us concerned about death is that it deprives us of the *goods of experience and action.*' (Kamm 1998, p. 17). Unfortunately she does not reason why experiences and actions are goods nor does she clarify the relation between persons and these goods. Whether certain goods are necessary to be a person or not is not brought up. While Nagel may include in his theory of the value of life some kinds of animals with experiences, Kamm would have to exclude some human beings that are not capable to act in a strong sense of action. However, the main concern is the value of death and both Nagel and Kamm do suggest that the evil of death is justified as a deprivation of certain values. Although neither Nagel nor Kamm argue satisfactorily why the goods they are talking about are goods at all, it can be assumed for the following that the arguments for the value of life or persons is well justified. But whether these things have an intrinsic value does not have an effect on the discussion about life-prolongation (Horrobin 2006). If the life of persons or life in general has an intrinsic value losing it would be an evil according to Nagel and the other mentioned philosophers (Nagel 1993, p. 65). And this seems to be evident. But it would be an evil whether the life is 20, 80 or 350 years long. It is always the same intrinsic value of life or a person that is erased through death. If the Posthuman life has the same value as the life of a normal human being than death deprives both of them in exactly the

same manner. The question would therefore be: why should it be better to live longer if I lose the same value at every stage of my life? The Transhumanist Max More argues in a similar manner as Nagel does. He does not rest his argumentation on the intrinsic value of life. But he assumes that life is filled with certain goods and we are deprived of them when we die. The following quote also shows that More emphatically tries to demarcate between his position and other Transhumanists who argue on the basis of the fear of death:

> *'A related misconception is the reflexive assumption that, because we seek to overcome biological aging and the inevitability of death that we are terrified of death. While some transhumanists - like anyone else - may fear a painful, prolonged death, we understand that death is not something to be feared. It is nothing. It is simply the end of experience. What makes death extremely undesirable is not that it is a bad condition to be in, it is that it means the end of our ability to experience, to create, to explore, to improve, to live.'* (More 2013a, p. 15)

More assumes that life includes certain goods. It is not the unpleasantness of the state of existence we will live in when we are dead that makes death an evil. Our experiences, our motivations are goods that make our lives valuable. These goods are taken away by death. Also Fred Feldman agrees on this observation. At the end of his comprehensive work on the value and nature of death *Confrontations with the reaper* he writes: '[...] a person's death is bad to the extent that it deprives him or her of goods' (Feldman 1992, p. 226). For the kind of argumentation More and Feldman plead the previous objection remains effective. If the goods during a lifetime remain the same, death always deprives us in the same manner of these goods. How can this kind of deprivation theory be used as an argument for life-prolongation? It looks as if More and Feldman also fail. Fred Feldman argues additionally that his deprivation theory explains why the death of an elder person is less bad than the death of a younger person. He assumes that the goods of persons decrease when they age. If this would be true one could at least argue that it would be better to live longer because

one would be deprived of a smaller amount of goods at a later stage of life. Feldman's hypothesis is discussed further in the next chapter. But we can already see that there are severe doubts about the persuasive power of this assumption. Max More on the other hand does not even have this alternative. He cannot admit that it would be better to die later because the goods of our life decrease. On the contrary, if his technological vision comes true we will have not less but even more goods to lose. The goods he lists in the quote above are extremely diverse. Experiences in general for instance are a very fundamental good of our life. Usually persons who are not in a permanent coma do partake in this good. A permanent comatose person would, if we follow More in his argumentation, not lose anything at all. At the moment there are few people who do not benefit from the listed goods except of their experiences. The deprived person who is now in the state of a contested infant in Nagel's first example does neither explore nor improve. However to make the point clear again: if the deprivation of goods should be an argument than both Feldman and More would have to show why it is worse to lose these goods earlier than later because eventually death comes knocking.

Neither the Posthuman nor the normal human is in an exposed position at the date of expiration as long as their goods remain of the same amount. Especially in the vision of the Transhuman the goods increase than the other way round. The argument of the intrinsic value of life is due to the same shortcoming not a convincing basis for life-prolongation. A premise is needed which shows that the duration of goods and values is a good in itself. Jonathan Glover expresses it as follows: '[...] more of a good thing is always better than less of it.' (Glover 1977, p. 55)[7]. This is the premise that Nagel misses to justify till then satisfactorily. We will come back to his argumentation later. At first we want to show a

[7] In the sentence following this one Glover writes: 'This does not entail such absurd consequences as that an enjoyable play gets better as it gets longer, without limit'(Glover 1977). He supposes that there are certain *ceteris paribus* conditions such as the 'no waning for interest' which have to be fulfilled that a value keeps its quantity. Our suggestion is that this is rather the concession that 'playing a game' has no intrinsic value. This sort of value seems to be rather instrumental.

possible way of how Glover's assumption can be proven wrong. There are a few lucid examples, which show the contrary of his premise: a Monopoly game for instance which is fun for two hours is not necessarily fun for 84 hours. Also the pleasant anticipation of receiving a gift loses its attraction if it is postponed too often or endlessly prolonged. One last example from everyday life shall conclude this list. Most people who are passionate music lovers have a favorite album or artist. But most of them also agree that they would not enjoy listening to these art pieces all day long for the rest of their lives. These examples show convincingly that the more of a good thing is not always better[8]. Steven Horrobin who has written essays on the value of death also attempted to argue for the prolongation of life. He writes that existing in time is a necessary condition to be a person at all:

> *'The classic liberal picture of value, based in the value of personhood, is incomplete. While it may be accepted that self-consciousness, autonomy, and rationality are necessary for personhood and for valuing activity to take place, they are insufficient. There is a further requirement that has often been neglected: the requirement for significant extension of the person in time. A being that possesses all of these three attributes but has no extension in time does not exist, and is therefore not a real person. But can a being that has these attributes and that exists for merely some time be accounted to be a person? Imagine a being with these attributes that exists for merely a nanosecond. It appears intuitively that such a being cannot be accounted to be a person. This is because what it is to be a person is not merely to be possessed of these attributes and to exist, but also to use these attributes to engage in valuing activity in the world. A being that cannot do so by virtue of having insufficient temporal scope cannot be accounted as fully being a valuing agent and is not,*

[8] It is obvious that we can ask in the opposing direction whether the duration of a negative value has the same relation to its quantity as Nagel interprets the duration of a positive value. If pain for instance has a negative value we could conclude that it is worse to have it for longer than for less long. It would be better to get rid of the headache today instead of tomorrow. Interpreted like this the negative value gets worse through time. Also for this symmetrical value theory there are counterexamples to be found. A lot of athletes would for example argue that finishing a marathon race develops its satisfaction because it is such a long-lasting competition.

> *therefore, a person. For beings to be accorded the dignity of personhood, they must possess sufficient scope in time to take part in the process of valuing. Thus personhood may be seen to be necessarily a process, rather than simply a categorical state.'* (Horrobin 2006, p. 101)

This is an interesting analysis. Nevertheless it is an open-ended question whether the properties Horrobin is talking about ('self-consciousness', 'autonomy' and 'rationality') have a certain value. It is also not quite obvious why 'using these attributes' is a value or even necessary to engage in valuing activity. But besides these objections the questions remains: why should the duration of myself have a value? Indeed it is necessary to exist in time to be a person. This is true for every entity. But it has no effect on the value of its sustaining. It shows that it is necessary to exist in time; it does not show why it is also good. On the contrary, for instance pain that exists only for a nanosecond can also not be qualified as pain. But it would be odd to conclude that it is good to have pain for more than a nanosecond or even as long as possible just because otherwise we could not qualify it as a pain. In a similar way as in the previous argumentation there have been arguments in the debate on animal ethics which attempted to show that a continuous stream of consciousness is the necessary condition to be sentient and experience certain goods (Wolf 1992; Birnbacher 2008)[9]. Jean-Claude Wolf for instance argued that one does not need to prove that animals have an interest in their near future which is frustrated when they get killed. He assumed that the continuance of their life has a value whether they have an interest in it or not. These arguments claim that due to the necessity of a continuous stream of consciousness to perceive pleasures and joy this stream of consciousness has a value in itself. If we value things, such as joy, as something good occurring in our conscious life then we may conclude that a long lifespan is also good. But that does not necessarily follow. To

[9] Dieter Birnbacher discusses the argument of Wolf in his article on the killing of animals and it seems that he misunderstands him. He writes that Wolf argues circular when he suggests taking a life is an abrupt cancellation of the continuance of the stream of consciousness because this is just the meaning of taking a life. Rather, we assume that Wolf meant that continuance has a certain value and this value is taken.

present a valid argument here Horrobin and Wolf would have to show that a stream of consciousness is a sufficient and not only a necessary condition[10]. And then the question would remain which reasons do we have to believe this assumption?

To argue against this, a thought experiment can be useful in which a being has a continuous stream of consciousness but is not a sentient being. This kind of thought experiment is common in the philosophy of mind. It is not unnecessary to repeat that even the weaker assumption of the necessity of a continuous stream of consciousness faces the objections, which were claimed against Horrobin. It remains evident: in the same manner as joy and pleasures are part of our lives we are sooner or later confronted with pain and suffering. Both Horrobin and Wolf probably consider them as negative goods for a reason. These goods also enable the continuous stream of consciousness to be experienced. Would it therefore not follow that this stream has a negative value? We see that both approaches in their weak and their strong reading fail to satisfactorily justify the intrinsic value of life's persistence. Without further arguments the assumption that life's persistence is something good because it is the necessary condition to develop or experience values cannot convince. At the end of his article Thomas Nagel explains in a different way, and more precise of what we are deprived when death occurs. We should have a closer look at his demonstration . It might convince us of the need for life-prolongation. Nagel says that death deprives us of future possibilities. The deprived man of the prior example of the accident could have become a beloved family man, a father, a famous scientist or a writer. For Nagel, '[…] death, no matter how inevitable, is an abrupt cancellation of indefinitely extensive possible goods' (Nagel 1993, p. 69). If this would be true and the only reason for the evil of death in Nagel's approach then the death of a younger person would not be a greater evil then the death of an elder, because both the younger and the elder person lose an indefinite set of possible goods. This is at least counterintuitive. That would also mean this suggestion cannot be put forward to support life-prolongation technologies. There is a strong intuition that the death

[10] See Appendix below.

of Georg Büchner at age 23 is worse than the death of Sir Bertrand Russell who died at age 98. At the end of his article Nagel agrees on that intuition. Using an analogous example he writes:

> *'The death of Keats at 24 is generally regarded as a tragic; that of Tolstoy at 82 is not. Although they will both be dead forever, Keat's death deprived him of many years of life that were allowed to Tolstoy.'* (Nagel 1993, p. 68)

This is an odd conclusion in respect of what we discussed about Nagel's account so far. Till now, Nagel dealt with the value of death and the theory of deprivation. In this passage it seems that he changes his perspective from the value of death to the value of a long live. Also other authors struggled with this passage (Williams 1993). We already expressed the feeling that from Nagel's perspective both Georg Büchner and Bertrand Russell would be deprived of an indefinite possible set of goods. The same is true in the following example: a being that is already in the state of a contented infant when it dies is deprived of just the same indefinite amount of possible goods that someone who had a 'normal' life. Following Nagel the deaths of these two beings do not differ for them in any respect. This is an odd conclusion but it follows from Nagel's conceptions of death. In his deprivation theory all of these beings lose their life and a lot of future possibilities. The quote suggests that he may argue in the same way as Jonathan Glover did: if money for instance has a positive value is it not better to have 10 Euro instead of just 1 Euro (Glover 1977, p. 55)? Here we can suggest Nagel's argument. He says that Tolstoy has had more of the value of life then Keats[11]. Tolstoy was so to say 'better off' in this respect. This sentence is a bit misleading. It has a descriptive and a normative reading. The descriptive reading is some sort of tautology. It just

[11] There is a difference between an aggregation of the value of an individual life through time, which Nagel has in mind here and the aggregation of the value of the lives over a whole population. Nagel's assumption here is that no matter how many good or bad experiences an individual perceives in general the quantity of the value of his life increases like a linear function. This presupposes that a value exists and does not lead to the conclusion that an alternative world in which there would be more individuals and therefore more of the value is preferable (Williams recognized this similarity to his own argumentation (Williams 1993, p.80). This is an assumption that led some Utilitarian to problems about preferable world states. The way Jonathan Glover for instances puts it: 'the more is always better', probably leads to these sort of 'parfitian' difficulties (Birnbacher 1986)(Parfit 1984).

means the same as: he lived longer, he partook longer in his life. But the term 'more' also has a normative component and we are searching for a reason to believe that Tolstoy had more in this normative sense. Nagel writes at the end of his article that the quantity of a good is in part a function of its duration (Nagel 1993, p. 69). This would result in the conclusion that the movie *Dances with Wolves* was better than *Casablanca* just because it was longer. However Nagel's view again presupposes the intrinsic value of life. It is a statement which Nagel does not justify. He gives us no reason to follow him in this point. But let us suppose that he is right and the quantity of the value of life is in part a function of its duration. We want to argue against this by a thought experiment[12]. Nagel's preconditions of a long life and rich experiences are fulfilled in this thought experiment. But the experiment will show that these cannot be sufficient.

Let us imagine that we are caught by a mad scientist and let us furthermore imagine we are about 70 years old. We are in good health but we do not expect to live longer than 5 or 10 years. The scientist offers us a solution. He explains to us that he has developed a new technology. With a few clicks and moves a machine could make us in a breath live for another 30 years. But there is a catch. The machine is a beta version: it can prolong our lives, but only by repeating the experiences of the previous minute before we enter the machine. We undergo this minute and then the machine restores the situation and we can undergo it again. When the maximum of 30 years is reached we will die painlessly. The 30 years of life consist of the same minute which is again and again restored and repeated. The conditions of this state of existence are not worse than that of every other human being at our age. We will not suffer from the operation when the machine is implanted nor are there any negative experiences involved when we are awake. The minute goes by without any negative experiences.

[12] This thought experiment is partly inspired by the comedy *Groundhog Day* from 1993. Bill Murray plays a cynic announcer who is caught in a time warp. The 2nd of February repeats itself from the beginning every morning.

According to Nagel's argumentation we can suppose that he would choose the technological life-prolongation for his future existence. In this option his life is prolonged with guarantee for another 30 years and it is even of a fair quality. Nevertheless, we would consider his decision irrational. The thought experiment eventually shows that no one can be interested in a life just because of its duration. It seems that a life that exists in time has no value in itself. A life's sheer duration is not a sufficient condition to attribute a positive value.

To sum up, we have discussed five issues in this chapter: the 'No-Subject'-Argument, the deprivation of future possible goods, the intrinsic value of life, the aggregation of a value through time and the continuance of existence as a necessary condition for goods. Epicure's argument tackles the negative value of death. It is motivated by Epicure's suggestions that we irrationally fear death and waste our time by having this fear while we are not dying. The argument is based on the assumption that a subjective sensation is the precondition of a value, and as shown this fails. There are illuminative analogies that provide evidence against this suggestion. Nagel's deprivation theory is based on the assumption that life has intrinsic value. We found out that Nagel never provided an argument for this nor does he provide an argument for life-prolongation. It is always the same intrinsic value of life that ceases when someone dies whenever it happens. This is a problem for all the considered deprivation theories. They are futile in the debate about life-prolongation. The same is true for arguments that assume that we are deprived of certain goods. As long as these goods remain of the same amount over the whole lifespan, and this is central part of the Transhumanistic vision, there is no difference between early and late life deaths. The supporting premise that it is always better to prolong a positive value has been tackled by two counterexamples. Yet, playing a game forever or waiting for a gift endlessly can be used as evidences for the contrary. But the value of these experiences does not increase due to their duration. There is a strong intuition that people who die earlier than others are distressed by greater misfortune. Although Nagel agrees on this intuition, he fails to give a satisfactory explanation for it. The fact that Tolstoy had more of a value than Keats was

based on the assumptions that the quantity of a value is in part a function of its duration and that life bears this value. A thought experiment about a life that is prolonged over an average expected lifespan showed that these assumptions are fragile. Under the prospect of this thought experiment it is difficult to justify an intrinsic value of life and the goodness of its duration. A life that has duration, experiences and is free of unpleasant feelings is not necessarily a good life. If experiences are always the same and we cannot accomplish our plans life is without value. Even if life would be the kind of value that increases through time, it does not necessarily follow that its loss is less of an evil. We have to search for further attempts on the value of death that can handle our intuitions better. This will be looked at further in the next chapter.

(6) THE MAKROPULOS CASE[13]

We assume that if one wants to respond appropriately to the problems described at the end of the last chapter, one has to take the specific individual and his or her own wishes into account. Bernard Williams offered an analysis that can explain why the death of a younger person is worse than the death of an older person. Williams approach may also solve the problem why the death of someone who is in a permanent coma is not as bad as the death of someone who is in the same age and in good health. Although Bernard Williams argues in a similar manner for the evil of death as Nagel he extends his analysis and draws a completely different conclusion. While Nagel concludes that he would be glad to live forever, Williams argues that this is far from being desirable. Given that immortality is a central motive in Transhumanism it could be beneficial to explore Williams's refutation of this belief. We have seen that Nagel argued that death takes one's life away. This applies to comatose patients, babies and other non-human creatures as long as they are alive. And also the arguments of 'side-effects' apply to them. A baby that dies leaves parents and relatives behind. This also seems to be true at least for some other mammals. Bernard Williams's argumentation is in this respect more exclusive. In his conception death is a bad thing for some individuals when they are able to recognize themselves as beings that exist in time and when they bear categorical wishes for the future. Usually we call beings that fulfill these conditions persons (Singer 1994, p. 123; Schumacher 2011, p. 20). No matter how we call beings that fulfill these conditions, some beings are excluded from Bernard Williams's argumentation. However, this does not mean that the death of beings that are incapable of having categorical wishes is not bad. Williams may additionally defend the opinion that a baby, even though it is so badly off

[13] Unfortunately the recently published Tanner Lectures *Death and the Afterlife* of Samuel Scheffler could not be taken into account anymore (Scheffler, Kolodny 2013). Scheffler also dealt with Williams's argumentation and approved it. In his review of the publication Thomas Nagel disagreed with Scheffler's conclusion concerning a radically prolonged life. Nagel praised Scheffler's argumentation in a different respect (Nagel 2014). Scheffler argued that some activities (such as finding a cure for HIV) and goods gather their value only in respect of the outlook of a surviving civilization. This is an interesting idea and it would be worthwhile to deal with it in a further investigation.

that it has no relatives and no one who cares of it, has a social or a potential value for society. It is, however, clear that the border between beings whose death is bad due to losing categorical wishes is not congruent with the border of the human species in biological terms. Mentally deprived adults lack this precondition as well[14]. Bernard Williams argues that persons have categorical wishes for the future and death deprives these persons from the possibility to realize these wishes:

> *'To want something, we may also say, is to that extent to have reason for resisting what excludes having that thing: and death certainly does that, for a very large range of things that one wants. If that is right, then for any of those things, wanting something itself gives one a reason to avoid death. Even though if I do not succeed, I will not know that, nor what I am missing, from the perspective of the wanting agent it is rational to aim for states of affairs in which his want is satisfied, and hence to regard death as something to be avoided; that is, to regard it as an evil.'* (Williams 1993, p. 76)

The way Bernard Williams expresses this argumentation suggests that the evil of death can be justified by the meaning of 'wishing'. For a categorical wish or desire it would be rational to avoid circumstances that make its fulfillment unlikely. A general problem is that Williams's concept of a categorical desire is not really clear (Ehni 2009, p. 56). He says that 'there is not much of great generality to be said, if one is looking at the happy state of things [...]' (Williams 1993, p. 78). And this sparse remark cannot satisfy us. We can suggest that for a person who has categorical future wishes, his or her continuous existence is a necessary condition. Admittedly not all of our categorical wishes aim at things that require our existence to be realized. It is for example by no means necessary

[14] It is remarkable here that a deprivation theory based on 'wishes' does also have an effect on the discussion of 'side-effect'-arguments. The wishes of a person X may also include the continuing existence of beings which do not have wishes themselves. For example: it could be the wish of the parents that they see their baby growing older and become a mother or farther itself although this is a wish an infant can impossibly have.

that a person who has the wish his favorite candidate becomes chancellor of the German republic, is alive for its realization. There are also examples of wishes that can maybe never be realized. None of us will ever discuss the Anti-Socialist Laws with Otto von Bismarck. It is nevertheless not unreasonable to have that wish. It is quite apparent that also other appearances than death frustrate our wishes. A car accident resulting in an irreversible injury, say for instance the knee will probably frustrate the wish of becoming a successful soccer player.

Nevertheless, we propose that there are some wishes that are future oriented and presuppose our existence for its realizations. For instance that we will get children, become a beloved mother or a famous scientist. Nevertheless, the explanatory power of Williams's approach may be tested on the intuition that the death of a younger person is worse than that of an elder person[15]. And the alleged explanation seems to be sounder than the sparse remarks of Thomas Nagel on the topic. Williams could argue that elderly people already have fulfilled or realized certain wishes. Death deprives less unfulfilled wishes of someone who is 85 years old and has had children, written books and become a famous philosopher than for someone who is striving for these things but is deprived of the possibility to realize them. The death of an elderly person, following Williams, is therefore less bad then the death of a 24 year old person who is full of wishes and future directed desires. Is this a plausible account? There is a possible explanation for it, which refers to the quote of Bostrom from the second chapter. It is possible that elderly people do not develop new wishes because they lack the physical abilities to fulfill them or they expect that they will not have the time to fulfill them anyway. It is not unlikely that if someone expects to survive a lifespan of 150 years in best health conditions he or she may at the age of 90 develop wishes that would take another 25 years to fulfill for

[15] It is unfortunately not in the scope of this work to discuss whether some wishes are more valuable than others and if this has an effect on the value of death. We do often give up some wishes that seem to be less valuable (seeing a football match) for others which we find more valuable (being at our best friend's wedding). This sort of ranking may affect the value of our deaths.

instance the wish of reading all the works of Bertrand Russell. It is indeed not necessary that elderly people have fewer wishes than younger people. Fred Feldman assumed that his deprivation theory implies a proper explanation for the badness of an early death. He writes:

> *'[...] a person's death is bad to the extent that it deprives him or her of goods. This helps to explain our sense the death of a young person is generally worse than the death of a very old person who has already enjoyed a full, rich life. The loss suffered by the young person is greater than that suffered by the old person.'* (Feldman 1992, p. 226)

This is by no means intuitive to us. Feldman speaks of the full and rich life elderly people probably have had. Does that mean that the loss of certain goods is less bad if one had them for a long time? Is the loss of a friendship after 50 years worse just because it persisted for longer? If we think about our example from the third chapter: is the loss of a manuscript of our fictive philosopher after a long time working on it not worse than losing it after a week?

Maybe Feldman wanted to say something different. Maybe he wanted to argue that elderly persons do not partake in the same amount of goods anymore. Old friends and friendships have already ceased to exist and the pleasures of watching good movies and reading books have decreased. This interpretation has to be contrasted with the one we just discussed. it is a strong assumption on the richness of an elder person's life in respect of the included goods. We will specify the value of aging in one of the following chapters. But we can already mention that several authors have severe doubts concerning this assumption (Overall 2005). The German Nobel prize winner Thomas Mann for instance accomplished almost everything by the end of his life: fame, admiration and success (Kurzke 2001). By that time the brilliant writer had also finally found a way of dealing with

his suppressed sexual desires. It is not unlikely that a person like Thomas Mann had a richer life at a later stage of his biological development.

It seems that there is no solution in sight for our issue. Yet, there is one answer left: the intuition that the death of a younger person is worse for them than for an older person is misleading and we should dismiss it. It is by no means necessary that there are more wishes or more goods erased by death if one dies earlier than later. The badness of death is independent from the age when it occurs. Büchner's death does not necessarily deprive him of more wishes than it does to Russell. The alleged greater engagement of a younger person in social activities may support this intuition and it also may affect our judgment of the side-effects of his death. But this cannot be the reason why Büchner's death is worse for him now than later. Williams's argumentation leads to another conclusion that is worth dealing with. For the moment we assume that death is bad because it disrupts our desires and wishes. This seems to be a good reason. If Bernard Williams is right, one could conclude that it would be better to extend the lifespan endlessly to avoid any frustration. Bernard Williams may be inspired by that prospect just like Nagel was. But Williams negates the desirability of radical life extension. He deals with the outlook of being immortal in the second half of his article by analyzing the fictional character Elina Makropulos the protagonist of a play of the Czech writer Karel Čapek. Elina Makropulos drinks an elixir that prolongs her life to an unnatural span of 342 years. Due to the elixir her body remains in the state of a 42 year old woman for 300 years. But the situation appears to her as a terrifying state of existence. Incredible boredom takes over and she decides to stop taking the life-prolonging remedy:

> *'Her problem lay in having been at it [the age of 42] for too long. Her trouble was, it seems boredom: a boredom connected with the fact that everything that could happen and make sense to one particular human being of 42 had already happened to*

> *her. Or, rather, all the sorts of things that could make sense to one woman of a certain character [...].'* (Williams 1993, p. 82)

It is not hard to imagine that a state of comprehensive boredom is undesirable. Elina Makropulos is obviously in an unfortunate situation. She lives in absence of any pleasures and goods. And one might ask: why has she not changed all of her habits, develop new hobbies, new desires and so forth? Williams says that a dilemma occurs which is necessarily connected to an extremely extended lifespan. If life should be desirable for a person, the person must continuingly develop categorical wishes, otherwise boredom occurs, and he or she has to be the bearer of these wishes. The second half of this conjunction is an issue of personal identity. Williams assumes that we are interested in keeping our own identity. A prospect in which another person lives, develops new desires and fulfills their wishes is nothing we would turn down. Becoming a different person would mean the irreversible end of the existence of our current identity and this is not desirable to attain (Parfit 1984, p. 200). Williams argues that in an endless life we would either lose our categorical wishes or fulfill them, or we would develop more and more new wishes and while that happens we would lose our personal identity - or in Williams terms our 'character'. Losing our identity or suffering intolerable boredom are the only possible alternatives in the life of an immortal. Williams never defined what exactly a character is, but one can assume that it is a (definite) set of wishes and desires that applies to an alleged definite lifespan. In this notion lies a problem we will talk about below. Williams's argument became widely acknowledged and has both proponents and opponents in the debate about life prolonging technologies.

Before we come back to Williams we want to discuss some arguments of the debaters. Hans Jonas for instance supported Williams claim implicitly. He argued against the desirability of immortality. Jonas made an explicit reference to the biotechnological and medical debate. He denied that lengthening life is a legitimate goal of biomedicine

because it would mean the end of novelty in the world. For Jonas novelty can only be brought by newborns and this is due to limited resources only possible if people who are already alive die. Both are, however, doubtful assumptions. Let us suppose that novelty really has a positive value for us. Why can this value only be brought to the world by newborns?. Again, a good example here is Thomas Mann, who was creative until the end of his life and the same is true for many scientists and artists. Jonas' second assumption is fragile as well. If the situation occurs and we reach a lifespan of 300 years it is quite unlikely that we still depend on earthly resources and space in the same way as we do today. However probable this outlook is, at the moment the prospect that resources will extinguish is as plausible as it's contrary and are therefore not convincing. Besides these arguments, he claimed that in respect of our current physical condition it is unlikely that our brains will manage to continually perceive such a huge amount of information over an indefinite timespan:

> *'[...] we are finite beings and even if our vital functions continued unimpaired, there are limits to what our brains can store and keep adding to. It is the mental side of our being that sooner or later must call a halt even if the magicians of biotechnology invent tricks for keeping the body machine going indefinitely.'* (Jonas 1992)

This is rather an empirical assumption and at the moment there is no evidence for it (Maylor 2005). Jonas also left open why a premature death should be an evil if our mortality is in general a blessing (Callahan 2011). Also Leon Kass asks the question: how much longer can life remain a blessing for the individual (Kass 2001)? With less profound arguments but in the tradition of Williams he answers that at least immortality would be undesirable. He presents several arguments for this proposition. One of them is often discussed in the debate on life prolongation: without being finite one would lose interest, motivation and engagement. He emphasizes that 'mortality makes life matter' and our

finitude results in an urgency to act. But is it really the case that I am going to travel around South America instead of doing it next year or in 5 years because I will maybe not be able to do it anymore in the distant future? Is it not a more plausible explanation that I do it because I want to do it now? Arguing in both directions is not convincing and does not provide enough ground for a good solution.

Amongst others Kass failed to take a significant distinction into account. It is the difference between immortality and invulnerability which we considered in chapter three. That brings us back to Bernard Williams. Beings like Elina Makropulos, Count Dracula or Superman are mortal and vulnerable; they just have a very long life if nothing detracts them. This is also significant for the Makropulos case. For the fictional character Elina Makropulos the sting of death is not gone and she is not forced to survive in the state of existence she is living in after 342 years. So the problem is not only that Williams argument depends on the plausibility of the fictional Makropulos story, which has often been criticized as unsatisfactory (Ehni 2009, pp. 61–62; Glover 1977; Horrobin 2005, pp. 16–19; Fischer 2009). The story is based on the precondition that Elina develops her character till the age of 42 expecting that she will have an average lifespan. She may be bored because she did everything that someone who expected to become only about 80 years old wants to do. The fact that Elina Makropulos became 'immortal' when she was 42 maybe shows that she got bored. She developed her basic wishes assuming that she will become about 70 or 80 years old. If we would know from the very beginning that we have a lifespan of 180 years we would probably stretch our plans and wishes to fit these circumstances. Another explanation why she gets bored may be found in Elina's character itself. In the quote above, Williams argues that all the things that could make sense to a woman of her character already happened to her when she is 42. Elina Makropulos is possibly just a boring person. There are some people who cannot even fill a life of average length with a variety of actions, interests and enterprises. These people do not suffer from a life that is too long, but from a lack of richness of ideas and creativity. Besides

these remarks there is another reason why Williams' account cannot be an argument against radical life-prolongation. At the end of his essay Williams points out, that we should be thankful to have the possibility to die and that the technological progress makes this possibility less likely (Williams 1993). But this is exactly the option that does not disappear for Elina Makropulos. The case is rather this: as long as she has the possibility to die and escape the state of boredom if she wants to Elina Makropulos had an above-average life-span till the state of boredom appears. The worst thing that could happen would be that she had to live an eternity in the state of boredom.

The ancient Greeks had a certain affinity to stories in which repeatedly doomed persons had to suffer from the same terrible task or sentence (Sorensen 2006). In the myth of 'Sisyphus' for instance the king of Ephyra was compelled to roll an immense boulder up a hill only to watch it roll back down and to repeat this action forever. In another myth Zeus sentenced the Titan Prometheus to eternal torment for his transgression. The Titan was bound to a rock where each day an eagle was sent to eat his liver, which would then grow back to be eaten again the next day. These Greek myths raise a reluctance that is not only based on the fact that something terrible happens repeatedly. The reluctance does not come from the aspect that there is task that has to be done repeatedly, rather it arouses from the aspect that the involved subjects suffer eternally from their sentence. Why should Sisyphus care about rolling a boulder up a hill for years or decades, if he can continue his normal life as the king of Ephyra afterwards? Or Prometheus, the Titan who is immortal: why should he be bothered by some years of pain? As long as the rest of his immortal life is free of such misfortune a sentence seems to be bearable for a Titan. Both the myths and the story of Elina Makropulos gather their unpleasantness from the fact that the outlook is eternal suffering. But at least for Elina Makropulos this is not necessarily the fate. She is not forced to live forever. She can escape from her state and she apparently does in the end. Till then she has had an allegedly rich above-average long life. One last aspect of William's argumentation deserves to be discussed in this chapter.

The second part of William's immortality dilemma was that we are not the same persons anymore if we change our character traits and interests permanently during such a long period of lifetime. This assumption has, amongst others, been criticized by John Harris (Harris 2007, p. 65). Harris argued convincingly that we are momentarily interested in our tomorrow and tomorrow we are interested in our "after-tomorrow" and so forth. If this is true, then there is a continuation in our wishes to the future even though there is no character trait left between us at the age of 184 and us at the age of 25 that remained the same. One could indeed say that we became a different person in time. But this prospect cannot be a reason against the desirability of this prospect as long as we are interested in our tomorrow. The continuing interest in our near future provides the reason to care about a future that seems to be far away.

To sum up the results of this chapter: Williams's approach, despite all uncertainties seems to have the most explanatory power for cases of the death of two beings in which one is already deprived and another one is still the bearer of his wishes and consciously striving for their fulfillment. Intuitively, we would argue that these deaths are not equally bad for the particular individual. Williams could explain this even though both lose their lives and indefinite alternatives. Nevertheless we did not find an answer to the question why death is worse for someone who dies younger. Because there seems to be no explanation available, I would argue to abandon this intuition. We considered Williams's approach on the monotony of immortality. He fails to convincingly argue for the undesirability of such an outlook. The power of his argument is mainly based on the plausibility of literary fiction. But Elina developed her character expecting to die at an average age, which explains her later boredom. It is not impossible that our characters could be suited to the outlook of a very long life with different wishes. We agree with Harris that even if we would change all our character traits at once we are at least interested in our existence tomorrow. That is sufficient insofar as the structure of this attempt can be applied to all the following days *ad infinitum*. Additionally as long as Elina is vulnerable she can end her

suffering just like everyone else. We also showed that the attempts against the desirability of immortality of Hans Jonas and Leon Kass are not convincing. Nevertheless, most humans are future oriented beings with wishes and desires whose realization is impeded by death. This remains the most promising account to reason for the evil of an individual death. Not because it presupposes our existence for its realization which makes our existence valuable, but because the very concept of 'wishing' seems to imply a negative evaluation of deprivation factors.

(7) THE WAR AGAINST AGING

Aubrey de Grey is a biomedical gerontologist and Transhumanist. He is on a mission against aging which brought him the title 'prophet of immortality' (Joseph Hooper 2005). Indeed some Transhumanists assume that aging is the key to overcome our mortality. De Grey founded the Research Foundation *Strategies for Engineered Negligible Senescence* (SENS) and writes books and articles about his research and his fight against aging. As a crusader against aging it seems that de Grey found an enemy worth fighting. The military metaphors speak for themselves. De Grey declares that we are facing a proponent that threatens us with his evil in a way that only his complete destruction can solve. What is aging in de Greys opinion? He writes:

> *'In the context of discussing interventions, ageing can be defined as the lifelong accumulation of various intrinsic side effects of normal metabolic processes, which ultimately reach an abundance that disrupts metabolism and causes severe dysfunction of tissues and the whole organism. Some aspects of this dysfunction are classified as age-related diseases, and some less specifically as 'frailty', but their common cause is the accumulation of damaging metabolic side effects. Accordingly, treatments that either slow the rate of that accumulation or actually reverse it will, if sufficiently comprehensive, postpone the recipient's decline into age-related ill health.'* (Grey 2005, p. 49)

Some gerontologists support his view (Immortality Institute 2004)[16]. Most of them base their opinion on the latest findings in research on fruit flies and rodents (Rose 2004, 2013). In some laboratory experiments caloric restriction has caused an increased lifespan of these animals. The presumably responsible genetic components have been successfully identified and manipulated (Grey 2005, p. 49). Proponents of de Grey's viewpoint tend to state that

[16] A helpful and comprehensive overview of the anti-aging movement and its goals was given by John Vincent (Vincent 2013).

aging is itself a disease (Drexler 1986, p. 115). Eric Drexler for instance suggests this. His understanding of aging is mainly biological, like that of Aubrey de Grey. He assumes that aging is a natural biological process that can be managed one day by nanobots, little repair machines on the nanoscale, which are able to fix or restore damaged cells in the human body. As other anti-aging researchers and Transhumanists, he suggested that in doing so we are contributing to prior technological developments like for instance penicillin that helped us to master aging. The military metaphors are evident in his writings:

> *'Aging is natural, but so were the smallpox and our efforts to prevent it. We have conquered smallpox, and it seems that we will conquer aging. Longevity has increased during the last century, but chiefly because better sanitation and drugs have reduced bacterial illness. The basic human lifespan has increased little. Still, researchers have made progress toward understanding and slowing the aging process. They have identified some of its causes, such as uncontrolled cross-linking. They have devised partial treatments, such as antioxidants and free-radical inhibitors. [...] With cell repair machines, however, the potential for life extension becomes clear. They will be able to repair cells so long as their distinctive structures remain intact, and will be able to replace cells that have been destroyed. Either way, they will restore health. Aging is fundamentally no different from any other physical disorder; [...].'* (Drexler 1986, pp. 114–115)

We already insisted in the first chapter that the average human lifespan did increase while the maximum lifespan did not. In this respect Drexler is mistaken. There is no person who ever grew older than 120 years. Qualifying aging as a disease is common for the antagonists of aging and death (Achenbaum 2005). It is however a misunderstanding of the meaning of a disease. Diseases are usually accompanied by at least some weaknesses. But most of the time we do not perceive any of these although we are aging all the time. Using the term disease for the aging process is therefore problematical. It is as if one qualifies the storm as

the lightning, just because almost every storm is accompanied by lightning. Nevertheless, we can see the strong rhetorical power of this identification. Few gerontologists severely doubt the evidence of Aubrey de Greys results. The proponents of de Grey's vision recently faced the so called "war against anti-aging" (Olshansky et al. 2002; Binstock 2003). These discussions are essentially not about the value of aging, but about the quality of biological theories of aging. There is, however, a link between these two perspectives of aging, the normative and the theoretical, which is discussed in this chapter.

There is no doubt that both opponents and proponents of the war against aging have to deal with the uncertainties of current gerontological science. One epistemological problem that often led to argumentation fallacies is closely related to these issues. The fact that an X (a feature, or an entity) is more likely to occur to or in the lifetime of an object is not necessarily the cause for its occurrence. Let us consider the following example: the fact that the earth exists for a very long time makes it way more likely and probable that a meteorite will cross its orbit and crash into the planet as if it would have lasted just for a day. That does not mean that the fact that the earth existed longer was the cause of its destruction. The same can be said in the following case: being a pilot heightens the risk that you will be in a plane crash, but obviously this would not be the cause for it. Therefore we can argue the fact that the amount of diseases increase during the lifetime of person is not necessarily caused by the fact that the person has grown older. Until there is more evidence it would be more reasonable to call diseases which appear more frequently in later ages like dementia age-related diseases instead of age-caused diseases (Blumenthal 2003). Moreover, we should have a look at the normative aspect of de Greys aging theory. Let us assume that de Grey is right and aging is ultimately a biological process. It contains metabolic processes that cause diseases and death. De Grey states then that it is indeed a sad fact that aging is the cause of some terrible diseases that occur when we get older. In his book *Ending Aging: The Rejuvenation Breakthroughs That Could Reverse Human Aging in Our Lifetime* he writes that his research, and actually the whole enterprise of anti-aging research, is about the

abolishment of the unbearable suffering and pain that is caused by aging (Grey et al. 2010, p. 16). The complete argument with its normative conclusion can be summarized in the following deduction:

I. Everything that causes suffering is bad.
II. Aging is a metabolic process in a biological organism.
III. Metabolic processes cause diseases.
IV. Diseases usually involve suffering.
V. Therefore aging is bad.

At first this seems to be a formally valid argument. There are, however, some issues related to this type of arguments that have been discussed in the debate surrounding the naturalistic fallacy. Before we come back to our main concern we should have a short look at these issues because their content are sometimes explained incorrectly. These issues concern the meaning and extension of normative predicates such as good and bad (Engels 1993; Frankena 1974). One of these issues has been expressed by John Leslie Mackie and a brief look on his objections is helpful, however it is not in the scope of this work to deal with his arguments comprehensively.

The generality of the first premise in the argument above leads to the conclusion that such different things like the sun, death and human acts can be attributed with a normative predicate. If this is true, normative properties such as 'good' and 'bad' are indeed unusual entities as John Leslie Mackie has argued with a variety of examples (Mackie 1981, p. 43). But what is wrong with unusual entities? Thomas Nagel lucidly showed that Mackie's account of excluding normative facts of the set of possible facts about reality is based on a *petition principii* (Nagel 2012, p. 249). Mackie never explained evidently why reality should only involve natural properties and exclude elaborate properties such as values of the set of real properties. But aside from these specific meta-ethical concerns by Mackie and for example G.E. Moore, which rather deal with the soundness of arguments about the meaning

and the ontological status of values and how our cognitive approach to them is possible, there is another type of naturalistic fallacy. In contrast to the objections of Mackie and other writers this can be qualified as a 'real' fallacy (Frankena 1974). It is obvious that the argument stated above would be incomplete without the first premise. Naturalistic fallacies of this kind rest on this mistake: they conclude from a descriptive premise to a proposition that includes a normative predicate by skipping to show evidence for a general premise including such a normative predicate. But this is the precondition for a valid argument. David Hume, who recognized this fallacy, wondered rightly how a deduction from two entirely different things could work. Arthur Caplan for instance presupposed that one could make a claim against anti-aging medicine if one could show that aging is a natural process[17]. He took this approach quite seriously and spent a lot of effort in proving the contrary of the naturalness of aging. This just led to a likewise invalid argumentation. Caplan wrote in his article *Death as an unnatural process* in a report of the European Molecular Biology Organization (EMBO) from 2005:

> *'And, if this [that aging has no evolutionary use] is so, it would seem that the common belief that ageing is a natural process is also mistaken. And if that is true, and if it is actually the case that what occurs during the ageing process parallels the changes that occur during paradigmatic examples of disease [...], then it would be reasonable to consider ageing as a disease. [...] As such, there is no reason why it is intrinsically wrong to try to reverse or cure ageing.'* (Caplan 2005, p. 75)

Arthur Caplan is an American bioethicist. He is a member on the Board of Trustees of the *Institute for Ethics and Emerging Technologies*. This institute is led by the famous

[17] It is unfortunately not in the scope of this work to discuss in which variety of meanings the term 'natural' is used. At least these three notions can be differentiated. Their extensions are incongruent.
a) X is a natural property if and only if X is necessary for individuals of a species or a class to survive.
b) X is a natural property if and only if X can be found in every individual of the species or class.
c) X is a natural property if and only if X can be found in some individuals of a species throughout the history of this specie.
While Drexler's example with the smallpox is true for the definition c) it is not true for the definition b) and a), the property of 'having a lung and a heart' is true for every definition. These differences are rarely recognized when human nature and its value are discussed.

Transhumanist James Hughes. In the quoted article Caplan argues that aging has no evolutionary function. He assumes if aging is not a natural process then there is nothing wrong with striving for its abundance. In his case the identification of aging with a disease is also rather a rhetorical instrument. If Caplan has shown satisfactorily that aging is not natural, it does not follow that natural things are not good[18]. What he would need to show is why everything that is not natural is bad or does not need to be protected. This is the missing premise in the argument of Caplan. And of course the same can be said about arguments for the contrary: the assumption that everything that is natural is good is the missing premise which we added in the de Greys analysis which he missed to justify. As mentioned at the beginning of this chapter this is not an uncommon fallacy in this context. The arguments that justify that it is good to age because it is natural without showing that everything that is natural is good commit the same fallacy. And most conservative authors have seen that accepting the broad proposition that everything that is natural is good would probably include things like suffering and other unpleasant experiences that are obviously not good (Meilaender 2011; Fukuyama 2003, p. 115).

The above quoted passage of Eric Drexler on aging shows that he was aware of this fallacy. He agrees on aging as a natural phenomenon, but immediately adds that there are lots more things that could be qualified as natural phenomena that cannot be considered as goods such as smallpox. Not every natural property, however wide or narrow we interpret the notion of 'natural', is good. We may for instance rhetorically ask whether tsunamis deserve protection because they are natural. We just differentiated between a 'strong' and a 'weak' naturalistic fallacy and saw that the strong fallacy, the human version, is committed in this debate by a few authors. To conclude the observations on the naturalistic fallacy, we want

[18] If the argument of the 'Bioconservatives' is: N: Natural, G: Good/Deserves Protection, A: Aging
$A \rightarrow N$
$(N \rightarrow G) \leftrightarrow (\sim G \rightarrow \sim N)$
Therefore: $A \rightarrow G$
Caplan suggests falsely that this follows when he shows that aging is unnatural: $\sim N \rightarrow \sim G$

to assume that there is *prima facie* nothing wrong in relating normative predicates to descriptive predicates in the sense Mackie had in mind[19].

For the following we should come back to the argument of the value of aging. The most interesting question here is this: do the premises II and III represent an adequate account on aging? The assumption of de Grey is: aging is a biological process that causes diseases. Is this the only thing that can be said about aging? This seems to be at first a very gross shortening of the complex phenomenon of aging. In their article *The Problem of Theory in Gerontology Today* from 2005 the authors Vern Bengtson, Norella Putney and Malcom Johnson identified three main issues in contemporary gerontological research: biological and social processes of aging, the aged themselves and age as a dimension of structure and social organization (Bengtson et al. 2005). This list makes at least one relevant distinction for our discussion. It says that the process of aging is biological and social. This is a crucial observation. What does this mean? There are various age-related phenomena. Latest research in the psychology of aging has shown that there is no measurable decline in the intelligence of elder people but rather an improvement of practical skills (Sternberg, Grigorenko 2005). Furthermore there are several findings in the role of elderly persons of authority in the family bond, the age-related setting of new goals and the effects of late career climaxes and retirement. These studies observe and investigate age-related social and psychological developments. Mental and social changes in late life are two of the numerous features which are part of the aging process. If these sociological and psychological observations want to be taken into account to express a comprehensive theory of aging, it requires from current gerontological research an interdisciplinary approach. Therefore several doubts have been raised whether a comprehensive theory of aging can be found in the near future. The above quoted Bengtson, Putney and Johnson underline this requirement when they write:

[19] If it is at all possible to have an ethics without this identification is not quite clear. In the tradition of Iris Murdoch Cora Diamond expressed recently her doubts concerning this claim (Diamond 2012).

> *'The field of gerontology itself is in need of integration, because so many more factors are now recognized to be involved in human ageing. For the mountains of data to yield significant new insights, an integrating framework is essential. But this cannot be done without theories and concepts that are broader and more general in scope. This lack of integration in theories of ageing is also an artifact of disciplinary specialization.'* (Bengtson et al. 2005, p. 6)

By referring on this we do not want to reason that it is in general impossible to include social phenomena in biological theories and explain them properly. But we do doubt that this is possible through the state of the art contemporary gerontology observation of fruit flies y. Progress in this field is possible in this respect. At the moment the picture Transhumanists have in mind when they talk about aging is a 'biologization of aging', as John Vincent calls it (Vincent 2013). Vincent and other authors investigated the social construction of aging as a solely biological phenomenon and the normative conclusions drawn on this basis (Jones, Higgs 2010).

For our perspective we can sum up the following: Aubrey de Grey and other anti-aging researchers draw a quite negative normative conclusion from a picture of aging which is far from being comprehensive. Furthermore, there is an interesting implication in respect to the picture a Transhumanist has of a desirable age. An article of Thomas Kirkland on the *Biological Science of Human Ageing* supported de Grey's view that metabolic processes affect aging and longevity. In this article we find the following quote:

> *'Ageing is neither more nor less than the progressive accumulation through life of a variety of random molecular defects that built up with cells and tissues. These defects start to arise very early in life, probably even in utero [...]. Ageing is a continuous process, starting early and developing gradually, instead of being a distinct phase that begins in middle to late life.'* (Kirkwood 2005, pp. 74–75)

In opposite to Aubrey de Grey, Thomas Kirkland presented his biological perspective without any hidden normative agenda. So let us assume that the biological aging process starts at the very beginning of our biological existence. Which effect does that have on de Greys argumentation? As we explored in the second chapter, Aubrey de Grey and other Transhumanists favor and appreciate bodily and mental pleasures. This is especially true for bodily pleasures such as sex, which presupposes a certain biological development. David Pearce talks so much about sexual and erotic pleasures that one can hardly imagine that he could stand losing this joy (Pearce 1995). Sometimes Transhumanists express that the preferred stage of age to live in is between 20 and 30. De Grey for instance speaks about the desirable unspecific stage of 'youthful vitality' (Grey 2005, p. 51). In a list, which was made by Nick Bostrom and Anders Sandberg, we find goods which allegedly enrich the well-being of individuals such as 'abstract thinking' and 'friendship' (Bostrom, Sandberg 2009). Whenever Transhumanists talk about the benefits of an age he or she is referring to bodily and mental pleasures that require a certain physical and mental development. When Max More speaks about the good of creativity and activity it is unlikely that he means building Lego castles. But then it is unusual or maybe even contradictory if biological aging is the precondition to reach this desired age if argued that aging as a development should be overcome. Without aging we would never grow older and therefore never reach the stage of maturity or 'youthful vitality'. If metabolisms are the basic biological principle in organisms then they do not only cause diseases, but also all the other social and psychological phenomena that are related to our pleasures and experiences. One could claim that without aging we would not bear the mental capacities that make us enjoy decent irony and philosophical discussions[20]. This means de Greys' analysis is an unjustified reduction of what

[20] A humorous dealing with this idea can be found in Lewis Carroll's *Alice's Adventures in Wonderland*. As Martin Gardner, the editor of the annotated version of the story points out, Carroll parodies several common poems from the Victorian age which pupils had to learn by heart back then (Carroll et al. 2000). One of them is a parody of *The old man's comforts and how he gained them* by Robert Southey from 1799. In Carroll's version of the poem a young guy asks his father how he learned all the skills and gained all the pleasures he enjoys in his late life. The father responds that they emerged over the years as a result of his age and several mistakes and misfortunes he made and experienced in his youth. One of the last verses is:

aging is to some of its negative consequences. It fades out of all the other relevant aspects of aging especially that we gain experiences and receive the pleasures of fulfilled lifetime dreams. A theory of aging like that of de Grey, focused only on the underlying biological processes which cause diseases, is either an extremely insufficient reduction or an incomprehensive picture of aging.

To sum up we can say that the war against aging faces several objections. Uncertainties in gerontology give us a reason to name diseases, which occur mainly in later age, rather age-related diseases than age-caused diseases. However, if we assume that aging is basically a biological process that causes diseases and is therefore bad, this suggestion faces other objections. We considered some arguments surrounding the naturalistic fallacy. We differentiated between a 'weak' and a 'strong' naturalistic fallacy. Aging would be bad if it would cause diseases. But aging is either more than just the cause of diseases or the considerations fade relevant social and psychological aspects for a proper evaluation out. Transhumanists such as de Grey unfairly reduce aging to its negative biological aspects. This is a fragmentary concept of aging. The war against aging would probably cause a collateral damage that he or she cannot reasonably desire. It would erase goods that are to the most Transhumanists valuable after all; goods that do not appear in biological theories of aging.

'"In my youth," said his father, "I took to the law,
And argued each case with my wife;
And the muscular strength, which it gave me to my jaw
Has lasted the rest of my life."' (Carroll et al. 2000, p. 51)

(8) THE MORAL OBLIGATION TO POSTPONE DEATH

The idea that death is something bad and anti-aging medicine may postpone or even cure us from dying is related to the conclusion that if overcoming or postponing death would be possible it would be our moral obligation to use this technology. One may assume that if this is true and we have the moral obligation to use and apply anti-aging technologies then it would also be an imperative to our society to develop these technologies. This belief is a quite harsh attack to the enemies of life-prolongation. It is expressed in most of de Grey's writings, for instance in his article with the indicative title 'Resistance to debate on how to postpone ageing is delaying progress and costing lives' (Grey 2005). In one of his other articles he expresses the claim that people who do not support the anti-aging movement are responsible for the death of the people who could have been saved by future biotechnological means:

> *'Death is, quite simply, repugnant, however much the slowness of most people's physical and cognitive decline may allow us to come to terms with it in advance. The fellow-countrymen of the mass-murdering pioneers of the New World, sitting at home and hearing patchily of such events, doubtless felt some mild discomfort at them but felt that it was ultimately the natural order of things in a generally brutal world, still rife with wars between wealthy nations. It took an advance in our understanding of how to live together, and a consequently greater appreciation of the value of all human life, to open our eyes to the horror of such activity and bring it to an end. Quite simply, we became civilized enough to resolve the stark internal inconsistency of our moral position. We are still becoming more civilized today; shortly we will, at long last, arrive at the collective realization that death of the old is as barbaric as death of the ethnically unfamiliar. Those who defend our current amorality in this regard will be consigned to the same dark Corners of history as those who defended ethnic 'cleansing in centuries past.'* (Grey 2013, p. 217)

De Grey apparently supposes that anti-anti-aging proponents commit mass murder. The analogy at the end of this quote leaves no room of doubt for this reading. He compares the activities of his opponents to ethical cleansing and qualifies this practice as 'barbaric'. The belief that everyone who does not support the development of anti-aging medicine and technologies accepts and supports the unnecessary deaths of many is spread widely in the Transhumanist community (Drexler 1986, p. 129). Bostrom also expresses this belief. At the end of his fable, when the King concludes resigned that we could have rescued so many people: 'Yes, we did it, we killed the dragon today. But damn, why did we start so late? This could have been done five, maybe ten years ago! Millions of people wouldn't have had to die' (Bostrom 2005a, p. 276). The king blames himself and the people who voted against the Dragon defeating technologies. It seems that we should have a bad conscience when we read this. Two central beliefs are expressed in these quotes: the first is that not developing biomedical technologies to prolong lives and cure diseases equals killing people. The second is that individuals who are in charge and the society as a whole are responsible for this fatal consequence. Following this concept there is no natural death anymore. Future deaths are always premature and unnecessary. Each individual death is the result of some sort of omission.

As we said before in the context of the discussion of the Epicurean argument: even if Epicure assumes that death does not matter to us, he is not forced to conclude that it is not bad to take a life. He may question for instance in which way such an act increases the delight or the blessedness of the life of the person who commits the killing (Epicurus, Krautz 1980). Killing is an act that could be wrong whether death is an evil for the dead person or not. It could still be morally wrong in respect of other criteria. However Transhumanists and other Prolongevists argue in two steps: an individual who is in charge of using a life-prolonging technology is obliged to do so if the person in need agrees with its use and there are no other reasons against the usage. This is the first assumption with which we want to deal for

a start. John Harris expresses these creeds without ambiguity in his work 'Enhancing Evolution':

> *'When we save a life, by whatever means, we simply postpone death. Since lifesaving is just death-postponing with a positive spin, it follows that life-extending therapies are, and must always be, lifesaving therapies and must share whatever priority lifesaving has in our morality and in our social values. So long as the life is of acceptable quality (acceptable to the person whose life it is) we have a powerful-and many would claim overriding-moral imperative to save the life, because to fail to do so when we can would make us responsible for the resulting death.'* (Harris 2007, p. 59)

The same belief can also be found in his article 'Immortal Ethics' (Harris 2004, p. 530). Harris' book 'Enhancing Evolution' addresses 'all moral agents' (Harris 2007, p. 3). Whereas Harris neither calls himself a Transhumanist nor is he engaged in transhumanistic enterprises, he supposes nevertheless that the agenda expressed in 'Enhancing Evolution' and several other books and articles may lead humanity to become something like Transhuman (Harris 2007, p. 39; Harris 2009, p. 136). Although Harris did not adopt a name for his ethical theory, his approach here and in other writings can be described as Utilitarian with a strong focus on the respect of person's autonomy (Harris 2003; Glannon 2008). We already mentioned in the second chapter that there are several different forms of Utilitarianism (for an overview see Höffe 1975). But one can say that for the Utilitarian, and for Harris in this case, an act is good when it results in the best state of possible affairs. This notion of a good act however broad disrespects a few properties of acts that may have moral significance. This becomes apparent when we look at the difference between acting and omitting. Peter Singer, just as John Harris, does not differ between consequences that have been caused by omitting or by willingly striving for them (Sullivan 1997; Singer 1995). If the outcome of an act is a negative state then it should be avoided. On the contrary, an omission that leads to a negative state

should also be avoided. Such an omission is considered as exactly as bad as the act towards that state. In his book *Rethinking Life and Death* Peter Singer expresses this belief quite clear:

> *'Can doctors who remove the feeding tubes from patients in a persistent vegetative state really believe that there is a huge gulf between this, and giving the same patients an injection that will stop their heart beating. Doctors may be trained in such a way that it is psychologically easier for them to do the one and not the other, but both are equally certain ways of bringing about the death of the patient.'* (Singer 1995, p. 221)

It is interesting that Singer has apparently recognized that doctors have a certain resentment against killing patients. But instead of taking this resentment into account and question his ethical theory, Singer tries to explain this as a sign of inculcated blindness of the doctors towards the truth concerning the morality of this situation. The truth for Singer seems to be that the doctor who refuses a treatment when the patient has the wish to live longer is as guilty than when he kills him. John Harris draws the same conclusion in his article on *Consent and the End of Life*. He writes:

> *'A decision not to give someone treatment which might sustain their life or postpone death when they desire such life extending treatment is to kill them and in the absence of a justification adequate to the seriousness of the consequences of the decision is as culpable as murder.'* (Harris 2003, p. 10)

We can admit that in the context of treatment the distinction between acting and omitting loses its significance. In the quotes with the treatment examples of Harris and Singer, the collapse of the dichotomy of acting and omitting develops certain plausibility. Nevertheless, the treatment situation is a special case and deserves a closer look. The first quote of John Harris does not only refer to treatment situations. Both Singer and Harris suppose that there is no difference between acting and omitting in every possible case of action and especially

Harris uses this collapse to show the necessity of a ubiquitous application of life-prolonging technologies. We cannot provide a comprehensive moral theory in this work. But our suggestion is that neither Harris nor Singer provide good reasons why the consequence of an act should be the only significant feature for a moral evaluation of actions and omissions. We can suppose that consequences are crucial but these are maybe neither the major feature nor the most important for moral considerations of this kind (Birnbacher 1995). To make this point clear we should discuss some cases and explore them and some ideas concerning them:

a) Jim is a fictive person travelling around in a foreign country. He is unwillingly caught by a paramilitary group. For political reasons they want to set a warning sign. They hold a group of 20 Indians imprisoned. They force Jim to either shoot one of the Indians by himself or otherwise they will shoot all of them (Williams 1979, p. 72).

b) A fictive person Harold is a student. For some months he has suffered from pain in his knee. Still he cannot wait to participate in his first half marathon for which he has already registered. After some struggles with his conscience he decides to spend the last money he has left for the month to buy new Adidas running shoes. At the same time on the other half of the earth a 7 year old African child suffers from a lack of water during a period of dryness. Although it is not for sure, it is not unlikely that it could have been saved with exactly the money Harold just spent for his shoes.

c) The fictive person Maude leaves her office after a stressful day of work at 5 p.m. on a warm summer day. Maude is an ordinary person who works as a lawyer for a firm in New York. When she leaves the building a child is yelling and obviously drowning in the one meter deep pool in front of the building outside (Singer 1994, p. 292).

Although these stories don't seem to have much in common they do share a feature that is in the focus of our current exploration. The decisions of these persons do have a more or less direct effect of the future and life of some other persons or respectively sentient beings (for one does not want to qualify the child in case a) as a person). Without claiming completeness some observations should be made while we keep Harris' and Singer's ethics in mind. Case a) was used of Bernard Williams as a general attack against Utilitarianism. One thing is for sure: if Jim refuses to shoot the person the Utilitarian would blame him for causing the death of twenty persons. This would be the direct consequence of his decision. Williams wanted to show that Utilitarians demand too much from individuals. He argued that demanding Jim to shoot the Indian is an attack on his integrity. He should not be blamed for the moral damnability of the military group which commits the deliberate homicide. We do not want to further assess Williams's approach here. First of all it is crucial that Jim did not come into the situation by his own decision. He never wanted to be in this situation. In the previous two treatment examples of Harris and Singer this is quite different. The persons in charge are doctors (or in some cases legal representatives of the patients). They have chosen their profession willingly (or as legal representatives agreed on their responsibility). It is not impossible that the decision for a certain profession includes responsibilities that cannot be attributed to actors who unwillingly come into life and death situations. For instance it may be that a scientist who does not pursue the truth or a physician who does not cure diseases may violate deeper moral constraints than causing negative consequences. This could be argued according to the pragmatic implications of the concepts of 'being a scientist' and 'being a physician'(Ott 1997). Secondly, Jim has in opposite to the persons in the cases b) and c) only two options: either one or twenty Indians will be killed. While Harold has numerous alternatives to buy the shoes and participate in a marathon, Maude has at least the alternatives to call the police or watch out for a stronger helper. Case b) seems to be the most interesting. People will probably not directly see the moral question in it. But Peter Singer starts his analysis of case b) by stating that it is

analogous to c). In his *Practical Ethics* he assumed that the obligation to support people in poor countries is in the end the same obligation as saving the drowning child as long as there is nothing immolated which has a comparable value (Singer 1994, p. 292). He suggests that neither Harold nor Maude immolate a comparable value when they help the people in question. Our suggestion is that Singer is not radical enough at this point[21]. It could be possible and plausible that there are people in developing countries whose lives could have been prolonged if people from the western civilization would have spent more money on development aid. Our suggestion concerning this case is that Peter Singer would need, if he takes his approach seriously, blame all of us for killing. He does not draw this strong conclusion. On page 293 in his *Practical Ethics* he suggests that the neglect to help people in developing countries is an injustice, independently from the question if it is murder or not (Singer 1994). If we follow his argumentation till this point we have to state that he underestimates his own approach here and the question is rather: is blaming of all us for a neglect, which leads to the shortening of some people's lives as a murder not already an absurd conclusion?

We should have a look which criteria make the cases b) and c) different in a moral respect. First, in case c) it is exactly one being X which is harmed and Maude knows exactly which one it is. Secondly, it is or it seems to be exactly predictable in case c) which amount of damage the omission will cause: the death of X. Furthermore case c) is in a way constructed that the probability that X loses his life is nearly 100 percent. And there are no other parties involved in the situation which is different in the cases a) and b). If Harold in case b) wants to support

[21] In *Rethinking Life and Death* Singer makes a concession and writes that it is reasonable to sustain the distinction between acting and omitting in everyday life situations. 'The new approach need not regard failing to save as equivalent to killing. Without some form of prohibition on killing people, society itself could not survive. Society can survive if people do not save others in need - though it will be a colder, less cohesive society. Normally there is more to fear from people who would kill you than there is from people who would allow you to die. So in everyday life there are good grounds for having a stricter prohibition on killing than on allowing to die.' (Singer 1995, p. 195). How does Peter Singer know about the different effects of an increasing fear in respect of letting someone die and killing? And what about those killings which no one recognizes? In which sense does such a killing have an effect on the cohesion of society?

people in Africa he needs to contact a third party, an NGO or his government for example. It is not sure what they are going to do with his donation and he does not know whose life is saved and in which degree he is improving or prolonging this life. Furthermore we modified case b) in such a way that another difference becomes clear. Harold has his own wishes and motives for which he is striving. He wants to protect his knee and run a successful marathon race. In which sense are these not motives which have the same moral significance the prolongation of the lives of African children? This seems to be a provocative question. But we suggest that an adequate response cannot simply be to deny the weight of goods and motives of individuals in our society. In contrast to this case, a doctor in a treatment situation is usually not deprived of any plans at all when he gives an injection. There is one remark left concerning this discussion: none of the involved persons in cases a), b) and c) ever wanted to do harm. The way Harris and Singer are reducing the question of actions and omissions to their outcome does in no way take into account which motives and purposes are followed when actors are in charge. It seems as if it makes no difference if Jim in case a) kills the Indian just because he has always wanted to use a gun or if he makes an elaborate Utilitarian calculation of the value of the outcome and kills for this reason. The disrespect of these intentions and purposes is counterintuitive and leads to an odd ethical theory. We can sum up the following questions that could be morally relevant in life and death situations:

- How certain are the consequences of an act?
- How did the person in charge get into the situation?
- How many alternatives does the person have?
- How many own physical effort does he or she have to invest to protect the life?
- How many of his or her own wishes and desires are deprived or postponed?
- Is there a third party included?
- How consciously does the person in charge perform the act?

We cannot provide a theory that integrates this list of questions adequately in the scope of this work. But one thing is for sure: the exclusion of them will lead us to the wrong picture of moral acting. The distinction between actions and omissions is in respect to the consequences factually marginal. But we have argued that consequences are not the only moral relevant aspect of an act and this is what Harris and Singer lack to prove.

Why did we discuss these issues in so much detail? Our claim is: situations in which life-prolonging technologies are used or applied are complex as we have seen in the three different cases. We can suggest that the reality of the technologies John Harris and other Transhumanists want to develop and apply in the near future look rather like this case:

> d) Ripley is a 37 year old woman living with her 7 year old boy Kevin in New York City. She is an assistant for veterinary surgeons. A few months ago she lost her job and since then she has been searching for a new one but the chances at the area where she lives are uncertain. Some weeks ago a friend told her that a scientist from Europe has allegedly developed a drug that can prevent prostate cancer. But the friend has heard of it from other friends and they know it from a boulevard magazine. The chances that the cancer is prevented are 85 percent. But boys have to take the drug before they are 8 years old otherwise it loses its impact. There is a 5 percent probability that the child will suffer from non-deadly heart attacks for a few weeks. The drug can be shipped from Europe and costs 850 Dollars[22].

We can suggest that this is a very realistic picture of what we call life-prolonging technologies in the near future. The suggestion is also that in respect to all the morally

[22] This case is partly inspired by a recent article on breast cancer published in the British *Telegraph* (Knapton 2013). The lurid title was: *'Remarkable' breast cancer drug could save lives of thousands of women*. In this article Prof. Howell is cited saying: 'This [the new drug] provides us with another preventative treatment option, which has the potential to save and prolong the lives of thousands of women.' Prof Howell said the drug brought the science community: 'one step closer to creating a future without breast cancer.' The journalist of the *Telegraph* conclusively states: 'taking anastrozole [a hormone] for five years reduces the chance of high-risk post-menopausal women contracting the disease by 53 per cent'. We had these limits for private life (taking and paying a drug for five years) and the low percentage of risk decline in mind when we conceived the stronger case d). D) differs in so far from the 'breast-cancer'-case as Ripley is not only responsible for her health but also for the health of her child.

relevant criteria we discussed in the previous considerations it would be the worst conclusion to say that Ripley can be blamed for killing her son Kevin when he dies of prostate cancer with 65. John Harris' analysis may develop a certain plausibility in treatment situations due to the discussed circumstances. To analogize these cases with cases of life-prolongation in everyday life as presented in d) does not speak for the quality of Harris' ethical theory and concept of responsibility. All of the cases we just discussed have in common that they deal with the responsibility of a person for another person in respect of his lifespan. The suggestion is that in respect to the duration of our own lives we are in the same degree responsible for prolonging it. Practically the current reality of this claim means for instance: stop with smoking and extreme sports, do more leisure sports and eat healthier. It seems that for each of us breaking these commonplaces gives a reason for attacking us. Could Harris reprove us for disobeying a duty towards our own life? We can consider this claim in the same manner as we reflected on the previous cases. Smoking very likely has negative effects on the life-expectation. Nevertheless it is not really clear to which degree. The amount of years we lose is only predictable with severe uncertainties. Besides this, smoking may also be part of expressing our individuality, an extravagant or risky lifestyle or the wish to be part of a subculture or community. Smoking is an activity that comprises with other values which need to be balanced in respect of the possible negative consequences it may have just as we discussed the situations in the previously presented cases[23]. Although we do not want to justify that smoking is a reasonable activity it would be unreasonable to analogize smoking with committing suicide. This would probably be the only

[23] In the discussion on smoking Aubrey de Grey highlights how much societie's viewpoint in this respect changed in the last decades and he is undeniably right with this statement (Grey et al. 2010, p. 17). In many countries, smoking has been banned in public places such as restaurants. But de Grey disregards in his discussion how much these changes have been made on the purpose of saving money (some taxpayers argued with their unwillingness of paying for other people's unhealthy lifestyle) and protecting people from passive smoking. The issue of smoking is rarely discussed in comparison with for example the costs of sport injuries and premature death through extreme sport activities such as motorsports, mountaineering or equitation, which is often underrated in respect of its risk for health. A comparison of these activities shows that their value is and should not be reduced to the risk for a shortening of life-expectation which they have in common (Nicholl et al. 1991).

meaningful conclusion if one has a look at the consequences of such a behavior and disregards the rest of the discussed factors.

There are another two aspects concerning the argumentations of people who favor radical life-prolongation, which we want discuss at the end of this chapter. Prolongivists assume that not only individuals are responsible for the application of life-prolonging technologies as we mainly discussed till then. Also society as a whole is in charge in this respect. Furthermore they argue as shown in the quote of Aubrey de Grey that our society as a whole is in charge of developing more efficient life-prolonging technologies. For most of them these obligations include some sort of liberal research agenda and technology policy. The vote to change the *principle of precaution* to the *principle of proaction* is symptomatic in this context (More 2013b). In his critique of the precautionary principle Max More speaks of a 'tyranny of safety' and an 'obsession' we have concerning the value of safety in our policy of technological development. He suggests just as we discussed before that this principle does harm in the sense that it prevents us from developing new technologies. It is quite hard to predict technological futures. The technological development as a whole generates not only positive outcomes. Technological progress always has multiple effects on the environment, our behavior and our society. It is unlikely that a technology has only positive effects even though one could agree that some technologies have had positive effects. The technological progress as a whole is so to say ambivalent (Ropohl 1991).

The positive picture some Transhumanists draw in respect of the technological progress is unjustified, especially if we consider well-known technological catastrophes. Bostrom with no word mentions in his fable that the accelerating 'wheel of invention' causes any negative effects except that it takes money (Bostrom 2005a). The reality of contemporary anti-aging medicine is different: it costs money, new drugs are tested on animals or persons who are

more or less capable to consent informed to the research and it effects the environment[24]. The German weekly magazine *Der Spiegel* reported in 2012 about approximately 1725 deaths that occurred between 2007 and 2010 in the context of pharmaceutical trials in India (Various 2012). Numerous cases of drugs legally available which develop harmful and even deadly effects show in which sense these technologies are far from perfect. These kinds of technologies cannot contemporarily be produced and applied without some negative side-effects.

When we have a closer look on how de Grey and Nick Bostrom attack the so-called 'Bioconservatives' we can make one last claim concerning the responsibility in complex socio-technological systems. It seems that the attribution of responsibility to a certain agent in these complex systems is a hard task. For example: 'Bioconservatives' are a group of people but this group not a moral agent. As a group of different individuals they do not even strive for the same goals. They can neither be attributed with some form of cooperate responsibility nor of some form of corporate responsibility (Nida-Rümelin 2011). If the former would be plausible in some cases of criminal gangs when the people made the decision (more or less reflected) to engage in a robbery or other criminal goals, the latter would plausibly be applicable to some forms of NGO's or companies. 'Bioconservatives' are neither the former nor the latter. And even then would not every moral agent have the same responsibility in the context of these 'institutions'. Socio-technological systems are complex and not every person or agent or institution has the same responsibility in these systems (Ropohl 1991). Günther Ropohl coherently showed this with respect to the responsibility of engineers in complex technological systems (Ropohl 1990). The development of new technologies is a complex process and requires a multilayered concept of responsibility (Lenk 1994a, 1994b). The attribution of a general responsibility to all

[24] We are referring here to practices in the field of dementia research in which it is allowed to do trials with demented elderly without their consent if the risks are minimal (Weale, Perry 2009). The fire catastrophe of Basel from 1986 in which highly toxic chemicals of the pharmaceutical company Sandoz flooded the river Rhine is one example how research can affect our environment negatively (Das Tschernobyl der Wasserwirtschaft 1986).

possible agents involved in the development of new biomedical technologies for life prolongation is unlikely to be well justified.

To sum up the results of this chapter we can say that the Transhumanists attribute responsibility to develop and apply new biotechnologies to individuals and the society as a whole. The argumentation is often some sort of Utilitarianism, focusing on the consequences of an act. Some of these consequentialists argued that the omission of saving a life is just the same as killing, which is probably a strong rhetorical move. Nevertheless neither John Harris nor Peter Singer who argue in this manner have shown why consequences should be the only morally relevant aspect of acting. We have explored some cases and shown which other aspects could be morally relevant. We pleaded that an appropriate moral theory has to take these aspects into account. It is therefore unreasonable to compare treatment cases with cases in which we usually apply allegedly life-prolonging technologies. In the end we discussed the problem of responsibility in socio-technological systems and gave a negative answer for a general approach to the attribution of responsibility to the whole society. Technological developments are ambivalent and not always and in general positive.

(9) CONCLUSIONS

This conclusive chapter will summarize the results and provide an outlook for further discussions. Contemporary new and emerging biotechnologies raise questions concerning the appropriate dealing with and the value of death and therefore make them relevant. These questions have often been dealt with throughout the human history. As expressed in the letter of the Corinthians 15:55 in which it says: 'O death, where is your victory? O death, where is your sting?, mankind has always been searching for satisfactory ways to deal with death. Religions solace their followers with the outlook of an afterlife. In the introduction of this work we also mentioned other old ways of dealing with death, e.g. alchemists and Tantra. In modernity these movements lost their influence.

In the second chapter we explored a more modern way of dealing with death. Transhumanists are specific contemporaries and they follow in this tradition. With their claim of the technological overcoming of aging and death they find a secular answer to these old questions. They assume that death and aging are an evil and their technological mastering is considered a task desirable for everyone and for which we are all held responsible. After a long journey, it seems that technology provides the final means to fulfill this dream of mankind. But it will remain the dream it has always been. No matter how often human lives are prolonged they will always remain vulnerable.

In chapter three we discussed what vulnerability means in respect of the value of death and life-prolongation. Nick Bostrom's fable was the starting point to explore the question why death is an evil for the person who dies and for his relatives. Besides the distinction of immortality and invulnerability we differentiated between dying and death in this chapter.

In the fourth, fifth and sixth chapter we took a closer look at what death means to us. Epicure did not see the problem of death at all. He denied the evil of death for the individual who dies. Thomas Nagel does not settle for the epicurean approach. He provides goods

counterexamples why the evil of a situation does not depend on the awareness of the persons to whom it occurs. In the fifth chapter we explored Nagel's own argumentation and comparable attempts in showing that death is an evil. If life would have an intrinsic value it would be bad when we are deprived of it. But whether this happens sooner or later makes at first no difference. It is possible that values increase over time. But not all of them do. If life has an intrinsic value, which is doubtful, the question would be if it is one of the former or the latter. And then: if it increases over time, does this not mean that we lose even more through our death? Our philosopher in the third chapter loses much more when he loses his manuscript later than if he would lose it in the very beginning of his work. Bernard Williams's argued that death deprives us of the opportunity to realizing our wishes. We would not qualify wishes that presume our continuous existence real wishes if we would not repel against circumstances that frustrate their realization. But it would be hasty if we would conclude that this could explain why the death of an old person is less bad than the death of a young person. The wishes they have do not necessarily decrease during their life. Neither do the goods of their lives necessarily decrease later in life either. We should abandon the idea that there is a necessity, which makes the death of a younger person worse than that of an elderly person. The life of a younger person can lack the goods we usually favor as much as the life of an elder person can possess them. Statistics with regard to these assumptions do not make the generalization more valid. A bit frightened from the outlook of being immortal, Williams argued that this constitution would probably lead to an undesirable tedium. William chose the fictional character Elina Makropulos to support his claim. We dealt with this argumentation in the sixth chapter and we concluded that the story could not convince us. Elina Makropulos suffers from an overwhelming boredom but the necessity of this state as a result of an eternal life is questionable. As long as we are concerned with our close future we must not worry about becoming a different person while developing new wishes and plans over time. We need to stress that Elina is not really immortal as long as she remains vulnerable.

In the chapter on the Makropulos case we also discussed the goods in late life. It seems that aging can be full of rich experiences and wishes for a very long time. A theory of aging that focuses on biological processes cannot see this richness. We attempted to show the inappropriateness of this reduction in chapter seven in which we dealt mainly with Aubrey de Grey, a Transhumanist and anti-aging activist. Most Transhumanist foster a picture of a desirable age, which presupposes a certain mental and biological development. The reasons which speak for this evaluation make a general attack on aging contradictory. A broader picture of aging which is not mainly biological would help to avoid these fallacies. The Transhumanists keep on rhetorically emphasizing that we are obliged to prolong lives by applying and developing new technologies.

We considered this normative claim in the ninth chapter of this thesis. The most striking of these argumentations focuses on the consequences of the acts that lead to a premature death. Peter Singer and John Harris are the most famous authors to defend this claim. Their far-fetched analogies of life-and-death situations raised our attention. We pleaded to extend the assessment of acts with other aspects besides the consequences to gather an appropriate theory of handling situations in which we apply these technologies. At the moment there is no good reason to keep the consequences as the only morally relevant aspect of acting. The situations in which we can prolong our lives and the lives of other people differ in various morally relevant aspects: not rescuing a drowning child is not the same kind of omission as not spending money to aid agencies or not doing sport.

In the eights chapter it also became clear that we should not reduce the negative aspects of technological developments to their monetary dimension. It is not true that we can on the one hand save a lot of people with anti-aging medicine which on the other hand is hindered by too little funding by our society, politicians and stakeholders in charge. Many technological catastrophes have shown that there is more at stake. The technological development is more complex than the picture the Transhumanist draws. Nevertheless, it is

indeed true that we are morally obliged to help in certain life and death situations and it would be wrong not to do so. In some of these situations we are dependent on technologies that are developed at the moment or will be developed in the near future. Finding a cure for cancer for instance is a reasonable goal. If we agree on this some questions remain open: which kind of policy should drive the technological development in respect of life-prolonging biomedicine and how can we deal with the uncertainties of its consequences? The introduction of the book *Live forever or die trying: The History and Politics of Life Extension* of the former Maryland governor candidate Thomas Mooney shows how strongly the argumentative effort towards radical life-prolongation is connected to a policy of technological development:

> *'Why? The answer is obvious! A movement dedicated to making life extension a public issue must begin now! Slowly but surely, progress is being made to slow the aging process. Life expectancy charts show an inexorable upward march, indicating longer lives, but that is not enough. We need an active, dedicated movement in support of biomedical research that will allow us the opportunity to extend our lives indefinitely. [...] We must demand that life extension become a priority in national budgets all over the world.'* (Mooney 2011, p. 1)

We should be aware of the ideas concerning the policy of technological and scientific development that underlie the discussions on the value of death, aging and life-prolongation. Just like Thomas Mooney Transhumanists support new and emerging technologies and the current anti-aging agenda. As 'visioneers' they try their best to make these public and gather monetary and mental sponsorship. The research of the SENS-Foundation of Aubrey de Grey, the nanotechnology Eric Drexler has in mind and the Converging-Technologies which William Bainbridge and Mihail Roco[25] foster are some ways

[25] The high promises and interrelated policy expectations concerning CT are clearly expressed several times in the NBIC report: 'The Federal Government should establish a national research and development priority area on converging technologies focused on enhancing human performance. Government organizations at all levels

to deal with aging and death. But there are also other alternatives: investigations have shown that even in Europe and the United States there are large differences in the life-expectancies between gender, races and social classes (Victor 2005; Overall 2005; Overall 2006). Education, working conditions, nutrition and lifestyle seem to be the main causes for these differences. If the goal of our policy is to avoid unnecessary suffering and premature death of people who want to live then this is a problem we have to face. We can prioritize the means to solve this problem. The decision whether we would rather spend money to change the local social insurance system for a better inclusion of lower class people, forbid smoking or if we take the money and invest it in nanotechnology and anti-aging research is one of the choices we have. This decision should not be based on unrealistic claims.

This thesis was written to explore a vision that strives for impossible goals and makes promises that cannot be kept. This thesis was also written to better understand the claims of anti-aging research and moreover to explore the reasons why these claims are desirable or not. Is technology the most reasonable answer in dealing with death and aging? How can we manage the process of the development of anti-aging medicine? Should we prioritize to support technologies that increase the quality of life instead of its longevity? How can we include those who are dependent on this development and communicate the possible outcomes and which role can technology assessment play in this development are the questions for further investigations. Admittedly some readers will not be satisfied with the analysis of the rationality of the fear of death in the fourth chapter of this work. If a philosophical investigation cannot comfort them, people who are still afraid for the reasons we investigated, humor might deliver a better way of dealing with these grievous topics. Therefore the last words of these reflections belong to Woody Allen.

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should provide leadership in creating the NBIC infrastructure and coordinating the work of other institutions, and must accelerate convergence by supporting new multidisciplinary scientific efforts while sustaining the traditional disciplines that are essential for success.' (Roco, Bainbridge 2003, p. xii)

Of all the famous men who ever lived, the one I would most like to have been was Socrates. Not just because he was a great thinker, because I have been known to have some reasonably profound insights myself, although mine invariably revolve around a Swedish airline stewardess and some handcuffs. No, the great appeal for me of this wisest of all Greeks was his courage in the face of death. His decision was not to abandon his principles, but rather to give his life to prove a point. I personally am not quite as fearless about dying and will, after any untoward noise such as a car backfiring, leap directly into the arms of the Person I am conversing with. In the end, Socrates' brave death gave his life authentic meaning; something my existence lacks totally, although it does possess a minimal relevance to the Internal Revenue Department.

- Woody Allen, Side Effect

(10) APPENDIX - RECONSTRUCTION OF ARGUMENTS

Chapter 3

Reconstruction of the 'Dying' - Argument of Bostrom:

D: Death B: Evil/Bad S: Suffering DY: Dying	I. S → B II. DY → S III. D → DY IV. Therefore: D → B
DY is not sufficient for S in the second premise.	

Chapter 4

Reconstruction of the 'Fear of Death'-Argument

F: Fear B: Evil/Bad C: Death	I. F → B II. D → F III. Therefore: D → B
F is not sufficient for B in the first premise.	

Chapter 5

Reconstruction of 'No-Subject' - Argument of Epicurus

B: Evil/Bad D: Death A: Awareness	I. (B → A) ↔ (~A → ~ B) II. (D → ~ A) ↔ (A → ~ D) III. Therefore: (D → ~ B) ↔ (B → ~D)
Nagel showed that B is not sufficient for A in the first premise.	

Reconstruction of Nagel's 'Deprivation'-Argument

B: Evil/Bad DE: Deprivation of a Value L: Life I: Intrinsic Value D: Death	I. L → IV II. ~ L ↔ DE III. D → ~ L IV. DE → B V. Therefore: D → B
First premise is doubtful. Nagel's argument is not an argument for life-prolongation. Premise below needs to be added.	
Q: Quantity of Value Increases D: Duration	I. D → Q
Premise not justified. Counterexamples to this premise ('values-which-do-not-increase-through-time'-cases and 'even-greater-loss'-case) were presented.	

Reconstruction of the 'Duration'-Argument of Horrobin and Wolf

S: Sentience D: Duration/Existence in Time G: Goods	I. S → G II. D → S (in the original argument false as S → D) III. Therefore: D → G
Examples show that III is false: D is not sufficient for G.	

Chapter 6

Reconstruction of Williams's 'Deprivation'-Argument

W: Wishing F: Frustration of Wishes B: Evil/Bad D: Death	I. (D → F) ↔ (~F → ~D) II. W → (F → B) III. Therefore: W → (D → B)
Cannot explain evil of an early death if W remains the same through time.	

Reconstruction of the 'Tedium of Immortality'-Argument

T: Tedium B: Evil/Bad I: Immortality	I. $I \rightarrow T$ II. $T \rightarrow B$ III. Therefore: $I \rightarrow B$
First premise is based on plausibility. Explanation for Makropulos-case possible.	

Chapter 7

Reconstruction of de Grey's 'Aging'-Argument:

A: Aging M: Metabolic Processes D: Diseases S: Suffering B: Evil/Bad	I. $S \rightarrow B$ II. $A \leftrightarrow M$ III. $M \rightarrow D$ IV. $D \rightarrow S$ V. Therefore: $A \rightarrow B$
Second premise is false.	

Reconstruction of Caplan's 'Aging'-Argument

A: Aging N: Natural G: Good/Protectable	I. $A \rightarrow \sim N$ II. $\sim N \rightarrow \sim G$ III. Therefore: $A \rightarrow G$
No reason for second premise given. Does not follow from $(N \rightarrow G) \neq (\sim N \rightarrow \sim G)$	

Chapter 8

Reconstruction of the ‘Consequences’-Argument of Singer/Harris

W: Wrong BC: Bad Consequences L: Lifesaving K: Killing	I. $BC \rightarrow W$ II. $(\sim L \rightarrow K) \leftrightarrow (\sim K \rightarrow L)$ III. $K \rightarrow BC$ IV. $\sim L \rightarrow W$
We pleaded to extend the first premise $(BC \wedge X_1 \ldots X_n) \rightarrow W$	

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