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## **Human Enhancement and Ethics: Structured overview on the state-of-the-art academic debate**

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## **Human Enhancement and Ethics**

### **Structured overview on the state-of-the-art academic debate (WP 5.1)**

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### **Introduction**

This report is a structured analysis of the ethical issues of human enhancement as they have been attended to in the academic literature. The included literature consists of articles, anthology contributions, books and reports from – primarily – the last decade. It has been selected in order to demonstrate a wide-ranging picture of the most frequently debated subjects and literature on ethics and human enhancement.

The first section is a basic overview of the technologies as presented in the academic discourse on human enhancement and ethics. This includes a description of the types of enhancement techniques that the literature approaches and the types of aims that they are implemented (or considered implemented) towards. In the second section the focus is on the different definitions of human enhancement in the debate. This includes the normative implications that are derived and argued from these definitions – including the discussions on the relevant difference or similarity of human enhancement activities compared with other more generally accepted activities., The third section outlines and analyses three different types of arguments used in the ethics debate concerning human enhancement: Arguments about benefit and utility, arguments concerning fairness and equality, and, finally, arguments derived from the concept of dignity. Following this, the fourth section examines a different level of the debate as it analyses ethical positions and visions presented in current academic literature on human enhancement. Besides the traditional analyses of ‘pro and con’ positions, this section endeavours to identify and

describe a range of different positions and shed light on the different sub-factions under the pro and con headlines. The final section builds upon the two previous sections in order to provide a number of examples of recent developments in the academic discourse on ethics and human enhancement and commenting upon possible developments in the near future.

## **Section 1**

### **Enhancement Techniques and Enhancement Aims**

There are in the academic literature on human enhancement a great number of themes and many methods of exemplifying and focusing different arguments. The ethical debate on human enhancement is, indeed, a veritable model of a practical (or applied) ethics (Bostrom & Roache 2007). Although numerous aspects of the debates are of a thoroughly theoretical kind they are also always to some extent concerned with the genuine prospects of techniques being used for physical or mental enhancements. This opening section gives a short overview of the different topics (research objects) in the academic discourse on human enhancement that creates the foundation for any substantial discourse on ethical aspects thereof. A profitable way of approaching a basic overview of techniques and overall aims – what could be called “technical topics” – would be to start by discerning between how enhancements are brought about and what kind of overall improvements the enhancements are aimed at. The first of these two includes a description of the techniques – or methods – of enhancement that the literature addresses. These are such things as medicine/drugs, genetic engineering and implantations of genetically engineered tissue and/or inorganic electronics. The use of pre-implantation selection of embryos in order to achieve a better (i.e. enhanced) genotype is sometimes included within these discussions. Almost all enhancement methods are rooted in medical scientific measures originally aimed at curing or preventing disease and they include a number of common drugs and medical procedures. Examples cited within the ethical debate often derive, however, from techniques which are either highly futuristic, such as brain-computer uploads or cyborgs or at least currently not in practice like cloning, embryonic genetic engineering (Bostrom 2005a, cf. Coenen 2007).

There are a variety of improvements that these enhancement methods are aimed at. At least two are readily discernible: (i) Physical enhancement with the aim of greater strength, speed and stamina and exemplified by the prevalent use of doping (e.g. steroids and EPO) in professional sports as well as recreational use; (ii) Cognitive enhancement with the aim of furthering intellectual

strengths such as memory, concentration and alertness. Drugs to this effect are used methodically in military institutions (Thompson 2008) and appear to be widespread among academic professionals and students alike (Allhoff et al. 2011, Bostrom & Sandberg 2009, Sussman et al. 2006, Coenen et al. 2009); (iii) Mood enhancement whose aim is to better overcome non-clinical sadness, improve motivation or increase feelings of happiness. This would, for example, include several recreational or “party” drugs already manufactured both legally and illegally; (iv) Moral enhancement with the aim of making people more altruistic or socially-minded. Heavily overlapping with general mood enhancement (and parts of cognitive enhancement) this is one of the more recent areas of academic debate on ethics and human enhancement; and (v) Life extension – or longevity – aimed at increasing the life span significantly beyond the current norm.

Several of these enhancement types are likely to overlap in their overall effect and goals. For example, there is a clear connection between motivation and learning and both mood and concentration have clear consequences for physical accomplishments.

## **Section 2**

### **Defining human enhancement**

Conceptual vagueness is a common and widely discussed issue within branches of philosophy such as logic or the philosophy of language. With respect to the enhancement debate, two prominent scholars have noted that “many important and useful philosophical terms are vague” (Bostrom and Savulescu 2009)

Thus, even before any ethical debate about welfare, justice and dignity, the definition of human enhancement is in and of itself a controversial issue. Much debate has arisen from different aspects of purported definitions, from fundamental disagreements about how to meaningfully define the concept to begin, with to allegedly inherent normative issues within certain proposed definitions.

Throughout the EPOCH project, human enhancement is defined broadly as “any modification of the human body aimed at improving performance and realized by scientific-technological means” (EPOCH 2010, p. 3). This is not dissimilar in its generality to many others in the related literature (Savulescu et al. 2011 pp. 3-6). In his recent book Allen Buchanan defines human enhancement as “a deliberate intervention, applying biomedical science, which aims to improve an existing capacity that most or all normal human being typically have, or to create a new capacity, by acting directly on the body or brain” (Buchanan 2011 p. 23). Fritz Allhoff, inspired in

this context by Norman Daniels (Daniels 2000), follows along similar lines and describes human enhancement as being “about boosting our capabilities *beyond the species-typical level or statistically-normal range* of functioning for an individual.” He, furthermore, includes the caveat that enhancement is to be understood as distinct from therapeutic treatments aimed at the amelioration of disease and injury. Disease and injury are here understood as circumstances which take the individual to a lower functional level than is species-typical (Allhoff et al. 2011, p 8). The difficulty of defining human enhancement is also amplified by the number of very different types of enhancement. Gregor Wolbring, in a recent report, lists eleven types of human enhancements which include different and overlapping angles to a definition (Wolbring 2006). In this context a type of enhancement can, for example, be identified both by its technique – e.g. germline genetic engineering – and by outcome – e.g. positional enhancement “aimed at the obtainment of goods that are desirable only in so far as they provide a competitive advantage” (Wolbring 2006, p. 29-30).

Some of the more controversial aspects of these definitions relate to the precise meanings attached to key terms such as ‘therapeutic’ or clarifying what should be understood as species-typical or ‘above-average performance’ (Bostrom & Roache 2007). The difficulty of identifying whether something is therapeutic or not (Daniels 2000) runs parallel to an understanding of ‘health’ and ‘disease’ (Baron-Cohen 2000, Hilvoorde 2008). These are matters on which there is clearly no present universal agreement. Understandings of these key terms have plainly changed throughout history. There is little immediate prospect of agreement arising from the disparate conceptions currently proposed. A rather broad and widely criticised definition originates from the World Health Organization stating that to be healthy is to be in a “state of complete physical, mental and social well-being.”<sup>1</sup> Among many criticisms it must be noted that since few of us are ever in such a ‘complete state’ this could incorporate a large number of activities otherwise conceived as enhancement in the realm of therapy (Kass 2003 p. 15).

The question, however, remains focused on what human enhancement actually is and how it is relevantly different from other related biomedical and non-biomedical practices. Thus, the disputed nature of enhancement is both an argument in the debate and itself the foundation for other arguments. In this respect it is a different issue than the other three argumentative themes presented in section 3. The distinction between which activities are enhancement and which are something else also has a clear parallel to the natural/unnatural distinction (Nielsen 2011, Takala 2004) in that both – besides being questions of empirical and linguistic character – can involve connotations of a

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<sup>1</sup> WHO Constitution: <http://apps.who.int/gb/bd/PDF/bd47/EN/constitution-en.pdf> (accessed January 4, 2012).

normative dimension (Allhoff et al. 2009, Bostrom & Savulescu 2009). The pro-enhancement arguments in this context are often a response to the reasoning that certain forms of human enhancement are markedly and relevantly different from established (and non-controversial) activities such as enhancement through schooling and the use of medication for the alleviation of pain. Furthermore, this is a fact that gives rise, or at least can give rise, to fundamental ethical questions (Fukuyama 2002).

Several authors have criticised such a claim by either arguing against any real difference between enhancement and other activities (Bostrom & Roache 2007) or by arguing that, although some differences are apparent these are not necessarily relevant in a normative perspective (Daniels 2000).

As we saw, both Buchanan and Allhoff – unlike e.g. the EPOCH definition – include notions of species-typicality or normality in their understanding of human enhancement. This approach allows for enhancement debates to be framed within the more general treatment-enhancement distinction and thereby enabling the classifying of (biotechnological) human enhancement techniques as beyond the traditional realm of medicine and health care (Savulescu et al. 2011, Pellegrino 2004). The distinction may, however, also be used to identify techniques which are relevantly similar to traditional and non-controversial forms of biomedical interventions and allow for their defence as equally normatively unproblematic. Line-drawing between therapy and enhancement, between normalcy and beyond-human-norm does not neatly map onto the categories of normatively acceptable and normatively problematic. It does, nonetheless, raise the possibility that this could be so.

A different kind of normative implication of the definitional problem is what might be called the ‘enhancement as a good’ argument. The definition of human enhancement is, in this sense, intrinsically normatively positive. Both Buchanan and Savulescu argue that any proper human enhancement is always a good thing. Savulescu, Sandberg and Kahane have recently identified a number of different approaches to a definition of human enhancement (Savulescu et al. 2011) which they draw upon as a contrast to their own ‘enhancement as a good’ argument. The first approach that they describe – and dismiss – is a sociological and pragmatic definition. Such a definition points to the cultural and historical aspects of the concept ‘human enhancement’ and the defenders of this approach – e.g. Paul Root Wolpe (2002) and James Canton (2002) – argue that any definition of enhancement at any given time is a socially constructed concept and thus relative to time and place. According to Savulescu and his co-authors this can be helpful in descriptive

inquiries about particular social groups and their stance on values of enhancement. It is, however, “less helpful when we want to ask whether these valuations are valid” (Savulescu et al. 2011, p. 4). Secondly, Savulescu and his co-authors dismiss what they call an “ideological approach” which they perceive, for example, in the work of Leon R. Kass (2003). They argue that Kass eschews the definitional discussion by pointing to questionable “deep values” about human meaning – which somehow avoids any need for a workable definition of human enhancement. This, as well as the constructionist approach, is by Savulescu and his co-authors considered an evasion of the definition problem and a failure in establishing the necessary conceptual framework and underpinning for ethical discussion of human enhancement.

An approach that does take the necessity of a conceptual framework seriously is evident in the treatment-enhancement definition. This type of definition aims to show a distinct difference between techniques whose function it is to keep humans at a normal level of health and capability or restoring them to this level and techniques whose function it is to take humans beyond their normal or species-typical characteristics (Daniels 2000). Any definition of human normality is bound to be highly debatable and Savulescu and his co-authors criticize this type of definition for being susceptible to statistical arbitrariness, which could, for example, leave two people with almost identical hearing difficulties on different sides of the treatment-enhancement definition. Without the normality aspect – i.e. counting any improvement as enhancement independent of starting capability level – we would, according to Savulescu and his co-authors, similarly misunderstand the concept of human enhancement by overemphasising what they see as *functional* approaches. They suggest that this is an inappropriate and inadequate way of talking about enhancements. By contrast they offer what they call a *welfarist* account of *human* enhancement. Put simply, this defines human enhancement as that which enhances the welfare – or good life – of the humans involved. This definition aims at discarding the functional aspect, the mere improvement of a certain human capability and instead focuses on “[a]ny change in the biology or psychology of a person which increases the chances of leading a good life in the relevant set of circumstances” (Savulescu et. al 2011, p. 7). Such a definition is inherently normative in that it classifies human enhancement not so much as upgrading of body or mind but in terms of its positive contribution to the living of a good life.

This avoidance of a functional definition is equally apparent in the definition by Allen Buchanan in *Beyond Humanity?* in which the insertion of the word ‘aims’ is imperative for his version of a welfare-oriented definition. By defining human enhancement as that which merely aims

at improving capacities (or creating new ones) he opens up for the possibility that some functional enhancements might lead to negative effects instead of improvement. “The attempt to enhance a capacity can go wrong in at least two ways, then: it can fail to achieve its goal; or it can achieve its goal but make us worse off” (Buchanan 2011). The latter could be illustrated by the case of having one’s hearing technologically improved to a degree where, although one might benefit in some areas, daily life becomes miserable because of the increased sound levels.

A somewhat different use of the ‘aim’ notion is used Christopher Coenen, Mirjam Schuijff, and Martijntje Smits in their *restitutio ad integrum* (reinstating of the original order or level of health) definition of human enhancement (Coenen et al. 2011).<sup>2</sup> Here the concept of ‘enhancement’ as something which aims at “improving individual human performance” (Coenen et al. 2011) does not imply anything other than the obvious fact that one can technically and functionally fail in achieving an intended enhancement. The interesting aspect of this *restitutio ad integrum* argument is, however, in contrast to those who employ the treatment-enhancement distinction, that it avoids the problems of identifying the characteristics of normal or species-typical humans. Coenen et al. include both therapeutic enhancement and non-therapeutic enhancements “brought about by science-based or technology-based interventions in the human body” (Coenen et al. 2011). Thus, if I undergo therapy for a disease or injury and this therapy leaves me with enhanced capabilities compared to my level before the disease or injury this is considered enhancement of a therapeutic kind. If, however, I use techniques to improve some existing abilities or create quite new ones this would constitute non-therapeutic enhancement. Though, what would not count as human enhancement would be therapy or treatment which merely brought my functions back to their previous pre-injury or pre-disease state – the *restitutio ad integrum*.

### **Section 3**

#### **Arguments and theories**

The enhancement techniques and their aims create a fertile breeding ground for a number of practical and theoretical ethical arguments. This section comprises an investigation and analysis of the types of arguments used in the ethics debate concerning human enhancement. Closely linked to the previous sections, we identify and analyse the types, construction and use of ethical argumentation in the cited literature. The main focus is on three different argumentative themes or issues. First, the discussion on questions of beneficial outcomes is presented. This includes the

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<sup>2</sup> See also Coenen et al. 2009, pp. 16-25.



debate both on the utility – or lack thereof – for both individual persons/patients and society at large. The second issue is the discussion within the field of political philosophy of human enhancement. This includes debated topics such as human enhancement’s influence on fairness, equality, justice and solidarity. Finally, the third argumentative theme revolves around the notion of dignity. The debate on this issue includes ideas about such things as authenticity, loss of ‘humanness’, or alienation to self.

### **3.1 Making things better**

Longer life, improved life and improved powers are most likely aspirations inherent to humans from the dawn of our race. Whether it is the cross-cultural narratives of fountains of youth or the technological augmented flight of Daedalus and Icarus, ancient history is ripe with stories about transcending the mould of the human. With the coming of the Enlightenment and the subsequent success of natural sciences and technology there is a significant shift from understanding ‘the human’ as being part of the cosmos or the image of God to an understanding of humans as biologically comprehensible, and complex, though sometimes faulty, machines (Wiesing 2009). Human beings were wondrous machines and, at least since Darwin, (in contrast to e.g. Aristotle) properly comprehended as devoid of a fixed and essential being (Wiesing 2009) and with great potential that could be accessed and “developed through the application of science” (Bostrom 2005a). In this sense there is nothing new to the aspirations of modern day advocates of human enhancement. What is new, however, is the magnitude of medical and technical possibilities at the disposal of those in the search of the improvement of human beings and the pursuit of better human lives.

Inherent to the word ‘enhancement’ the notion of benefit for persons or society has taken a prevalent role in the discourse on ethics and human enhancement. In some cases, as we saw in the previous section, the concept of human enhancement is defined and so closely linked with ‘benefit’ or ‘the good’ that these notions become almost inseparable and enhancement comes to mean simply a certain type of beneficial activity (Harris 2007 p. 36). Two of the most interesting arguments in this category focus on whether some enhancement outcomes are good functionally or in themselves (Buchanan 2011, Savulescu et al. 2011, Bostrom 2005a) and whether other values or benefits comparatively outweigh the good created (Lamkin 2011). The intrinsic positive normative value of enhancement is argued by Savulescu and his co-writers in their “welfarist account” (Savulescu et al. 2011) of human enhancement. In this interpretation human enhancement is not

merely a functional method for acquiring potential well-being, but is, instead, itself the manifestation of well-being. This view is what we in the definition section labelled ‘enhancement as a good’ and equates human enhancement with *successful* human enhancement. Consequently, any sort of true enhancement results in an increase of “the value of a person’s life” (Savulescu et. al. 2011, p 8) and thus “the question of when should we enhance becomes: when should we increase human well-being?” (Savulescu et al. 2011, p. 8). This, of course, does not entail that all enhancement techniques or consequences of enhancement are good, only that the techniques and consequences that increase the well-being of the humans involved are true enhancements. Techniques which fail in increasing well-being, whatever their successes in enhancing certain functionalities/capabilities are simply not to be considered enhancements.

In opposition to such a view Allen Buchanan understands human enhancement as functional. Nevertheless it may comprise an endeavour in which we can fail to increase welfare while succeeding in functional terms: “The most serious worry about biomedical enhancement enterprise is the risk of bad unintended consequences” (Buchanan 2011, p. 203). One important aspect of such failure would be the unwitting negative interference with valued capacities as a result of enhancing another valued capacity. As an example Buchanan mentions the now much discussed (sometimes off-label) use of prescription drugs at American universities in order to enhance cognitive abilities. We know about the possible problematic side-effects of such use of these drugs (Sussman et al. 2006) and it is not unlikely that we might see a negative disruption of other valued cognitive capabilities. These disruptions might even constitute at greater loss of well-being opposed to the gain the drugs provide. Nonetheless, this does not, according to Buchanan, represent a fundamental problem for the human enhancement endeavour. As long as we proceed with “an unblinking attention to past cases of technological overreach, along with an understanding of the sorts of situations in which there are strong incentives for overestimating the benefits of innovations and underestimating the harms” (Buchanan 2011, p. 154) human enhancement is like any other tool – e.g. fire, steel, atomic energy – that humans have developed and employed throughout history. But enhancement is a tool with benefits that are not only individual but which are better understood in the framework of *the enhancement enterprise* – an enterprise which is inherently connected with legitimate social goals and institutional terms. Buchanan describes such an understanding and approach as operating “as a political philosopher who recognizes the relevance for ethics of institutional design in the real world” (Buchanan 2011, p. 21) and this takes the question and the debate of human enhancement to a different perspective (see section 3.3).

Less positive about enhancement technologies are Lin and Allhoff (2008) who emphasise some the outcomes of human enhancement which they see as potentially harmful. Their argument includes three aspects of latent benefit problems. Firstly, the individual who undergoes human enhancement may stand at risk of experiencing harmful side-effects. Linn and Allhoff point to our limited understanding of our brains and bodies and their complex functions and interactions and caution that we should be careful before making radical changes to ourselves. Additionally, they question the oft-defended notion of well-informed autonomous individuals making sound decisions for themselves. In their view it “is not always clear whether a person’s consent is sufficiently informed or not” (Linn & Allhoff 2008) and, furthermore, any individual can be disproportionately influenced by other individuals or groups. Linn and Allhoff’s second warning focuses on the connectedness of human lives. They argue that the enhancement choice of an individual could, notwithstanding its autonomous status, produce indirect harms or risks to others. One classic example could be the use of drugs by athletes that “sets the presumably-wrong example for children whose bodies and minds are still developing” (Linn & Allhoff 2008, p. 258). Finally, they point to the potential disastrous effects of population wide use of enhancements which at the individual level might seem harmless. The prime example of such unintended consequences is the achievement of longevity that could, if extensive and widespread, lead to serious overpopulation problems and great harm. This general notion that individual choices for and benefits from human enhancement ties into a greater socially normative context is a main theme with many writers. In Matt Lamkin’s view (2009) this is a prominent concern when problematic and prevalent cultural and societal biases could produce a demand for cosmetic enhancements. Lamkin argues that individual success in society is statistically much more plausible for people considered physically attractive. Tall, handsome, white and male are all characteristics which in many aspects of society statistically benefit individuals. Thus, at the individual level, cosmetic enhancements which makes one taller, more handsome, whiter and male<sup>3</sup> could bring significant improvements in individual well-being. Lamkin, nonetheless, points to the fact that e.g. skin-lightening techniques would constitute an undesirable conformity to racist conceptions of superior appearance. Akin to this argument, Margaret Little that any medical practice must, in the light of sexism, have deep concerns as to which social norms of appearance they support in their practice: “Medicine and surgeons must beware the extent to which their participation in cosmetic surgeries involving such

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<sup>3</sup> Though sex reassignment surgeries are now commonplace these are, in all probability, entirely applied to circumstances of gender identity disorder. The argument could, however, still stand in relation to pre-implantation diagnostics and prenatal sex discernment and selection.

norms ends up contributing to a broad and unjust system of constraining pressures and forces” (Little 1998).

### **3.2 Retaining dignity**

What might be thought, initially, as the most complex argumentative theme, the concept of dignity, has been used by both pro- and anti-enhancement debaters. The concept itself bring with it an orbit of related notions such as human nature, giftedness of life/nature, sanctity, and intrinsic value, that are scarcely without philosophical controversy. The modern concept of and emphasis on dignity arose from the discussions on human rights in the aftermath of World War II and was an essential part of article 1 of the United Nations Universal Declaration of Human Rights from 1948. Pertaining to human enhancement, dignity has, although in different ways, been a conservative approach to and criticism of enhancement activities (Fukuyama 2002, Kass 2008, Sandel 2007, Habermas 2003). Nonetheless, the current academic discourse has also presented a use of dignity within the pro-enhancement faction arguing for a definition of dignity which can encompass enhancement and the enhanced – a posthuman dignity (Bostrom 2005a, 2005b). Similar to the discussion on the definition of enhancement itself, the definition of dignity is a contested matter when acknowledged by pro-enhancement as well as by bio-conservatives. The strongest dispute on this matter is, however, the relevancy and clarity of dignity in a debate on human enhancement.

One of the most ardent proponents of the recognition for and importance of dignity and its impact on human enhancement has been Leon R. Kass. As Chairman and key author for The President’s Council on Bioethics as well as in his personal writings he has defended a version of dignity which springs from a number of human characteristics: “... the human being has special dignity because he shares in the godlike powers of reason, freedom, judgment, and moral concern, and, as a result, lives a life freighted with moral self-consciousness above the plane of a merely animal existence” (Kass 2008). Kass does not pinpoint distinct characteristics of why and how exactly human enhancement violates these specifically human powers but he points to the reason that enhancements are in conflict with a “respect for the special gift that is our own given nature” (Kass 2003). There is, according to Kass, knowledge to be gained from our intuitive disquiet and repugnance when we hear about memory altering drugs, 70-year-olds being able to bear children through technological enhancements, and computer-body interfaces. However unclear our initial attitudes, we “sense that it may have something to do with what is natural, or what is humanly dignified, or with the attitude that is properly respectful of what is naturally and dignifiedly human”

(Kass 2003). To Kass there is a certain given and essential nature to human beings that underwrites our dignity and whose basis is threatened by human enhancement. Thus, it is not only beings with none or few of the mentioned characteristics (or less powerful aspects of them) which are without dignity. Not only would the transformation of a man in to a cockroach (Kass 2003, Kafka 2009) deny him dignity, but the construction of humans beyond our present form – with enhanced powers of reason, freedom, judgment, and moral concern – would similarly result in creatures without dignity.

Aspects of this idea are mirrored in the criticism of genetic human enhancement which we find in the works of Jürgen Habermas. He specifically focuses his attention solely on the enhancement of future generations through genetic engineering of the germline. In this context, the enhancement benefits or harms are not as important as the individual being allowed to find its own meaning and purpose – its dignity. Not being genetically designed is crucial for an individual’s “being-able-to-be-oneself and for the fundamentally egalitarian nature of our interpersonal relationships” (Habermas 2003, p. 13). Human dignity is, for Habermas, linked with relational symmetry. It is not, as seems the case with Kass, merely a matter of natural attributes but “rather [that it] indicates the kind of “inviolability” which comes to have significance only in interpersonal relations of mutual respect, in the egalitarian dealings among persons” (Habermas 2003, p. 33). When a child or an adolescent is being brought up and learns certain skills he is enhanced through a process of which the he himself is part. Genetic engineering of a child is a short-circuiting of the autonomy and dignity of the future human being by reification and an unacceptable instrumentalization. Accordingly, the human designer of such modifications would make them self the “co-author of the life of another” (Habermas 2003, p. 81) to a degree which would leave the engineered understanding herself as a product of someone else’s wishes. Such an outcome would violate the children’s right to an open future (Feinberg 1980) by “denying them a reasonable array of opportunities to select and pursue their own conception of a good life as they mature and develop the capacities to make those choices” (Brock 2003, p. 365).

A similar argument is found in Michael Sandel case against human perfection (Sandel 2007). Referring to Habermas he asserts that “eugenic parenting is objectionable because it expresses and entrenches a certain stance toward the world – a stance of mastery and dominion that fails to appreciate the gifted character of human powers and achievements” (Sandel 2007, p. 83). Sandel’s general argument does, however, not restrict itself to the eugenics debate (as, for example, Habermas’ does). The criticism of mastery and our lack of humility toward the unbidden and

uncontrolled aspects of our lives can easily be transferred to a discourse on adult human enhancement techniques. Furthermore, Sandel has a specific condemnation of enhancements as they are used in sports. In a parallel approach to his view on eugenics he questions not so much the beneficial or harmful functionalities of drug or technology enhanced sports but the “Promethean aspiration to remake nature, including human nature, to serve our purposes and satisfy our desires” (Sandel 2007, p. 26). Again it is the drive to mastery and its negative impact on the gifted character of human nature which is at the centre of Sandel’s criticism. To him the whole point of sports is excellence and enhancement techniques – i.e. doping – hinders an important part of excellence: the “natural talents” (Sandel 2007, p 28) which have no correlation with the effort of the athlete but is part of an innate gift.

A contrary approach to the questions of dignity and human enhancement is found in the writings of the transhumanist thinker Nick Bostrom. In his defence of posthuman dignity (Bostrom 2005b) he argues that the conservative fears of humans moving beyond the natural or normal present condition does not constitute a loss of dignity. When people like Leon Kass express reservations about human enhancement due to its alteration of the natural humanness it is, according to Bostrom, based upon false assumptions about conceptions of nature and the natural human. First of all, he argues that the “horrors of nature in general and of our own nature in particular, are so well documented” (Bostrom 2005b) that it would be imprudent to refrain from reforming “ourselves and our natures in accordance with human values and personal aspirations” (Bostrom 2005b). Secondly, Bostrom rejects the idea that dignity can originate from what we are in an essentialist ‘what-we-are-now’ concept. We are, like the rest of the biological world, evolutionised beings and our distant ancestors were something very much different than us; so different in fact that they might, from their standpoint, view present day humans as posthuman. Our capacity for development is both in our DNA but also a matter of our striving to change ourselves. We have both inherent biological and external capabilities which have developed throughout our existence as a race and these new or improved qualities “have not divested us of moral status or dehumanized us in the sense of making us generally unworthy and base” (Bostrom 2005b). Similarly, human descendants in the far distant future will quite possibly have developed into beings which are significantly removed from what essential meaning is given to being a human being in the 21<sup>st</sup> Century. These humans would, even without the use of biomedical human enhancement techniques, be posthumans to us, but it is unclear why they should be devoid of dignity.

Bostrom’s arguments do, however, not culminate in a rejection of the concept of dignity. Instead he proposes a version of dignity based on qualitative parameters. Such a version focuses on dignity “as the quality of being worthy or honourable; worthiness, worth, nobleness, excellence” (Bostrom 2005b) and in this modern sense it is not about something undefinable essential or “Factor X” (Fukuyama 2002) which humans are and have *qua* humanity. Instead it is a type of dignity which hinges on what the individual is and does and what the individual has the potential to become.

### **3.3 The good and just community – explicit and implicit policy advice in the ethical debate**

We have now looked at three major topics within the ethical debate on human enhancement: first, in section 2, the discussions on defining human enhancement and its prospective normative qualities; then, in section 3.1 the discourse about the beneficial and/or harmful potentials of enhancement; and, finally section 3.2, the debate about the ethical problems arising from the notion of human dignity in relation to human enhancement. These three topics each connect to further questions regarding how and why human enhancement strategies might be implemented in the societies of which we are all a part. That connect is not, however, explicit nor do general arguments supply obligatory conclusions for all societies. Definitions, concepts of well-being and dignity can all be debated within the contexts of legal, moral, social and political individualism. This section, while drawing intrinsically on the “individual-oriented” debates, presents the arguments and the debate in the light of supra-human entities: communities, societies, and states. In other words, it is about rights, fairness, justice, distribution of good, equality and the good society.

Closely attached to the two formerly presented issues the proposed challenges to fairness and equality in our communities and societies take the discourse to a different conceptual level. The pressing question here becomes twofold: a) which basic political philosophical principles are adequate (or even advantageous) in the contexts of human enhancement?; and b) how do we best formulate and implement actual policies dealing with human enhancement (Coenen et. al 2011)?

The perhaps most prolific types of argument in defence of at least some forms of human enhancement activities are within contemporary liberal individualism. In some cases this takes the form of an argument for what we could call the ‘minimal state approach’ where extensive rights are afforded the individual to choose as she wants as long as this does not harm others (Agar 2004, Bostrom & Roache 2007, Bostrom 2005b). This, however, is often simultaneously argued on

the basis of a state which, although it is minimal, should encourage responsible choices and provide adequate and relevant information on the technologies, possibilities and possible problems (Buchanan et al. 2000, p. 336). In contrast to these ideas others put forth arguments maintaining that human enhancements – or at least certain forms or developments of human enhancement – will undermine valued forms of sociality (Fukuyama 2001, Ori 2011). Habermas is similarly critical of the possible social impact of human enhancement and specifically targets genetic enhancements as a vehicle of moral inequality. Furthermore, Buchanan perceives additional problems for distributive justice in the face off *laissez-faire* liberal human enhancement (Buchanan 2011, p. 274).

The perhaps most prominent liberal stance on human enhancement is presented by Nicholas Agar in *Liberal Eugenics: In Defence of Human Enhancement* (2004).<sup>4</sup> Agar’s arguments are actually not particularly focused on the traditional debate’s *foci* on dignity and beneficence. He does not set out to defend the benefits of human enhancement. Instead, he defends the individual’s freedom to choose to enhance oneself or one’s offspring. Against a background of Nozickian emphasis on freedom he proposes that a pluralistic view of the good where parents should be free to pursue eugenic reproductive technologies in order to enhance their future children (Agar 2004, p. 6). This is what he calls “new liberal eugenics” (Agar 2004, p. 146) and he uses this term to distinctly differentiate it from historical versions of state enforced eugenics (e.g. the Nazi eugenics programmes). Eugenic enhancement choices should be a matter of personal freedom of action and liberal eugenicists reject state interventions in determining what constitutes a permissible human enhancement or a good life. Agar does, however, state apprehensions concerning a completely liberal eugenic. For example, by choosing to ‘enhance’ someone by making their skin colour lighter or attempting to ensure that they are heterosexual we would almost certainly be increasing their chances of success in today’s biased society. Nonetheless, Agar sees such enhancements as being “complicity with prejudice” and “endorsing the idea that moral value really is determined by one’s skin colour” (Agar 2004, p 156). We should counter such bigotries and not adjust to them and therefore society – i.e. the state – would be justified in countering human enhancement techniques aimed at producing light skinned and heterosexual people.

These reservations which Agar expresses are founded in a Millian argument which states that restrictions on individual liberty can only be justified by the prevention of harm to others.

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<sup>4</sup> Six years later Agar returned to the debate on human enhancement with his new book *Humanity’s End* (Agar 2010), a much more skeptical vision of human enhancement technologies and our future. The rather clear endorsement of liberal enhancement has been curbed and with a focus on “radical enhancement” technologies he criticizes certain areas of human enhancement research for having the potential to bring about the end of our species.



This argument is also a key notion in the libertarian pro-enhancement arguments from John Harris (2007, pp. 72-73). Harris has, unlike Agar, a more substantive stance on the benefits of human enhancement as well as on the social permissibility of implementing enhancement techniques. Corresponding to the stand-point of Agar, Harris argues for the freedom of individuals to choose enhancements for themselves or their children (eugenetically). It is at the core of human enhancement and reproductive freedom that any person within a liberal state who has the capacity for free action and rational deliberation ought not to be hindered when making self-regarding decisions. Furthermore, it is not for necessary that the enhancer (of himself or his offspring) to prove that good will come from his actions, it is for those who oppose his actions to show that his activities are “seriously harmful to others or to society and that these harms are real and present, not future and speculative” (Harris 2007, p. 74).

Unlike Agar, however, Harris adds a consequentialist perspective to his theory of human enhancement by claiming that besides not being restricted by the society in our use of human enhancement, we, as individuals, are morally obliged to enhance people in order to make them better. He writes: “In terms of human functioning, an enhancement is by definition an improvement of what went before. If it wasn’t good for you, it wouldn’t be enhancement (Harris 2007, p. 9).

This is a definitory argument along the lines of Savulescu as we saw in section 2. Harris states that we have a moral obligation to make the world a better place for the individuals who inhabit it. Human enhancements are by definition beneficial and “make us better people, less the slaves to illness and premature death, less fearful because we have less to fear, less dependent” (Harris 2007, p. 185), thus, Harris concludes, we are morally obligated to design future generations so as to optimise their chances for these goods.

In opposition to Agar and Harris, and indeed heavily criticised by Harris, among others, a number of authors like Sandel, Fukuyama and Habermas have argued that neither a libertarian nor a libertarian-consequentialist combination delivers a compelling normative view of human enhancement. Fukuyama makes his concern with free-for-all human enhancement clear in the very first pages of *Our Posthuman Future* when he says that “the most significant threat posed by contemporary biotechnology is the possibility that it will alter human nature and move us into a ‘posthuman’ stage of history” (Fukuyama 2002, p. 7). According to him, such a radical transformation of humanity will come at not only individual but at social and political costs. The dignity of human beings rests upon a series of qualities that make up what Fukuyama dubs “Factor

X.” This defines the unique human characteristics from which we draw our natural human rights. By engaging in human enhancement we are in danger of disrupting “either the unity or the continuity of human nature, and thereby the human rights that are based on it” (Fukuyama 2002, p.170). Fukuyama, argues that such human-altering technologies cannot be left in the hands of free individuals and corporations. Regulations are needed to curb the worst excesses of human enhancement in the same way that we have regulations on the research and use of nuclear technology (Fukuyama 2002, pp. 187-188). He realises nevertheless that detailed and extensive bans would undesirably inhibit un-controversial research and use He proposes regulations that draw “red lines not around the procedure itself but within its range of possible uses to distinguish between what is legitimate and what is illegitimate” (Fukuyama 2002, p. 208).

Leon R. Kass concurs with this assessment and states that the introduction of new biotechnologies provides us with the challenge of devising “suitable oversight and regulatory institutions and activities that could help protect society’s basic values” (Kass 2005, p. 241). In many areas of the biotech industry the market driven mechanisms of demand and supply are a growing concern to both Kass and Michael Sandel. Human enhancement and especially its future eugenic possibilities risk turning humans into objects of commerce and marketing (Sandel 2007, pp. 69-75).

A different kind of apprehension about market-fuelled and influenced human enhancement technologies has been expressed as the danger of social pressure (Allhoff et al. 2009, p. 19, Juth 2011 p. 44, Coenen et al. 2011, p. 529). If radical performance enhancing technologies are introduced and accepted into society these would create a wide field of areas in which human capacities would be even more in competition with each other than they are now. Technologically enhanced functional cognitive abilities could, for example create, advantages in acquiring a wide range of jobs. Enhanced people may thus out-perform their non-enhanced fellow citizens who, on the other hand, will be pressured to enhance themselves – or their children (Shapiro 2002) – in order to compete for the desired jobs. Social pressure, however, would not necessarily be contained to the free market and inter-individual competition. Most modern states operate and legislate in a dialectic framework between protecting individual freedom and promoting the common overall good. The latter notion would support arguments for society to campaign for – or even legislate towards – human enhancements that would benefit society overall. Such state or community grounded pressure “risk licensing the use of coercion to secure enhancements in order to prevent harm to the community” (Sparrow 2011, p. 39).

Another market-oriented worry about human enhancement technologies is the possible escalation of unjust inequalities. The possibility of bio-medically improving human capacities could leave those in-capable of gaining these improvements (e.g. the poor) at a significant loss in a competitive society (Lev 2011, Buchanan 2011). Although these people might not be intrinsically worse off than before their well-to-do fellow citizens were enhanced they would comparatively be less well off in the society in general and at greater risk of failure in, for example, the job market or when competing for educational enrolling. Such apprehensions about possible future inequalities should be taken seriously and being “attentive to the issues of the competitive advantages that enhancements would provide is extremely important [...] when deciding how to regulate such enhancements” (Lev 2011, p. 183).

In the pro-enhancement (or ‘anti-anti-enhancement’ as Buchanan names it<sup>5</sup>) theories we do, however, to some extent find acknowledgement of the dangers of enhancement induced social inequality. Such inequalities, it may be argued, are not categorically different from existing types of inequalities of societies without human enhancement technologies and, therefore, similar and well-known precautions may apply. Buchanan likens it to great historical non-biotechnological enhancements like literacy which – at least for a time being – were contributory the domination and exploitation of those who did not possess it (Buchanan 2011, p. 42-43). Additionally, writers like Savulescu and Sandberg maintain that human enhancement technologies could possibly be instrumental in “reducing inequality, injustice, and unfairness if market mechanisms were not used to distribute them” (Sandberg & Savulescu 2011, p. 104). Indeed, the rejection of human enhancement “may result in significant injustices” (Savulescu 2006, p. 336) and instead banning these technologies we should focus on establishing rational policies within society which would guarantee that everyone gets “a fair go” irrespective of their financial, social and biological background.

Policies, and especially the societal institutions that form and regulate our policies, are the central theme of Buchanan’s newest book *Beyond Humanity? The Ethics of Biomedical Enhancement*. Buchanan argues that the questions surrounding biomedical human enhancement are best understood and addressed in institutional terms. He states that he operates “as a political philosopher who recognizes the relevance for ethics of institutional design in the real world”

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<sup>5</sup> Buchanan (2011) argues that most writers – including himself – who are perceived as being pro-enhancement would indeed be more accurately described as anti-anti-enhancement. This stance “disagree with the wholesale rejection of enhancement” (Buchanan 2011, p. 15) but, additionally, argues that some concerns about enhancement and its consequences are very serious.

(Buchanan 2011, p. 21). Seeing biotechnological enhancements as innovations whose lack of or slow diffusion can be ameliorated by social institutions Buchanan takes a clear anti-libertarian stance in his political philosophy. One of the major points of *Beyond Humanity?* is the proposal and arguments for a “Global Institute for Justice in Innovation” (Buchanan 2011, p 255). This international organisation – which he compares to The World Trade Organization – would be part of a multilateral agreement and have the stated goal of amending problems of monopoly and helping the diffusion of innovation (e.g. human enhancement) by promoting innovative technologies that address unjust inequality and by creating incentives for companies to develop justice-promoting technologies. Furthermore, the Global Institute for Justice in Innovation would also act punitively through a “public ‘naming and shaming’ of firms” when “encouragement of more rapid diffusion” (Buchanan 2011, pp. 274-275) did not prompt the respective companies to change, for example, restrictive access or monopolies.

## Section 4

### Positions

Although the ‘anti-enhancement/pro-enhancement’ distinction is the starting point of this section, the obvious differences between the mentioned writers (including those between writers on ‘the same side’), is an argument for scepticism towards the felicity of the ‘for’ and ‘against’ categories. Instead of this somewhat illusory trench warfare between people who are entirely for and people who are entirely against, this section describes the writers’ positions in their theoretical context and compares and positions them to a non-linear range of other writers.

The ethical debate on human enhancement could at a first glance seem to be a matter of philosophical trench warfare of radicalised positions.<sup>6</sup> Dug in on one side we have the professed Transhumanists and supporters of various degrees of radical human enhancement, and sheltering on the other side the bio-conservatives and similar staunch critics of what they conceive of as a Frankensteinian project. Such a diagnostic of the debate is both true and false to some degree – but what is more important, it is an unfruitful type of debate and an unfruitful way of perceiving the debate.

The polarisation of positions described above is clearly true when we take into account the prominent and well-published thinkers on each extremity of an imaginary pro-con

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<sup>6</sup> This is a metaphorical interpretation which is also shared by some of the parties of the debate and visible, for example, in the title of Leon Kass’ lecture and subsequent article “Reflections on Public Bioethics: A View from the Trenches” (2005).

horizon. Organised transhumanists such as Nick Bostrom and Anders Sandberg have, together with advocates of aspects of the transhumanist positions such as Julian Savulescu and John Harris, written and published extensively in prominent journals and anthologies and through this “achieved a remarkable degree of influence in academic debates on ethics and also in political discussions in the course of this decade to the extent of being a driving force or avant-garde” (Coenen et al. 2009, p. 12). On the so-called bio-conservative “extremity” we encounter some of the most famous and influential contemporary ethical and political thinkers such as Jürgen Habermas, Michael Sandel and Francis Fukuyama together with the chairman of the President’s Council on Bioethics (PCB), Leon Kass.

One noticeable aspect of the positional divide on human enhancement between transhumanists and bio-conservative writers lies on the level of religious convictions and arguments. Religious figures and institutions have in general been highly sceptical about human enhancement technologies<sup>7</sup> and this scepticism is similarly apparent among some academics.<sup>8</sup> The PCB report *Beyond Therapy* (Kass et al. 2003) and its chairman Leon Kass could be seen as an example of such an academic ethical stance with clear religious connotations. The theories of the PCB report employ clearly religious rhetoric in its arguments against human enhancements and one of the main viewpoints is, indeed, that we should understand the “human being as a creature ‘in-between,’ neither god nor beast, neither dumb body nor disembodied soul” (Kass et al. 2003, p. 308). This epistemological point then forms part of a normative framework and an ensuing condemnation of attempts at “remaking Eden” and “playing God” (Kass et al. 2003, p. 7) and desire to transcend our humanity and “become like gods” (Kass et al. 2003, p. 150). Furthermore, the *Beyond Therapy* links the notion of defying human nature to that of defying the god(s) by characterising human enhancement as a “Promethean aspiration to remake nature, including human nature” (Kass et al. 2003, p. 288).<sup>9</sup> In addition to these apparent links to religious or spiritual ideas, Guston et al. (2007) argue that many instances of “secular” arguments in *Beyond Therapy* – e.g. arguments based on premises such as ‘excellent activity’ and ‘hard work’ – are, in fact, “strongly linked to Protestant ethic” (Guston et al. 2007, p. 187). Similarly, Buchanan maintains that the

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<sup>7</sup> The International Theological Commission of the Roman Catholic Church has argued that the changing of “the genetic identity of man as a human person through the production of an infrahuman being is radically immoral” (International Theological Commission 2002). See also the STOA report (Coenen et al. 2009) pages 52-56.

<sup>8</sup> This is true with some noticeable exceptions within especially Lutheran theology in English speaking countries. An example of this is the theologian Philip Hefner whose view on humans as created co-creators and technology as an instrument of God correspond well with ideas from classic transhumanism (Coenen 2008).

<sup>9</sup> Identical rhetoric and arguments can be find in Kass’ individual article “Ageless Bodies, Happy Souls: Biotechnology and the Pursuit of Perfection” (2003).

concept of ‘giftedness’ and/or our appreciation of gratitude for life’s gifts (Kass et al. 2003, Sandel 2007) could be construed as pointing towards an object or entity – a God – as an essential part of their meaning (Buchanan 2011, p. 3).

There is no doubt that the President’s Council on Bioethics – partly due to its prominent official platform and the renowned council members – e.g. Kass, Fukuyama and Sandel – has played a significant part in the academic debate on human enhancement. This significance has spurred a long line of reactions and many of these centre on a criticism of the use of religious rhetoric and arguments in the PCB report and in the discussions on the ethics of human enhancement in general. Ellen McGee, for example, argues that the view that we should not interfere with God’s creation “logically includes positing restrictions on curing disease and disability” (McGee 2009, p. 215). The most ardent opponent of the PCB and Kass is, however, James Hughes who describes Kass’ appointment to the Chair of PCB as an elucidation of the “contradiction within bioethics between the secular, liberal democratic tradition and the crypto-religious hostility to modernity” (Hughes 2006, p. 288). Hughes perceives Kass and the PCB as essentially linked to the (American) Christian right and his arguments to be either clearly religious or crypto-religious and thus defunct in any secular ethical discussion. Less harsh, but similarly concerned about un-clear religious influences in bioethics and in the arguments of the PCB and Kass, James Childress voices a criticism of Kass’ concept of dignity, arguing that it could be seen as overtly including religious or theological notions in the ethical discussion where it ought not (Childress 2010).

It can be said that this “Manichean discourse” (Guston et al. 2007) is a necessary part of charting the moral topography of positions in the human enhancement debate. It is, however, by no means conclusive in wholly consigning religious views to the ‘against-side’ and secular views to the ‘pro-side.’ Sandel, for one, dismisses the proposed necessity for a religious interpretation of his concept of appreciation for the giftedness of life: “one need not hold this belief [in God] to appreciate life as a gift and have reverence for it” (Sandel 2007, p. 93). Fukuyama, a fellow PCB member and conservative, likewise keeps the main part of his ethical and political discourse within the boundaries of secular theories and rhetoric since “religious arguments will not be persuasive to many who do not accept religious starting premises” (Fukuyama 2002, p. 91). Indeed, it is evident that many of the worries about human enhancement technologies – e.g. justice, beneficence, personal and social risks etc. – are expressible from an entirely secular point of view. Furthermore, the pro-enhancement side – visible in certain forms of radical transhumanism such as the aspiration

to transcend human biology – can also take the shape of “quasi-religious longings for transcendence” (Coenen et al. 2009, p. 44) and “several leading figures of transhumanism concede or even emphasise similarities between their visions and religious ideas, and some ponder how to strengthen existing syntheses of posthumanism and religious thought or develop new ones” (Coenen et al. 2009, p. 59). James Hughes, focusing on contradictions within transhumanism, relates a survey of the religious affiliations of the members of the World Transhumanist Association. In this survey a third of the members identified themselves as some sort of religious and 1% identified transhumanism as their religion (Hughes 2010). From this and other premises Hughes concludes that “transhumanism, although dominated by atheists, is developing its own theologies” (Hughes 2010, p. 628). Such religious view-points of pro-enhancement advocates are, however, mostly limited to the more popular and public aspects of the debate whereas the pro-enhancement academic ethical discourse is mainly devoid of religious rhetoric and arguments.

Another way of looking at the variations on positions in the human enhancement debate is to focus on the divides between, on one side, liberal and libertarian oriented individualism, and, on the other side, communitarian, social and/or democratic points-of-view. These are large and not clearly defined allegiances, but this way of viewing the debate shows a complexity beyond the ‘for and against’ framework. As to liberal and libertarian it is clear that both concepts focus on the freedom of individuals. To the extent that they differ in the present context this is mainly a difference in their approach to government. Whereas liberalism seeks to increase personal freedom through the guarantees and power of government, libertarianism seeks to increase personal freedom through as little government interference as possible. The latter is philosophically best known through the arguments for the ‘minimal-state’ (Nozick 1974). A minimal-state approach is, as we saw, what we to some extent encounter in the early work of Nicholas Agar.<sup>10</sup> Similarly, the emphasis on and defence of personal freedom in human enhancement activities are apparent in the works of, for example, Nick Bostrom (2005c), Julian Savulescu (2002), John Harris (2007) and Jonathan Glover (2006). Sandberg and Savulescu stress the importance of “at least a negative right to cognitive enhancement, based on cognitive liberty, privacy interest, and the important interest of persons to protect and develop their own minds” (Sandberg and Savulescu 2011, p. 108), Harris argues that reproductive liberty – as long as it does not hurt our offspring – should be a human right (Harris 2007, p. 75) and S. Matthew Liao and Rebecca Roache maintain that the risk of self-harm

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<sup>10</sup> In *Humanity's End* Agar might produce a more critical perception of human enhancement, but it is still, to a great extent, a view which he defends on behalf of and consistent with the pursuit of freedom: “... a commitment to the freedom to enhance can coexist with the ban on varieties of enhancement judged injurious to others” (Agar 2010).

from enhancement drugs should mainly be restricted by “a high-profile awareness campaign” (Liao and Roache 2011, p. 254) from the state.<sup>11</sup>

These individual freedom-oriented views are challenged on two fronts. First, by socially-oriented theories within their own ranks and writings: the prevalent use of consequentialist arguments. It is this dichotomy in thinking which is the target of Robert Sparrows “A Not-So-New Eugenics” (2011). Here he points to a tension between what he sees as, on one side, libertarian stances on human enhancement in Harris’ and Savulescu’s writings and, on the other side, their apparent argument that human enhancement “benefits individuals” and that we “should act so as to promote the well-being of individuals” (Sparrow 2011, p. 34) and therefore pursue enhancements. Harris’ idea that “enhancement is a moral duty” (Harris 2007, p. 19) certainly strikes at the core of any idea of freedom based philosophical positions even if this is not converted into a legal duty as well. Indeed, any ethical enhancement theory which aims at consequences where people’s satisfied preferences are the goal can hardly escape the consequentialist emphasis on maximisation. Thus, such a theory would merely see personal freedom as a conduit to be included only insofar that it contributes to the overall good. This would, as Hughes points out, also be the scenario pertaining to Bostrom’s idea of a future ‘singleton’ to benevolently guide and rule global civilisation (Hughes 2010, p. 629). Such a ‘singleton’ – which could be a world government, a wise dictator or altruistic AI – would be a protector of the common good and not, or not necessarily, of substantial individual liberty.

The second challenge for individual freedom oriented positions is the communitarian concepts of solidarity and fellowship which we encounter in the theories of, for example, Michael Sandel. According to Sandel the “explosion of responsibility” (Sandel 2007, p. 89), which human enhancements would carry with them, would make us less alive to the individual’s chanced lot in life and “diminish our sense of solidarity with those less fortunate than ourselves” (Sandel 2007, p. 89). In other words, by using enhancement technologies we transcend the giftedness and contingency of our lives and natural talents – we transcend the natural lottery. This, in effect, would diminish our feelings of social solidarity and we would be inclined to view the poor and destitute “not as disadvantaged, and so worthy of a measure of compensation, but as simply unfit and so worthy of eugenic repair” (Sandel 2007, p. 92). Likewise, Agar points to possible problems for solidarity inherent to human enhancement. It might not be possible to retain solidarity between

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<sup>11</sup> Those drugs which pose a more serious risk of harm to users could be, according to Liao and Roache, restricted or only available through prescriptions.



future humans who are vastly different from each other (Agar 2004). In this view Agar is in line with studies on political theory which argues that solidarity rests on, among other things, “a sense of belonging to and identifying with others” (Einhorn and Logue 2003, p. 158). This, however, is not a convincing argument against human enhancement according to Agar. He argues that, although “individual choices [e.g. human enhancement] have the propensity to disrupt social patterns [this does not mean that] the pursuit of the social good of solidarity should override individual freedoms” (Agar 2004, p. 147).

## **Enhancing the debate**

“Bioethical debates often seem to feature smart and decent people talking past each other” (Parens 2001, p. 181)

### **Tilting at windmills and tearing down strawmen**

The debate about human enhancement and ethics has, like many such debates, a number of aspects which one could identify as ‘tilting at windmills’ – i.e. attacking imaginary enemies (Cervantes 2001). One such attack or criticism is found under the theme ‘against perfection.’ Not only is this phrase known as the title of Michael Sandel’s main work in this debate, it also surfaces in the works of other writers in the anti-transhumanism segment of the debate (e.g. Kass’ “Ageless Bodies, Happy Souls: Biotechnology and the Pursuit of Perfection”). However, there seems to be a disproportionate focus on criticising the notion of perfectionism compared to efforts at defending it. The concept or goal of perfection is seemingly not very important in the arguments and discussions of pro-enhancement advocates. Virtually none of them make use of the word other than to refer to the titles of works against perfection – and others explicitly condemn it as, for example, when Agar associates it with Nazi eugenics (Agar, pp. 3 and 86), ‘Against perfection’ seems to be an argument against something that nobody is arguing for. It seems more credible to see the transhumanist agenda as an idea of on-going transformation and development of humans, of posthumans, of post-posthumans etc.

There is in such a notion no final stage where perfection is achieved, only on-going enhancement of that which is. It is exactly part of transhumanism and clear in the writings of other pro-enhancement (or anti-anti-enhancement) advocates that they are very critical of essentialisms, indiscriminate of whether it pertains to the current human standard or some future possible essential perfection or *telos*. The contradiction could even be distilled from some of the criticism itself:

“There is, we might add, no limit in principle to the desire to transcend the limits of our own nature. The desire to have a perfect body, one that perfectly executes the dictates of the will, is tantamount to a desire to transcend our embodiment altogether, to become as gods, to become something more-than-human” (Kass et al 2003, p. 150). First, they criticise the notion of striving for perfection, but then add to this that ‘there is no limit [...] in the desire to transcend’ – i.e. there is no situation in which man will consider himself perfect, i.e. there is no ‘perfection.’

### **Ad hominem**

The tone of the debate is another distinct feature of the academic discussions on human enhancement and ethics. Although philosophical and ethical debates in general are no strangers to strongly-worded disputes, the sheer tone of contempt and ridicule found in some of the academic literature on human enhancement sets the debate apart from the mainstream. This tone, unlike a fierce but sober quality typically found in, for example, philosophical ethics, does not contribute to the enhancement of academic discourse. Instead it leads writers and readers away from the core topics and distracts from the academically interesting aspects by *ad hominem* argumentations and name-calling. This rhetorical debate problem is not limited to one particular writer or one particular “side” in the ethical discussions on human enhancement. Samuel Brown provides a comment on this rhetorical problem in his review of Harris’ *Enhancing Evolution*: “... the degree of colloquial informality [...] and polemicization (name-calling and the creation of strawman opponents) is somewhat surprising in a book written by an academic within his discipline. To rebut two of the West’s most prominent political and ethical philosophers, Michael Sandel and Jürgen Habermas, with pungent sarcasm and *reductio ad absurdum* violates most canons of academic discourse. While Harris is correct that excessive reliance on mere authority may be dangerous and academic distance enfeebling, his snippy, self-assertive argumentation does little to solve either problem” (Brown 2009). Similarly, the transhumanists have been described as resembling an “odd cult” (Fukuyama 2004) and the use of human enhancement technology has been likened to creating Frankenstein monsters (Jotterand 2008, Allhoff et al. 2009).

Generally the use of certain descriptions or labels has a tendency to cloud the debate and the issues. ‘Transhumanism,’ for example, is a terminology that only a few major writers – noticeably Bostrom and Sandberg – use to label themselves. Nonetheless, the term is also used to very broadly describe those who would “use biotechnology to make ourselves stronger, smarter, less prone to violence, and longer-lived” (Fukuyama 2004) – a description which would include a

number of writers who certainly do not support the official transhumanist agenda. The terminology around ‘bio-conservatism’ is also a questionable topic. In many texts, including this report, the label is used to identify and describe a group of thinkers whose writings and arguments derive from what would normally be considered conservative theory. Indeed, it can, for example, be both valid and helpful to describe a writer like Fukuyama as ‘bio-conservative’ since he has long identified himself as a neoconservative and has “numerous affiliations with the different strands of the neoconservative movement” (Fukuyama 2006). We should, however, be wary since the label ‘bio-conservative’ is not generally and explicitly used as self-identification among those who are labelled so by others. ‘Bio-conservative’ is often used by people describing the debate in an intended neutral manner (Coenen et al. 2009, Parens 2010), but it is also regularly used negatively and with the connotations of an association with technophobia and anti-development (Bostrom 2005b) or as opposed to a “biomoderate” (i.e. reasonable) approach (Roache and Clark 2009).

Related to both the tone and the trench warfare is the disagreement on the validity and usefulness of religious arguments and stand-points. It is a general theme in pro-enhancement criticism to include a denunciation of arguments of a religious nature. Such denouncements rarely include an argument as to why religious arguments are invalid but take this as a given. The denouncements are, furthermore, targeted at both writers who are openly using religious terminology and reasoning and writers whose theories gives rise to suspicions about religion on account of their terminology or argument-types or a combination of this and a known personal religious observance. Enhancing the debate on this point would, first and foremost, entail debaters being clear about religious arguments and criticisms of these. This would include a much more distinct general reasoning as to how and why religious arguments could or could not function in the debate on human enhancement and ethics.

### **Dis-entrenching dignity**

One of the most heated parts of the debate has been over the concept of dignity. There is some evidence that the importance of the concept of dignity, especially in the conservative argumentation with (intended or unintended) religious associations, has weakened the discourse on this important topic. Dignity has for many writers become almost synonymous with religious or crypto-religious positions and as such disregarded as invalid. A notable exception to this view is Bostrom who in the article “In Defense of Posthuman Dignity” (2005) presents us with not another dismissal of dignity’s importance but with a different angle – and thus a divergence from the “monopoly” of

certain groups (see section 3.2). Lately Ruud ter Meulen has discussed the ambiguity of the concept of dignity and proposed a better understanding through the ideas of Charles Taylor. In the article “Dignity, Posthumanism, and the Community of Values” he argues for the relation between dignity and the community of values which we belong to by virtue of our “*capacity to express and to share values*” (ter Meulen 2010 – original italics). This approach could be rewarding in dis-entrenching the debate on dignity by disassociating the concept from any notion ‘natural human’ or ambiguous ‘Factor X’ and situating our discussions in the commonality of understanding and sharing values.

Further expansion on the debate about dignity is imperative to any substantial future debate on human enhancement and ethics. This should involve both contemporary and classical writings on the notion of dignity. An example of such future work is the newly established project by Iben Damgaard (University of Copenhagen) focusing on “Dignity as Norm of Orientation in the bioethical Debate on Genetic Enhancement”<sup>12</sup> which will run from 2012 to 2014. In this work Damgaard will combine readings of contemporary writers on ethics and human enhancement such as Buchanan, Bostrom and Habermas with readings of Kant and Kierkegaard (Damgaard 2011).

### **The virtuous enhancement**

Throughout the last three decades philosophy has witnessed a revival of virtue ethics. A revival which has rewardingly challenged the more predominant moral theories rooted in utilitarianism and deontology. Nonetheless, this has had limited spill-over effect on practical ethics and within the framework of human enhancement ethics almost none. This situation still holds in spite of prominent neo-Aristotelian writers such as Kass and Sandel publishing on human enhancement ethics. A few notable articles do, however, engage the ethical questions of human enhancement from a virtue ethical perspective: Colin Farrelly has written on the application of virtue ethics on the case of prenatal genetic enhancements arguing that “virtuous parents seek to navigate the mean between all-controlling parents and neglectful parents. And finding this mean will require them to take into consideration their ability to provide their children with the capabilities for flourishing” (Farrelly 2007); Ho and Merriam argue that virtue ethics provides us with a more promising account of embryo moral status and “that despite our different cultural histories, we can eventually come to agree on some common notion of what we hold to be human excellence” (Ho and Merriam 2009); and, recently, Stephen Holland has argued in length for a virtue ethics approach to bioethics

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<sup>12</sup> Damgaard’s homepage: <http://www.teol.ku.dk/english/dept/ast/staff/?id=69351&vis=medarbejder> (accessed January 4, 2012).

in general (Holland 2011). The very few examples of virtue ethical approaches to human enhancement necessarily leave us with the question: will the resurgence of virtue ethics in both theoretical and applied philosophy (Veatch 1999) be able to unfold and create further impact on the debate on human enhancement? In the context of the current main debate on human enhancement, virtue ethics is challenged due to its emphasis on character and virtue in a discussion mainly focused on consequences. Furthermore, it is, as Sparrow states, “difficult to develop an uncontroversial account of the virtues that has enough content to motivate definitive conclusions about the appropriate attitude toward enhancement” (Sparrow 2011).

Virtue ethics will most likely not be the predominate ethical stance in the future academic debate on human enhancement. The prevailing focus on consequences and regulations is, for one, an obstacle to this. Nonetheless, there is certainly room for virtue ethics both as a way of developing valid ethical theories and as a rethinking of the fundamental tenets and assumptions of the current ethical debate. Virtue ethics provides us with the possibility of an “inviting new direction for research into bioethics’ [and thus human enhancement ethic’s] methodology” (Holland 2011).

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## **Selected non-English literature on human enhancement ethics**

The vast majority of academic literature within the debate on ethics and human enhancement is written in English. This is most likely a result of the two things: 1) almost all of the journals on this topic are English language journals; and 2) the English language is the uniting language – a 21<sup>st</sup> Century Latin – of the contemporary scientific scene and as such enable researchers from many countries to debate their theories. There are, however, still significant academic publications in Europe which are not in English. The numbers from each country depends heavily on things like academic language traditions and the number of potential readers. Thus, we find a substantial number of native language publications from, for example, Germany while there are almost none to be found in the publications coming out of the Netherlands or Denmark.

The following summaries represent a segment of noteworthy publications in non-English languages from countries within the EU.

### **Italian**

M. Balistreri. 2011. Superumani. Etica ed enhancement. Espress Edizioni, Torino.

Superumani. Etica ed enhancement (Superhumans. Ethics and enhancement) is the first Italian book that examines the international debate on the enhancing interventions and their ethically acceptable uses. Balistreri argues that this debate is principally characterized by dogmatic assertions and prejudices, which arise from the unjustified conviction that enhancing biotechnologies will lead to a unsettling future scenario, such as the one described by Aldous Huxley in *Brave New World*.

To discuss these issues, Balistreri devotes the four chapters of his book to an analysis of the arguments against human enhancement proposed by F. Fukuyama, M. J. Sandel, L. R. Kass, and J. Habermas. The main purpose of this analysis is to point out that the arguments proposed by these authors are incongruous as well as influenced by the novel *Brave New World*.

M. Loi. 2011. Giustizia e Genetica. Bruno Mondadori, Milano-Torino.

Giustizia e genetica (Justice and genetics) focuses on justice and access to genomics, especially genetic enhancement, and deals with the following two questions:

1. How should the potential benefits and burdens of these biotechnologies be distributed?
2. Does the possibility of altering genetic endowments through biotechnology involve a revision of fundamental principles of social justice?

The main thesis of the book is that the principles of justice of the recent liberal tradition have to be carefully reworked in order to be applicable to a post-genomics context. John Rawls's theory of "justice as fairness", Norman Daniels' theory of just health, Ronald Dworkin's liberal Equality, Colin Farrelly's Genetic Difference Principle, the theory of From Chance to Choice (by Allen Buchanan, Norman Daniels, Daniel Wikler and Dan Brock) are carefully analysed to show that none of them is suited to deal with the complexity of a post-genomic scenario. It is also argued that John Rawls's theory can be applied to a post-genomic context after a substantial revision, which changes the way in which we tend to think about equality of opportunity in a Rawlsian framework. A substantial part of the book is thus devoted to an analysis of the Rawlsian concept of a fair opportunity and of the central distinction between initial endowments and social circumstances, which is challenged by advances in genetics and other fields of biotechnology. The final section draws the normative implications of the moral principles, giving us a blueprint for the institutions of a well-ordered post-genomic society.

## **Slovenia**

Logar, Tea. 2010. "Izboljševanje človeka in zdravstveno varstvo : nekaj etičnih vprašanj" in Bilten: ekonomika, organizacija, informatika v zdravstvu, 26(3): pp. 92-97.

"Human enhancement and health care: some ethical issues" (English title): Modern biotechnologies make treatment of diseases and disorders increasingly attainable, but often the same methods can be used just as successfully for enhancement of certain traits in otherwise healthy people. For example, modafinil is a treatment for narcolepsy, but can also be used to improve memory, while amphetamines, which are often used for improvement of certain functions after brain injuries, can

be used to enhance focus and concentration. Most health care (and especially health insurance) providers claim that they only provide treatment, but not also enhancement, and while this distinction seems sensible enough, many have argued that the line between treatment and enhancement is in fact much more elusive than it initially appears. This line turns out to not be based on some "natural" conception of health and disease, but rather depends largely on cultural and societal notions, which have changed considerably throughout history. Moreover, even if we can find some non-arbitrary defining line of what should count as treatment and what as enhancement, most health care and health insurance providers already cover certain methods that are clearly not meant to improve or protect our health (at least not according to current conceptions of health), but rather simply to enhance some of our traits or circumstances with the intention of making our lives easier to manage. If insurance providers already offer coverage of some forms of enhancement, the question arises how to decide which enhancement methods it is reasonable to cover, and which not.

Trontelj, Jože. 2010. "O dvojni rabi biologije in medicine: 'žlahtnjenje človeka'" in Organizmi kot živi sistemi: zbornik prispevkov (English title: Organisms as living systems: proceedings), pp. 87-89.

This was a conference contribution. English title of the article/contribution: "Dual use of biology and medicine: 'human enhancement'" which focused on these subjects: Genome, stem cells and synthetic biology.

Mali, Franc. 2009. "Ali obstajajo etične meje razvoja konvergentnih tehnologij?" in Časopis za kritiko znanosti, 37(237): pp. 93-106.

The article contribution (English title: "Are there Ethical Boundaries to the Development of Converging Technologies?") focuses on converging technologies, technologies, the ethics of science, protecting intellectual property, privatization of science, and biopatents. This addresses some societal and ethical dilemmas of the development of Converging Technologies. Although today, certain predictions about the practical use of Converging Technologies may seem far-fetched, research in the fields of bio-, nano-, information and cognitive enhancement technologies continues to surprise us by its radical, innovative leaps forward. These discoveries and their applications bring up a number of ethical and broader societal questions. For example, a number of new discoveries have revealed the potential of Converging Technologies to make our existence ever less dependent on natural circumstances, which, until just recently, were thought to be immutable

(from the standpoint of the evolutionary development of man). Thus the question of whether this leads to a situation where technology will do away with the evolutionary flux of homo sapiens, a development, which would have unforeseeable consequences for society, arises. There are a number of views on the possibilities of the enhancement of human mental and physical capacities through the use of the new technologies. The author points out the negative aspects of the ideologies of some branches of transhumanism. At the same time, he offers a criticism of the current processes of the commercialization and privatization of Converging Technologies. Not only do these processes lead to a series of ethically controversial developments; they also impede the very development of science. The author concludes with a warning that the social sciences in Slovenia do not adequately address the problems pertaining to the development of modern science and technology.

Pustovrh, Toni. 2009. "Izboljševanje človeka : argumenti za in proti" in Časopis za kritiko znanosti, 37(237): pp. 56-77.

This article (English title: "Human Enhancement: Arguments For and Against") focuses on human enhancement, therapy, life extension, cognitive enhancement, societal trends, and risks. This contribution offers a general overview of the polemics surrounding human enhancement, a subject closely linked with Converging Technologies. It presents examples and developmental trends that show the relevance of the concept. Certain dilemmas arising from attempts to divide the potential applications into (desirable) therapy and (undesirable) enhancement are presented. Four categories of the use of human enhancement technologies are examined, including an overview of the current state of research, a discussion of expert arguments for and against human enhancement, and a presentation of some potential risks and advantages of such developments. Certain points of departure for future discussions are also given.

Cergol, Ana. 2009. "Bioetične razsežnosti nove evgenike" in Časopis za kritiko znanosti, 37(237): pp.107-115.

This article (English title: "Bioethical Dimensions of the New Eugenics") focuses on eugenics, genetics, biotechnology, genetic engineering, and reproductive freedom. This contribution describes the bioethical dimensions of eugenics, which, despite its sordid past, is becoming ever more relevant in the wake of advances in the field of human genetics. The author draws attention to the difference between past and current eugenic methods, and attempts to appropriately situate eugenics between the reproductive freedom of parents and the rights of the child. She discusses potential



dangers on the one hand, and the possibilities arising from ensuring equal opportunities on the other. She also surveys the challenges that eugenics presents for human nature and problematizes the definition of the good gene, while at the same time stressing the distinction between therapy (negative eugenics) and enhancement (positive eugenics). From the problematization of the good gene, she arrives at the question of whether it is possible to consider the categorization of human lives without reference to a categorization of people, and points out the possibility of incompatible categorizations of the value of human life.

## **German**

Schöne-Seifert, Bettina and Davinia Talbot (eds.). 2009. Enhancement Die ethische Debatte. mentis Verlag: Paderborn.

The topic of human enhancement has gained importance in the academic debate in Germany since few years. One of the first publications on this topic was the book edited by Bettina Schöne-Seifert and Davinia Talbot "Enhancement. Die ethische Debatte" (enhancement- the ethical debate) in 2008. Schöne-Seifert is Professor for Ethics of Medicine at the University of Münster as well as member of the National Ethics Committee in Germany, and Davinia Talbot, assistant physician at the university hospital in Münster. The book is divided into five main parts and contains those contributions from the Anglo-Saxon debate (with the exception of Jürgen Habermas), which are considered central in establishing the discourse around enhancement. The intention of the authors is to stimulate the debate in Germany offering a sort of anthology of the most important problems and open questions discussed.

The first part is dedicated to the analysis of the concept of enhancement and concentrates on the tension between enhancement and therapy.

The second part is dedicated to the topic of physical enhancement and in particular on doping in sport.

The third part is dedicated to the specific topic of neuroenhancement

The fourth part is dedicated to the analysis and challenges of enhancement for future generations, which regard mostly technologies capable of modifying the germline but also medication for children.

The fifth part is dedicated to the possible application and implication of enhancement technologies on the elderly.

Although the division of the topic is presented by the authors as being quite traditional in publications dealing with enhancement, the choice of an explicit focus of enhancement on the young and future generations and on the elderly next the more general categories of physical enhancement and cognitive enhancement offers a different systematization pointing out different areas of ethical conflicts.

Schöne-Seifert, Bettina; Davinia Talbot, Uwe Opolka, Johann S. Ach (eds.) 2009. Neuro-Enhancement – Ethik vor neuen Herausforderungen, mentis Verlag: Paderborn.

Another interesting publication in the German academic literature is a book edited by Bettina Schöne-Seifert, Johann S. Ach, Uwe Opolka and Davinia Talbot in 2009 specifically dedicated to the topic of cognitive and mood enhancement. This book reflects the importance that this specific debate has gained in Germany in the last few years. Schöne-Seifert and Talbot were involved in a project on potential and risks of pharmaceutical enhancement granted by the German Ministry of Research from July 2006 to October 2009. Together with the other colleagues involved in the project they published an article/manifesto on a popular scientific magazine (*Gehirn und Geist*) on the "optimized brain" (*Das optimierte Gehirn*), which received a broad resonance on German media and was controversially discussed.

In the book neuroenhancement is identified as the application of technologies aimed at improving cognitive abilities in healthy people. Therefore, this publication turns around the ethical and social implications of the use of technologies for improving mood and cognition outside the therapeutic context. The fast development of neurosciences and to the increasing understanding of psychiatric diseases in the last years are indicated as offering gaining evidence of the possibility of developing these technologies. Therefore, the authors present neuroenhancement as a concrete possibility, which our society should reflect upon. The book represents an interdisciplinary attempt to disentangle the possible implications of neuroenhancement and contains contributions from philosophy, medicine, law, neurosciences and political sciences. One of the central questions

discussed regards the legitimacy of the development and use of neuroenhancements by healthy people, presented as a question about the legitimacy of auto-determination (autonomous choice) as well as self-design through technologies. Other ethical questions analysed regard the implications of using neuroenhancements for the authenticity of the self and his/her responsibility. There are also contributions dealing with questions of fairness in the distribution of these technologies as well as with possible increase of competitiveness. Furthermore, other contributions deal with possible implications regarding the role of the physician and its relation with the patient.

Wienke, Albrecht; Wolfram H. Eberbach, Hans-Jürgen Kramer, Kathrin Janke (eds.) 2009. Die Verbesserung des Menschen Tatsächliche und rechtliche Aspekte der wunscherfüllenden Medizin. Springer: Berlin Heidelberg.

In the book “Human enhancement: Factual and legal aspects of wish-fulfilling medicine” Wienke, Eberbach, Kramer and Janke analyse the topic of human enhancement under the light of the fundamental change medicine, which does no longer focus only on providing adequate therapies for patients but becomes increasingly commercialized and oriented toward the fulfilment of new needs. Therefore the book deals with those technologies which directly fall under medical praxis, namely aesthetic surgery and aesthetic dermatology, pharmaceutical drugs for mood, cognitive and physical enhancement and neurobionics. This interdisciplinary attempt to disentangle the ethical, social and legal aspects of new medical practices which go beyond therapeutic purposes contains also some articles by specialists which offer an overview of the state of the art of possible enhancement technologies, in particular on psychiatric drugs and on aesthetic surgery.

The second part of the book is dedicated explicitly to analyse the challenges of medical enhancement technologies for regulation: A contribution deals with the question whether and which are the limitations set by the German Constitutional Law to the right of self-determination; another contribution deals the juridical obligations of the physician and with his/her juridical responsibility in the case of enhancement interventions on the bod. Another contribution deals with the tension between the duty to cure and the possibility of considering some medical interventions only as business, since they are not covered as something obligatory for the physician to perform. Another article deals with responsibility of the patient and the legal implications under the light of a specific article of the German law.

Therefore this book is innovative with respect to other general publications on ethics and enhancement and entails some pioneer research on the legal implications of new enhancement technologies on a national level.

## **Dutch**

Rathenau Institute. 2008. Het Glazen Lichaam: gegrepen door informatie. Research report (see: [http://www.rathenau.nl/uploads/tx\\_tferathenau/EssayGlazenlichaamFebr2008.pdf](http://www.rathenau.nl/uploads/tx_tferathenau/EssayGlazenlichaamFebr2008.pdf)).

The report (English title: The Glass Body, Caught by Information) focuses on information technology, sport and human enhancement, therapy, and social trends. It is a communication paper of a research project of the Rathenau Institute in the Hague. It mainly treats with the issue of the body becoming increasingly transparent under the influence of a host of novel technologies, but indirectly also touches upon different applications of these technologies as enhancement.

Ine Gevers (ed.). 2010. Niet Normaal. NAI Publishers: Rotterdam.

This publication (English title: Differences on Display) is an advanced catalogue for a grand scale exhibition with academic papers on the role of technology in defining and shaping concepts such as handicap, super-ability etc. The exhibition took place at the Beurs van Berlage in Amsterdam, and is now traveling to Liverpool, Berlin and might be repeated again in London.

Jong, de, Jacqueline B.; Keulen, van, Ira, Quast, B. 2010. Van Vergeetpil tot Robotpak: Human enhancement voor een veilige en rechtvaardige samenleving?. Rathenau Instituut: Den Haag.

This bundle of essays (English title: From Forget-Pill to Robot Suit, Human Enhancement for a Just Society?) with contributions from scientists, ethicists and professionals in the medical domain deals with the range of human enhancement technologies and discusses its societal and ethical consequences. Scientists sketch a clear picture of various possibilities for enhancement applications of their research, ethicists respond to each of these technologies with reflective questions and professionals in health care were interviewed to discuss the potential and the possible objections of these applications from their occupational perspective. The book is a joint effort of the Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, the Ministerie van Veiligheid en Justitie and the Rathenau Instituut.

Koops, Bert and Peter-Paul Verbeek. 2009. De Maakbare Mens; tussen Fictie en Fascinatie. Uitgeverij Bert Bakker: Amsterdam.

This book (English title: The Constructible Man: between Fiction and Fascination) discusses the different approaches to make people more perfect, from DNA-research and plastic surgery to in vitro growth of organs, embryo selection, cyborgs and implantations and the strive for immortality. The subject is analysed both from a scientific and from a philosophical background. It includes views from biology, AI, genomics, philosophy, history, health economics, STS, law and literary sciences.

### **Danish**

Dige, Morten. 2003. Det gen-skabte menneske. Munksgaard Danmark: Copenhagen.

This book (English title: "The Re-Created human being" or "The Gene-Created Human Being" – there is a play on words since the Danish 'gen' can mean both 're' and 'gene' in English) is a philosophical-ethical investigation of genetic manipulation with human beings. The subjects treated in the book include: the differences between gene therapy and traditional therapy, ethical slippery slope arguments, genetic manipulation as "natural" enhancement, gene doping and the overall question of what constitutes a good life for human beings. The book is generally sceptical towards arguments that we can make better human lives through manipulation of our genes.