From Humanity to Posthumanity

Moral Questions Concerning Radical Enhancement

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Preface

I want to extend a big thank you to my supervisor Ole Martin Moen who, with great knowledge and eye for detail, patiently guided me through this project. It's been a painstaking process, but I finally made it through.

I also thank everyone who read my work in the process, and gave me valuable suggestions.

Abstract

This thesis explores Nicholas Agar's criticism of radical enhancement in his book *Humanity's End*. He claims that enhancing the human body in a way that goes beyond the limitations of human biology, will turn us into something that cannot properly be called humans, and therefore alienate us from ourselves, from our loved ones and from important experiences that have great value to humans.

I argue that there are some serious flaws in Agar's argument: first that his argument is circular; that fact that you are human doesn't require you to preserve that state of existence. Secondly, we don't have a clear definition of what it means to be human in the first place. For example, we can imagine a person being enhanced with various cybernetic implants and prostheses, but still being genetically identical with humans. If we don't clearly know what it means to be human, how do we know whether this is worse or better than being, say, a posthuman?

There appears however to be a way for Agar to accept enhancement if they happen bit by bit, over many generations, which seems reasonable, granted that it is easier to control the direction of where human progression will go. Agar is close to endorsing a eugenics program, as modeled by Julian Huxley, to gradually improve humanity over several generations.

The man who comes back through the Door in the Wall will never be quite the same as the man who went out. He will be wiser but less sure, happier but less self-satisfied, humbler in acknowledging his ignorance yet better equipped to understand the relationship of words to things, of systematic reasoning to the unfathomable mystery which it tries, forever vainly, to comprehend.

- Aldous Huxley, *Doors of Perception*

The universe is not being pushed from behind. The universe is being pulled from the future toward a goal that is as inevitable as a marble reaching the bottom of a bowl when you release it up near the rim. If you do that, you know the marble will roll down the side of the bowl down, down, down—until eventually it comes to rest at the lowest energy state, which is the bottom of the bowl.

- Terence McKenna, “Approaching Timewave Zero”

Contents

Introduction

The aim of this thesis is to investigate the morality of enhancement, more specifically whether crossing the boundary between species is crossing over a moral boundary. There are many types of possible enhancements of the physical features of the biological body, such as increasing strength or attractiveness. These types of enhancements will likely develop simultaneously with the enhancements of brain functions, but it is the enhancement of intelligence that will be the focus of this thesis. Enhancements like these are associated with the transhumanist movement, which generally advocates that humans speed up and direct their own evolution. The transhumanist movement consists of many different camps, but there is a common trait among most of them that they foresee humans transitioning from humanity into post-humanity. The term 'transhumanism' implies a transition from humanity into something else.

The question that I'm raising in this thesis is whether humanity has a moral obligation to preserve human traits, even if these traits have obvious flaws. The question is not simply whether enhancement is morally objectionable or not, but more specifically, whether it is morally objectionable to move away from humanity. I think it is important to address this question because it is used as the main argument against radical enhancement. Improving our intelligence a thousand-fold, or uploading our consciousness into a computer would take our humanity away from us, and deprive us of many important experiences in human life, according to many critics of transhumanism, like Nicholas Agar and Francis Fukuyama.

I will not concentrate so much on what it means to be a human being and the contents of human life, nor on the specific nature of the kind of being we eventually would turn into, should we choose to enhance ourselves. Human nature can be described and defined in a myriad of ways, and it would obviously be impossible to explore every aspect of the human species and its various cultural traits in one thesis alone. Nor will I try to compare the current human species with the possible post-human. Instead, it will probably be necessary to elaborate on what a species is, to answer the question of whether it is morally objectionable to enhance oneself to the point of becoming a different kind of being.

I believe this is an important issue because humanity, especially in the industrial world, is becoming increasingly immersed in technology, especially with regards to computer and communications technology. Today, access to the internet has become a major part of any household for many years already, even in developing countries. The same is true for internet-connected devices like smartphones and tablet computers. In the past ten years the number of internet users worldwide have more than doubled, from around 18 % in 2005 to an estimate of 40% in 2014. The number of cellphone users have gone from around 34% to 95% in the same time frame, according to numbers from the International Telecommunications Union.[1]

This trend, with people becoming increasingly dependent on internet-connected devices, is accelerating in speed. New computer-wearables, such as the Apple Watch, shows a clear pattern: Technology is increasingly becoming a part of us. Devices are becoming smaller, faster and cheaper, and have in many respects become like an extended part of our consciousness. They allow us to speedily acquire useful information and communicate with people around the globe. In medicine, it has been common to improve bodily functions with electronic devices for years already, using hearing aids, pacemakers, electronic larynxes etc. Today, robotic prosthesis that can be controlled with the brain are under development. It does not require too much imagination to see the direction of where we are heading. With these technologies developing faster and faster, increasingly more radical enhancements of the human body may not be too far off into the future. Today, prosthesis can help disabled people live normal lives, tomorrow there is a possibility that these prosthesis becomes better than the body parts and organs they are meant to substitute. This way they can improve the lives of regular healthy people, not just the disabled.

However, humans have taken millions of years to evolve and our instincts and genetic structure are about the same as when we were hunter-gatherers despite the fact that our lifestyle now is radically different from that time. To a certain extent, humans have retained an instinctive inclination for territorial and social dominance over others. Will these instincts survive into post-humanity or will they wither away through the stages of enhancement? One question is whether our instincts can survive; another is whether they should survive. Maybe we want to keep the ones we like, and get rid of the

[1] ITU world telecommunication/ICT indicators database

ones we dislike. But who will be the judge of which instincts are good and bad? There are many moral problems concerned with enhancement, and this field is in many respects an unbroken land for public philosophical discussion.

This thesis will mostly concentrate on Nicholas Agar's criticism of transhumanism in his book *Humanity's End*, and how he thinks that radical enhancement will alienate us from ourselves, from our family and from experiences that we value, and uses what he calls species-relativism to argue for a rejection of enhancement. But do we have a moral obligation to preserve human experiences if we are confronted with the opportunity to enhance cognitive abilities? The idea that we should preserve the human state just because that's the state we happen to be in at the moment seems problematic. Throughout the evolutionary process there have been many states of being that our ancestors have passed through; how do we know that the current state is the ideal state that we want to preserve? I will try to show that the notion of preserving the current state because it is the current one, is a circular one. It does seem though that it is possible for Agar to agree to some forms enhancements that are gradual in nature, to reduce the chances of alienation.

The first chapter of this paper will give some basic historical over the theme of transhumanism, how far back we can trace ideas of transcending biological limitations, and the prevalence of this subject in art, religion and pop-culture. In addition, this chapter will include an overview of the current transhumanism movement, and what its general goals are. Here, I will also present some of the main views of the opposition to radical enhancement.

Chapter 2 will outline Nicholas Agar's view of radical enhancement, and what he thinks the dangers of enhancement are, based on his book *Humanity's End*. Agar presents and examines transhumanism from four viewpoints: Technological, therapeutic, philosophical, and sociological, each represented by a transhumanist thinker attached to each respective field.

In Chapter 3, I will examine some of the more critical points about Agar's argument against radical enhancement. As mentioned, I believe his species-relativist argument has some weaknesses which I will go into detail in this chapter. This chapter will also contain a section on moral enhancement, an idea that Agar dismisses without much discussion. In addition, I will present some of my own views on radical enhancement, some of which I think Agar can agree to.

Chapter 1: What is Transhumanism?

1.1 **Transhumanism in History and Popular Culture**

The idea of humanity transcending its limits is probably as old as humanity itself. We have limited records of what people during the stone age thought, but archeological finds of the early Homo Sapiens, their great variety of tools, their adaptability as well as cave paintings, indicate that they had creative abilities surpassing that of Neanderthals, and other species of the *Homo* genus. Although the Neanderthals did construct tools, their tools were mainly composed of stone flakes, primarily of flint, and basic bone tools. Data shows that their tool usage had little variation or progression, in spite of variation in locality.[2] This stands in contrast to the tool development of Homo Sapiens, which appears to be more varied and elaborate, which could indicate that they were more cunning and imaginative. Scientists still debate over how intelligent the Neanderthals were versus Homo Sapiens, but the latter is widely regarded to hold a creative edge over the former.

In view of the apparent inventiveness of Homo Sapiens, we can speculate that they had thoughts about how to create lasting improvements upon their lives. We can see from cave paintings of the Upper Paleolithic period (50k-10k years ago) that Homo Sapiens were probably the first to believe in supernatural beings. For example, the cave paintings of the Chauvet and Lascaux caves in southern France depicts, among other things, minotaur-like beings or creatures like half human-half bird or half human-half-lion.[3] This could be an indication that the early Homo Sapiens did indeed have fantasies of transcending the limitations of the human body, perhaps gaining the strength of an ox, the ferociousness of a lion or the ability to fly like a bird.

This is of course pure speculation, as we have no way of knowing the true content of the early Homo Sapiens thoughts. However, the subject of humans transcending their natural limitations is a common subject in human history. Many religions contain various figures of humans with special powers, or with animal-like features. One of the earliest recorded tales of a being with superhuman powers is the *Epic of Gilgamesh* of ancient Sumer, where the main character, Gilgamesh, a legendary king of the city-state of

[2] Bocquet-Appel/Tuffreau (2009) pp. 287-307
[3] Ryan (1999) pp. 30-38

Uruk, is described as part human, part god, with superhuman strength. According to the legend, Gilgamesh builds the city walls of Uruk and defends it from the gods who want control over the city.[4] The *Epic of Gilgamesh* also contains proto versions of known biblical stories. For example, Gilgamesh meets an old sage called Utnapishtim, who is an early version of Noah (of the Great Flood). Utnapishtim is tasked by the god of creation, Enki, to build a great ship and survive with his family together with a selection of animals.[5]

Demigods like Gilgamesh appear numerous times in other mythologies. For example, Dionysos of Greek mythology, who is the son of Zeus and a mortal woman Semele. Dionysos, the god of wine, winemaking, theatre and fertility, among other things, is often seen as one of the most important figures of Greek mythology. Some scholars also see similarities between Dionysos and Jesus Christ, because they both die and are later resurrected, a common theme several religions, although the context and symbolism of Dionysos' death and resurrection differs from that of Jesus. Jesus is of course similar to Dionysos in that he is a kind of demigod, by being the son of God and a mortal woman, the Virgin Mary. According to Christianity, Jesus serves as the key to achieve salvation and entrance into the kingdom of God.

Siddhartha Gautama, the first Buddha, although not a demigod per se, also offers a form of salvation, or enlightenment, for humanity. There are too many demigods of several religions to list here, but most of them seem to serve a purpose of being idols, models whose lives mortal humans should strive to live up to. They serve as a dream for humans to achieve a better existence. Religions offer moral laws for humans to live according to, for the purpose of improving the life quality of humans and the general quality of society. In other words, religion is created to "enhance" human lives, though in a somewhat different sense that modern transhumanists talk of. Many transhumanists do however talk of moral enhancement, which we will come back to in greater detail in chapter 3.

In alchemy, particularly the hermetic tradition which has its roots in ancient Egypt, whose goals were, among other things, creating the philosopher's stone, which would allegedly allow for transmutation of metals (e.g. turning lead into gold), creating the elixir of life, creating universal cures for any given disease etc. This form of alchemy

[4] The Epic of Gilgamesh
[5] Ibid

can perhaps be viewed as a form of proto-transhumanism, seeking to perfect the human body and soul, and *gnosis*, i.e. insight or enlightenment.

Popular culture is also filled with references to human enhancement. One phenomenon that stands out are superheroes, of which Superman is probably the most known representative. In other superhero fables, the main character is often exposed to some medium that transforms him/her to a kind of super being, thereby using its superpowers to fight evil. As with the demigods of religions, such figures serve as idols for humanity, whose morals we ought to strive to live up to.

The epic science fiction film *2001: A Space Odyssey* by Stanley Kubrick, stands out as a prime example of transhumanism in movies. In this film, contact with an alien intelligence, represented by a black monolith, prompts human improvement in four stages. At the first stage, our ancestors' encounter with the monolith inspires them to develop technology, starting with bone clubs, ending with spaceships. At the following stages, humanity's transformation becomes more mystical, with humans become more emotionless and machine-like, while the machines produce human-like emotions and self-awareness. The final two encounters with the monolith, leads the main character David Bowman on a path of what may be called a psychedelic exploration followed by spiritual enlightenment.

These are some examples of visions of human transformation throughout human history, which indicates an intrinsic drive in humans for continued exploration and extension of its limitations. A human's imagination is arguably one of the main reasons for how our technological advances became possible.

The term "transhumanism", and the creation of transhumanism as a social movement is often credited to Julian Huxley in his article "Transhumanism" in 1957. Huxley had as early as 1927 written a paper called "Evolutionary Humanism" where he elaborates a humanity transcending its limits.[6] Both articles are published in the book *New Bottles for New Wine*. However, the term "transhumanism" seems to have been coined independently on various occasions. The term "transumare" appears in Dante's *Divine Comedy* in 1312, meaning to go beyond humanity, but this term is used in what is likely a more religious or spiritual context.[7] The term "transhumanism" was used by T. S. Eliot in book *The Cocktail Party* from 1935 It was used by the Canadian philosopher W.D.

[6] Huxley (1957) p.
[7] More (2013)

Lighthall in an article from 1940 called "Proceedings and Transactions", which speculates a cosmic human evolution.[8] Whether Huxley had knowledge of Lighthall's paper and his use of the term "transhumanism" is unknown.

The context in which the term "transhumanism" is used by Huxley, is of the evolution of the human species. According to Huxley, the evolution on earth is about the materials of which our planet is made becoming aware of itself, and "realizing ever new possibilities", first in the form of increased basic functions like strength, speed and sensory organs, later as the creation of social structures and communication. In the latest stages of evolution on earth, and in "the last few ticks on the cosmic clock" as Huxley puts it, humans have developed something radically new, namely abilities for conceptual thought, language and self-awareness.[9]

> It is as if man had been suddenly appointed managing director of the biggest business of all, the business of evolution – appointed without being asked if he wanted it, and without proper warning or preparation. What is more, he can't refuse the job. Whether he wants to or not, whether he is conscious of what he is doing or not, he is in point of fact determining the future direction of evolution on this earth. That is his inescapable destiny, and the sooner he realizes it and start believing in it, the better for all concerned.[10]

Further, Huxley writes that we have yet to explore human nature, the same way we have explored the geography of planet earth. We need to find out what possibilities and limitations of human nature, in order to evoke "latent capacities" of ordinary human beings. It should be stressed that Huxley's idea of improving humanity is just as much about improving the living conditions of people, as improving their biological traits, and that new technology will help humans realize their potential regardless of social background.

> The scientific and technical explorations have given the Common Man all over the world a notion of physical possibilities. Thanks to science, the under-privileged are

[8] Harrison/Wolyniak, *Notes and Queries* 62 (2015) pp. 465-467
[9] Huxley (1957) p. 13
[10] Ibid

> coming to believe that no one need to be underfed or chronically diseased, or deprived of the benefits of its technical and practical applications.[11]

Huxley sees lifting human life out of misery and providing it with education as a fundamental premise for further improving the human species in its entirety. Once there are enough people who realize their potential to transcend themselves, humanity will be at the threshold of a new kind of existence, which is just as different from our current existence, as we are from the Peking man, Huxley believes.[12]

Huxley was active advocate of an idea called *eugenics*, an idea that humanity should be improved by cultivating certain human biological traits. This can be done by encouraging individuals with good traits to breed, while discouraging individuals with bad traits from producing offspring. There are different ways this is carried out specifically, and there have been many attempts to apply a eugenic policy to manage a population in the past, some with disastrous results. One of the most notable examples is Nazi Germany, whose ideology was arguably built on eugenic thought, where people of "unwanted" ethnic backgrounds were removed from society and exterminated. In Norway, Romani people faced both forced and voluntary sterilization as late as the 1950's. Eugenic ideas can be traced as far back as Plato, who proposes in *The Republic* that for example the best warrior men should be paired with the best warrior women to produce offspring with strengthened warrior-traits. He proposes that pairings of people with similar traits can be done by holding marriage festivals with rigged lotteries, to increase the likelihood that children with specialized traits are born.[13] In some states, particularly ancient Sparta, practiced a form of eugenics where babies who showed signs of physical weakness were eliminated, in order to produce stronger warriors.[14] Similar customs were practiced in ancient Rome, where deformed babies were often drowned, as described by Seneca, who writes that abnormal offspring, of animals as well as of humans are put down, not of anger, but of reason, to maintain a sound stock.[15]

The eugenics policies of Nazi Germany and ancient Rome, are very different than that of the eugenics movement which Huxley was a part of. During World War II, a group

[11] Ibid p. 15
[12] Ibid p. 17
[13] Plato, *Republic* 458d-460b
[14] Plutarch, *Lycurgus* 16:1-2
[15] Seneca (1995) p. 32

of biologists, including Julian Huxley, published an article called "Social Biology and Population Improvement", more commonly known as "The Eugenics Manifesto".[16] This document can be seen as an attempt to separate the racial hygiene policies of Germany at that time, which Huxley perceived as extremely destructive, from the eugenics movement that Huxley himself was a part of. The article outlines some of the major challenges for biologically improving the human population. First and foremost, one must implement major social improvements and provide the same opportunities for all people regardless of social or economic background. The second challenge has to do with what they call the "antagonism between peoples":

> The second major hindrance to genetic improvement lies in the economic and political conditions which foster antagonism between different peoples, nations and 'races'. The removal of race prejudices and of the unscientific doctrine that good or bad genes are the monopoly of particular peoples or of persons with features of a given kind will not be possible, however, before the conditions which make for war and economic exploitation have been eliminated.[17]

This statement is of course in stark contrast to the ideology of Nazism, which is based on nationalism and separation of different peoples, whereas the Eugenics Manifesto advocates the very opposite. Their policy genetic selection presupposes a society where the general population has 1) removed any antagonism between nations and races, 2) adequate economic security, education and access to medical aid, 3) replaced superstitious views on sex and reproduction with more scientific and social views, and 4) increased knowledge of biological principles concerning heredity and environment. In addition, the state must allow for, and encourage, further advancements in genetic and reproductive science, and give access to contraceptives and abortion.[18] In many western countries many of these things are already in place, but there are still many countries in the world that lack these things.

Once the mentioned things are in place, one also requires an agreement on what directions a genetic selection should have. The manifesto's signatories propose that the

[16] The Eugenics Manifesto. Can be accessed at the following website: http://www.bibliotecapleyades.net/sociopolitica/esp_sociopol_depopu16e.htm
[17] Ibid
[18] Ibid

objectives for genetic improved should be a) improvement of health, b) improvement of cognitive abilities such as intelligence, and c) improvement of temperamental qualities that "favor fellow-feeling and social behavior".[19]

The way transhumanist ideas are presented in the Eugenics Manifesto, one can notice that there is one idea very central to it, namely humanism. The purpose, as we have seen, is to lift humanity as a whole up to a higher level, as opposed to Nazism, which only wants to uplift one specific group of humans, while attempting to eliminate other groups, an idea that bears no resemblance to humanism at all. As such, the Nazis, though most of them blatantly favored a form of eugenics, should not be called "transhumanist".

1.2 **Modern Transhumanism**

Modern-day transhumanists have taken a somewhat different focus than Huxley and his fellow signatories of the Eugenics Manifesto, although the objectives for improvement have largely stayed the same. In what follows, I will examine what the modern perspectives of human enhancement are, and how it differs from Huxley's transhumanism.

Nick Bostrom, a prominent thinker in the modern transhumanist movement, who Nicholas Agar also has a chapter on in *Humanity's End*, clearly distances himself from Huxleyan transhumanism when he writes:

> Transhumanism is a loosely defined movement that has developed gradually over the past two decades. It promotes an interdisciplinary approach to understanding and evaluating the opportunities for enhancing the human condition and the human organism opened up by the advancement of technology. Attention is given to both present technologies, like genetic engineering and information technology, and anticipated future ones, such as molecular nanotechnology and artificial intelligence.[20]

Here, he considers transhumanism as we know it today to have started about two decades ago, thereby separating its history from earlier practice of eugenics. He also

[19] Ibid
[20] Bostrom (2003) p. 3

emphasizes other technologies than just biology, such as information technology and nanotechnology.

Modern transhumanism can be understood as referring to a transitional stage before humanity has transformed into posthumanity. In many aspects, some people have already begun to become transhuman. Most people in the industrialized world are perpetually connected to the internet through their smart phones or tablet computers. Such devices are almost like extensions of our own consciousness, in that it allows us to instantly access and share nearly any type of information, and communicate with people anywhere on the planet. In addition, we use different types of prostheses to counter various disabilities, such as hearing aid for people with hearing loss, glasses or contact lenses for poor visual perception, artificial limbs for people who have had their limbs damaged, or pacemakers to help tackle heart diseases. Today, scientists are developing robotic prostheses that can be controlled by the brain. There is also talk of some types of neuroprostheses like artificial hippocampuses that may help people suffering from Alzheimer's disease. Currently however, such prostheses serve only to weigh up for body functions that are diminished or lost. On the other hand, if some prostheses can replace body parts, there is a possibility that one can develop prostheses that also improve the body's functions to a point where it is better than it was to begin with.

Apart from the specific technologies that we have assimilated into our lives, the way in which society is organized in today is radically different from that of the early homo sapiens, that one could suggest that we have become a different kind of animal, although genetically we are still the same. One aspect of modern human life that is significantly different from the lives of the early homo sapiens, is that we for the most part live in large communities of cities and nations, as opposed to smaller tribes or clans. Some human societies, such as certain native Amazonian tribes, are still based on hunting and gathering, and has changed little in the span of thousands of years. If one were to swap a child tribe member with a child from an industrialized city-culture, and let them grow up in the opposite culture, they would likely have the same capacity to learn the ways of that culture and thrive, as if they had grown up in their "original" culture. This is because both children share the same human DNA and thus have the same prerequisites to master the life of any human culture. But apart from the DNA, the lives peoples of such different cultures live, puts them in completely different conditions

In the present day, transhumanism is no longer just about improving the human species on a long term perspective, but also making improvements on an individual level, during a human lifetime. Such improvements have been broadened to include body- and brain prostheses and implants, as well as the use of pharmaceuticals to improve cognitive function or longevity.

In the modern usage of the term "transhumanism" one does not necessarily include the evolutionary aspect like Huxley did, and one does not necessarily view it as being particularly "humanist", although many still do. Today, transhumanism is generally understood as the idea of improving human abilities beyond that which is currently possible within our biological limitations, although some, like the organization Humanity+, still emphasize the evolutionary aspect of transhumanism.[21]

According to transhumanist philosopher Max More, transhumanism should be defined as follows:

> The intellectual and cultural movement that affirms the possibility and desirability of fundamentally improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities.[22]

More sees transhumanism as an extension of humanism, i.e. something that goes far beyond the humanism of enlightenment philosophy, which emphasizes progress through education and culture, while transhumanism intends to apply technology that improves humanity beyond its biological limits. He also believes that humanity is just a transitional stage, among many transitional stages, on a path toward ever-increasing complexity and sophistication.

> Transhumanists regard humanity not as an end in itself, not as perfect, and not as having claim on our allegiance. Rather, it is just one point along an evolutionary pathway and we can learn to reshape our own nature in ways we deem desirable and valuable. By thoughtfully, carefully, and yet boldly applying technology to

[21] Transhumanist FAQ, "What is Transhumanism?" http://humanityplus.org/philosophy/transhumanist-faq/#answer_19
[22] More (2013) p. 3

> ourselves, we can become something no longer accurately described as human – we can become posthuman.[23]

The term "posthuman" or "posthumanity" is understood as the stage where humans have progressed into something so different from the current human form, that it can no longer be properly called human. However, posthumanity is not perceived by transhumanists to be some "end goal" for enhancement. Instead, posthumans are a kind of being that is in a state of perpetual transition, with ever-improving abilities. According to Max More, what characterizes the posthuman is that it exceeds the limitations made up of what he calls "less desirable" aspects of the human condition. For example, posthumans will no longer suffer from diseases and decay, practically making their lifespans indefinite. Further, More speculates that posthumans will have freedom of "form", i.e. the freedom to change the form of the body at will through various technologies like surgery, genetic engineering or mind-uploading (the idea of uploading a consciousness onto a computer, which we will touch upon again in chapter 2). In addition to improved cognitive abilities, posthumans will also have a more refined spectrum of emotions, i.e. more happiness, less anger etc., More suggests. [24]

The emergence of posthumans could possibly have a great impact on the environment, as the posthumans, with their radical new technologies, will be able to colonize space, or design virtual worlds.[25] Transhumanist philosopher David Pearce has proposed a plan called the *abolitionist project* to end all suffering, including among wildlife. Or perhaps *especially* among wildlife, considering the tremendous amount of suffering experienced by wild animals. He argues that we should redesign the entire ecosystem to become more compassionate and pain-free:

> Not merely can a living world support human life based on genetically preprogrammed gradients of well-being. If carried to completion, the abolitionist project entails ecosystem redesign, cross-species immunocontraception, marine nanorobots, rewriting the vertebrate genome, and harnessing the exponential growth of computational resources to manage a compassionately run global ecosystem.[26]

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[23] Ibid
[24] Ibid p. 4
[25] Ibid
[26] Pearce (2009) "Reprogramming Predators"

How, or if, such a plan can be carried out in practice is a different question. Removing suffering for all living beings is an extremely comprehensive task. Making humans more compassionate, and reducing or abolishing their suffering, is challenging enough in its own right. A good start may be to allow for treating people with empathogenic drugs, thus making people compassionate towards each other, thus reducing the suffering that humans inflict upon fellow humans and animals. Such technology is already available to us, but is likely still challenging to carry out in practice, since those who need such treatment the most, are not necessarily the people most compelled to engage in such treatment. The increase of compassion among humans goes in the category we can call "moral" enhancement, making people more morally acting. We will return to this subject more extensively in chapter 3 of this paper.

One particular form of enhancement that Nick Bostrom has proposed, which may be viewed as a kind of continuation Huxley's eugenics program, is a type of embryo selection, where embryos are selected based on their genetic traits for increased cognitive function. We already use technology to screen DNA for genetic diseases. The same technique could be used to screen for positive heritable traits, such as increased intelligence, thereby selecting the embryo with the desired trait. Children made through such a method is what is popularly called "designer babies". But Bostrom doesn't stop there. This process of screening and selection can be taken to another level through a technique he calls iterated embryo selection (IES), which can be made possible by the use of stem cell-derived gametes (egg and sperm cells). The idea is to use the stem cells of one selected embryo to create new gametes, cross the new gametes, thereby creating new embryos, which in turn can be screened for desirable heritable traits. Bostrom summarizes the process as follows:

> 1. Genotype and select a number of embryos that are higher in desired genetic characteristics;
> 2. Extract stem cells from those embryos and convert them to sperm and ova, maturing within 6 months or less;
> 3. Cross the new sperm and ova to produce embryos;
> 4. Repeat until large genetic changes have been accumulated.[27]

http://www.hedweb.com/abolitionist-project/reprogramming-predators.html
[27] Bostrom & Shulman (2013) p. 3

There is of course a challenge with this method of repeated screening and selection of steering clear of epigenetic abnormalities in the strains of stem cells. Once IES becomes economically and technologically feasible, one could create many embryos from the final generation of screening and selection.[28] Nicholas Agar has some critical points to make about radically enhancing the cognitive abilities of children, arguing that it will lead to their alienation from their parents. We will return to this in more detail in chapters 2 and 3.

The most significant difference in the understanding of transhumanism between before and today is in how extensive the actual enhancement procedures are. Modern transhumanists are in favor of what we will call "radical enhancement", a term Nicholas Agar uses throughout his book *Humanity's End*, which denotes enhancements that go beyond the limitations of human biology. This is in contrasts to what can be called "moderate" enhancement, which more appropriately refers to smaller adjustments that are within the limitations of human biology. Huxley probably saw eugenics as a way to improve humanity little by little, through a series of moderate enhancements, one generation at a time, as opposed to radically enhancing humans in big leaps.

Furthermore, a eugenics program only helps future generations. People who are already born cannot be helped by such a program since their genetic composition is already fixed. Many modern transhumanists want to make radical enhancements possible, not just for future generations, but on people who are already born as well. This requires a radically more advanced technology than what we have today. For example, in order to make people radically smarter during their lifetime, one will perhaps have to change the DNA of the body, which in turn may require billions of nanobots that can change the DNA structure, if such technology is at all possible. Or we might require an artificial brain of sorts, or some kind of implant that improves cognitive abilities. But we are still far away from discovering such technologies, if they are even possible.

1.3 **What Transhumanism is not**

There are probably a number of misconceptions about what transhumanism is, and to get a clear understanding of what transhumanism is, it might be helpful to

[28] Ibid

distinguish it from what it isn't. I will now go through four common false or inaccurate claims about transhumanism, which have been described by Max More.

One common misunderstanding about transhumanism is that it is about achieving "perfection", or bring society to a state of utopia. In reality there is not necessarily anything inherently utopist about transhumanism, or that creating a utopia is possible to begin with. What transhumanism aims to achieve however, is a perpetual process of improvement. Posthumans exists in constant change, which is different from a utopia, which is a static existence.[29] In some ways nature, which includes humans, has been in a state of constant change and increase of complexity since life began (perhaps this can be said of the universe as a whole). It might be more accurate to say that what transhumanists want is to speed up, and control, the direction of changes in our nature, and nature in general. Posthumans may perhaps have eliminated diseases, conflicts between each other etc. and other miseries that human being have been faced with through the course of history, but that doesn't mean that posthumans won't face challenges and risks of their own. These challenges and risks may be tied to a greater degree with matters of a more cosmic scale, like protecting ourselves from comets that threaten our existence, or interactions with extraterrestrials.

Another misconception about transhumanism is that it tries to predict specific technologies. There are individual transhumanists who have made predictions about the development of some future technologies, such as Ray Kurzweil, who predicts developments in artificial intelligence based on trends in exponential progression in computer technology. There are however no specific predicted technologies that are essential to transhumanist thought. The views of transhumanists are for the most part defined by a set of values and general goals. One can have a goal of getting rid of aging, but this goal is not bound to a specific technology. It may be reached by different means, on different timescales.[30]

According to Max More, there are many people who believe that transhumanists hate their biological bodies and are somehow disgusted by it, which is not accurate. There may be people who are dissatisfied with the body, which may also be true of some transhumanists, but that doesn't necessarily mean hating it or wanting to get rid of it. Rather transhumanists advocate the freedom to choose the what kind of body one

[29] More (2013) p. 14
[30] Ibid

wants, changing it according to one's own will, or even having the freedom to inhabit different bodies.[31]

There is also a conception of transhumanists as being terrified of dying. Again this is an inaccurate view. Though there may be some individuals who fear death, and others still may fear a *painful* death, transhumanism as an idea doesn't make any claims about death itself being either good or bad. Death can be viewed as the end of an experience, and the end of the ability to have any future experiences, which again can be viewed as undesirable to some, but this view is not essential to transhumanism.[32] On the other hand, what transhumanism is more in line with, is the freedom for people to choose their own lifespan, to choose the point of their own demise, so that when somebody feels they have achieved what they can in life, it is possible that they will view death as appropriate.

What can be viewed as problematic about death is that it is irreversible. Once a person has died, it cannot be brought back to life (although there are cases of people becoming "clinically" dead, then resurrected). Therefore, one would have to be completely sure they have achieved all their possible goals in life before their demise. There are unfortunately no experts on death, so no one can know for sure what it is like to be in that state, insofar as it can be said to be a state at all. If death truly is the end of one's consciousness, then nobody will ever experience what death is like.

1.4 **Opponents of Enhancement**

Ideas that reject any form of enhancement of the human body, belong to a general idea we can call *bioconservatism*. People who are bioconservatives fear that the enhancement technologies enthused by transhumanists will bring great harm to humanity. Whether it will actually "harm" us depends on how one understands what it means to be "human". According to Historian and bioconservative Francis Fukuyama, humans must be defined by their "genetic endowment":

> Every member of the human species possesses a genetic endowment that allows him or her to become a whole human being, an endowment that distinguishes a human in essence from other types of creatures.[33]

[31] Ibid
[32] Ibid
[33] Fukuyama (2003) p. 171

But should humans be defined exclusively by their genome, or are there other parameters that are just as important in defining what a human is? In the essay "Whereto Transhumanism?" Nicholas Agar questions Fukuyama's marking of human boundaries as merely genetic ones, since there could emerge technologies that enhances humans in other ways than just genetic ones. Agar suggests there might be other things that mark the boundaries of humanity:

> A descendant of ours modified with multiple cybernetic implants, after the fashion of the Borg from *Star Trek: The Next Generation*, may be posthuman at the same time as being genetically indistinguishable from humans.[34]

People modified with cybernetic implants may behave and experience the environment very differently than unenhanced humans. Agar believes that reproduction is a more precise boundary mark than the genome. He believes posthumanizing enhancements, whether they are genetic modification or cybernetic implants, will make humans and posthumans sexually appalling to each other, thus being not only biologically incapable of interbreeding, but also psychologically. We will return to this subject in more detail in Chapter 2.

Agar is concerned that posthumanizing technologies will alienate us from our human nature, and believes Fukuyama provides an example of such alienation in Fukuyama's book *Our Posthuman Future*, a critical work on transhumanism. In his book, Fukuyama contemplates what gives human beings a higher dignity and moral status than other creatures. Humans possess an intricate system of features that may be unique to our species on earth. These features include moral choice, language, and reason, in addition to sociability, sentience, emotions and consciousness. The intricate combination of these features make up what Fukuyama calls "Factor X". Many animals may possess many of these features, but what makes humans different, according to Fukuyama,

> The utilitarian goal of minimizing suffering is itself very problematic. No one can make a brief in favor of pain and suffering, but the fact of the matter is that what we

[34] Agar (2007) p. 13

> consider to be the highest and most admirable human qualities, both in ourselves and in others, are often related to the way that we react to, confront, overcome, and frequently succumb to pain, suffering, and death.[35]

Francis Fukuyama writes that "Our good characteristics are intimately connected with our bad ones." In other words, we wouldn't know love if we also didn't know hatred. We wouldn't be able to defend ourselves if violence and aggression weren't a part of human nature. Death and misery plays an important function in our ability to adapt.[36]

Agar remembers a story by Bill McKibben, who had a childhood friend who suffered from cystic fibrosis, a disease that affects the lungs among other things, and died before reaching the age of fifteen. Although her life was short, McKibben remembers her as one of the happiest and kindest human beings he had ever met. McKibben believes that her happiness and kindness may have come as a side-effect of her illness, and that a treatment of the cystic fibrosis gene would leave her without the same kindness and love, although her lungs would be healthy.[37]

The view of Fukuyama and McKibben should not be mistaken for being a call to reject genetic treatment or other treatment technologies to prevent fatal diseases. Agar believes that they are simply challenging an "overly simplistic view of the human significance of disease and suffering." He states that while we allow a cure for diseases like cystic fibrosis, we have to recognize that certain types of goodness will vanish. To illustrate this further, Agar compares McKibben's example with World War II. Although World War II was one of the worst events in modern history, it enabled "uniquely noble and virtuous" acts, he argues.

> When we speculate about how wonderful it would have been had some disaffected Nazi assassinated Hitler in 1933 we're also allowed to think it a pity that Oscar Schindler would have been an indifferent businessman rather than the heroic savior of thousands.[38]

[35] Fukuyama (2003), p. 170
[36] Ibid p. 173
[37] Agar (2010) p. 180
[38] Ibid p.181

He argues however that since the positive side-effects of World War II do not weigh up for the massive suffering it caused, we should have prevented the war if we could. By the same token, a disease may inspire a great degree of goodness, but his goodness is probably doesn't outweigh the suffering caused by the disease.

Still, Agar believes that Fukuyama offers some important insight that he thinks justifies rejecting radical enhancement, because disease and death offer important instances of shared experiences between humans. For example, if one is diagnosed with a life-threatening illness, the first impulse for many people would be to contact people in the same situation, as they could provide important advice for how to cope with having the disease. But even though the people one contacts can provide important information on how to live with the disease, the sense of community and belonging has value independent of any information one might derive from such relationships. Agar speculates that posthumans would lack an ability to fully empathize with someone suffering from a serious disease, as they would never know what it is like to have that disease.

> Posthumans permanently immunized against serious disease may provide accurate scientific information about your disease's clinical progression, but they're unlikely to offer insight into what it's like to suffer it.[39]

However, there are several types of shared experiences that humans have, in the capacity of belong to the same species *Homo Sapiens*, and the psychological and emotional traits that we have in common. Agar thinks there are other kinds of alienation that exemplify the dangers of radical enhancement better than the example provided by Fukuyama, which will be examined thoroughly in chapters 2 and 3. We will also see that Agar probably isn't a bioconservative in the same sense as Fukuyama, but defends a view that may seem like a compromise between transhumanism and bioconservatism, but that has a striking similarity with Huxley's eugenics program.

[39] Ibid p. 182

Chapter 2 – Nicholas Agar's Rejection of Radical Enhancement

2.1 **Introduction**

In this chapter I will lay out Nicholas Agar's criticism of transhumanism in his book *Humanity's End* (2010). Agar presents four figures in the transhumanist movement, who approach the subject of radical enhancement from different disciplines. The first is Ray Kurzweil, who is most concerned with the technology itself and how radical enhancement is technologically possible. The other figure is Aubrey de Grey who talks about the possible health benefits, and the possibility for engineered 'negligible senescence', i.e. vastly increased lifespan. I will spend considerably less time on De Grey in this paper than the other three thinkers that Agar presents, mainly because living forever is still a very speculative idea, and also not as relevant for my purpose, which is to concentrate on what cognitive enhancement means for our identity as human beings. The next figure is Nick Bostrom who focuses on the morality of enhancement, and finally James Hughes who takes on how radical enhancement is possible in the context of human society and if our social construct can withstand that some humans radically alter themselves while others do not.

2.2 **Radical Enhancement**

Agar defines radical enhancement of a human being as any enhancement that goes far beyond the capacity of human biology, for example intellectual capacities far exceeding that of Albert Einstein or athletic abilities far exceeding that of Usain Bolt.[40] Transhumanists are the most important group advocating for the kind of radical enhancement Agar puts forth in his book.

According to Nicholas Agar, radical enhancement will cause a split in the human species itself; it will turn humans into fundamentally different kinds of beings, and make the enhanced human 'posthuman'.[41] The idea of radical enhancement is not new, the idea of humans obtaining superpowers or other abilities far exceeding what is possible for a human, is abundant in old legends, religious texts and in fiction; wishful tales of being bestowed super abilities by divine beings or aliens. What is new today however is

[40] Agar (2010), p. 1
[41] Ibid p. 2

the idea that human beings can perform these enhancements on themselves, by technological means and not just wishful dreaming.[42] Agar suggests that the idea of what he calls 'do-it-yourself' radical enhancement may have started with Julian Huxley[43], one who is credited with coining the term 'transhumanism' and a prominent figure in the eugenics movement. [44] Huxley suggested that humans had evolved enough intellectually that our evolution could be steered by means of selecting genetic traits that we find desirable and weeding out the undesirable ones. However, even if we took the path of steering our own evolution through selective breeding, it would possibly take several thousand years before humans become radically different from their ancestors. Today's transhumanists don't want to wait that long to be able to see some significant change, most of them want to see radical change in the course of their lifetime.[45] The fact the technological progress is currently accelerating so fast might be fueling the eagerness of today's transhumanist movement to start enhancing right away.

Agar's book is a warning for those who want to commence radical enhancement on humans as soon as possible. Although Agar does not seem to reject the idea completely he forecasts some possible dangers of radical enhancement.

> I conjecture that the most dramatic means of enhancing our cognitive powers could in fact kill us; that the radical extension of our life spans could eliminate experiences of great value from our lives; and that a situation in which some humans are radically enhanced while others are not could lead to a tyranny of posthumans over humans.[46]

Agar acknowledges that this forecast may not necessarily become a reality. The more optimistic possibilities may be likely outcomes of enhancement too. But the point of his book is to stress the importance of a precautionary approach to radical enhancement. One must approach the subject of enhancement in a way that ensures that positive outcomes of enhancement are not just possible but also very likely.[47]

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[42] Ibid p. 3
[43] Ibid. p. 3
[44] The Eugenics Manifesto
[45] Agar (2010) p. 5
[46] Ibid p. 11
[47] Ibid p. 12

According to Agar, one of the main critical points against transhumanism is what he calls species-relativism, which he says is the idea that certain experiences valued by one species may not have value for another. This is similar to the concept of cultural relativism according to which moral value is relative to different cultures. The notion of cultural relativism is something that most philosophers reject as a plausible moral theory, partly because all humans share the same biology. However, species-relativism may be easier to accept because biological boundaries are more significant and permanent than cultural boundaries.

> Those who oppose cultural relativism because they think that morality is shaped substantially by biology should be open to the idea that the different biologies of different species can generate moral diversity that is both genuine and fundamental.[48]

This is not the same as the idea of speciesism, according to which biological boundaries are morally significant, i.e. we can justify mistreating animals by pointing out that they are not human. Some philosophers like Peter Singer would point out the inconsistency of not taking into account the feelings of animals when the feel pain just as humans do. This would apply to species-relativism according to Agar, because in the case of feeling pain, because a radically enhanced being or an alien race radically different from humans may not feel pain at all. Therefore it wouldn't be inconsistent for a radically enhanced being to disregard the pain of other lifeforms, as it would be in the case of speciesism. A species-relativist may defend a radically enhanced beings indifference to the suffering of other lifeforms, but at the same time agree that it would be inconsistent to be indifferent to the suffering of some animals while calling it immoral to cause suffering to humans.[49]

However, there is no automation in that we will suddenly disregard the suffering of other animals, or other humans once we radically enhance our intellectual capacities. Agar himself acknowledges this:

> Longer lives and improved intellectual and physical prowess are certainly the objects of human desires; they aren't constructs of transhumanist ideology. The

[48] Ibid p. 13
[49] Ibid p. 14

> values that correspond with these human desires will doubtless survive our radical enhancement even if we exit the human species.[50]

Agar uses a purely biological definition of the human species, i.e. humans are part of the species Homo sapiens and are able to breed with each other, while being unable to breed with members of other species.

> I define humans as members of the biological species Homo sapiens. A biological species is a group of populations whose members are capable of interbreeding successfully and are reproductively isolated from other groups.[51]

This is might be a somewhat outdated view on biology, which we will return to in a later chapter. Although breeding is an important factor in determining whether something belongs to one species or another, there is of course debate about how to define species boundaries minutely. Breeding is therefore an important factor in determining whether something belongs to one species or another. This is a common way of separating one species from another, as two species oftentimes cannot produce fertile offspring.

Agar distinguishes between 'moderate' and 'radical' enhancement, where moderate means a kind of change that does not go beyond the bounds of being human, while 'radical' goes beyond human boundaries. An example of moderate enhancement could be to modify your child's genes to have the same intellectual capacity as Albert Einstein or the athletic talent of Roger Federer. One can make such enhancements without becoming alien to the human species. After such enhancements, one would still want to interact other humans and mate with them etc.

However, if one were to enhance the human intellect by say, a ten-fold increase, the enhanced human and the 'normal' human would be on totally different planes of consciousness. It is possible that an enormous increase in intelligence will remove any chance that a radically enhanced human will have any interest in engaging socially with normal humans. Other types of enhancement would widen the gap between the enhanced and the normal even further. For instance, increased longevity, sensory abilities, strength, aesthetic experience, lovemaking abilities, creativity etc., many of

[50] Ibid p. 14
[51] Ibid p. 19

which might require some form of genetic mutation or modification. According to Agar, this also creates reproductive barriers, which is a significant part of being a different species from another. A post-human, who have undergone enhancements like these would likely be very uninterested in mating with a normal human, in the same way a normal human would be uninterested in mating with a non-human. Nor is it probable that offspring of a sexual relationship of this kind would be possible, due to chromosomal differences. In general, we would be unable to comprehend the complexity of post-human life, in the same manner as chimpanzees are unable to relate our way of life, except perhaps in a very superficial way. It is more likely that post-humans would see humans more like pets than kin, let alone sex partners.

On the issue of reproductive barriers, Agar speculates that the psychological barriers will be more significant than the actual physical barriers. An example he uses is someone traveling forwards in time, to the time of post-humans, and posting a dating profile on the internet to attract a post-human date. The profile gives on honest description of the characteristics of the human, and has to compete with the profiles of post-humans, who are much more advanced in terms of aesthetic experience, maturity, intellect and creativity. Agar predicts that the characteristics of a post-human dating profile would seem unappealing to normal human beings, and the same for human dating profiles directed towards post-humans. There are many problems with the view that enhancement will turn humans off, and vice versa, which we will examine later on.

This suggests than even if humans and post-humans are physically capable of interbreeding, there will be psychological barrier due to the vastly different cognitive abilities of the two groups. Agar suggests that reproduction won't even be necessary for the post-human, as super-longevity makes children unnecessary for the survival of the species.

> Beings with indefinitely long lifespans are likely to be focused on their own continuation rather than on children they might have with humans. Those with definite life spans must reproduce to get their genetic material into the next generation. If they've already reproduced and are incapable of further reproduction, their evolutionary prospects depend on contributions to already existing children, or perhaps nephews and nieces. Negligibly senescent beings have hit upon a method

> of ensuring the survival of their genes that does not require reproduction. They will continue to carry their own genes into the indefinite future.[52]

In other words, simply because of the indefinite life span, having children becomes superfluous because they aren't necessary for the survival of genes. It can be speculated that in post-human society, children will be made only every once in a while to supply a population with more individuals when there are too few post-humans in one place, for example when colonizing other planets.

2.3 **Ray Kurzweil**

One of the main figures of transhumanism that Agar examines is Ray Kurzweil, whom Agar labels 'the Technologist'. In the past, Kurzweil has given quite accurate predictions about how and when technologies will develop and how they are likely to affect our lives. For example, in his book *The Age of Intelligent Machines*, published in 1990, Kurzweil predicts among other things the demise of the USSR due to new communications technology such as cell phones and fax machines.[53] Former president of the USSR, Mikhail Gorbachev confirmed to Kurzweil himself during a meeting in Boston, 2005, that emerging communication technologies like the internet has played an important role in fostering democracy in the USSR, and later in Russia.[54]

In the same book, Kurzweil predicts the by end of the millennium, computers would beat the world's best chess players.[55] In 1997, world chess champion Garry Kasparov was defeated by the IBM computer, Deep Blue. He also predicted in the same book, that by the early 21st century, self-driving cars, which, though not common practice yet, has been quite successfully developed. Some self-driving cars have been successfully tested in public traffic.[56]

Kurzweil has also invented important technologies himself such as speech recognition software for computers, something that has allowed blind people to use computers. Kurzweil predicts that in a few decades we will reach a singularity due to the accelerating speed at which technology is developing, which is what he calls the 'law of

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[52] Ibid p. 32
[53] Kurzweil (1990), p. 446
[54] Blodgett (2005) "Ray Kurzweil on Gorbachev"
http://www.weblogtheworld.com/countries/northern-america/ray-kurzweil-on-gorbachev/
[55] Kurzweil (1990), p 133
[56] Self-driving car successfully tested in China, http://www.bbc.com/news/technology-35059938

accelerating return'.[57] Kurzweil defines the singularity as follows: "a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed."[58] This singularity is an inevitable consequence of the law of accelerating return, which dictates a continual and acceleration of technological progress. The ever increasing progression of technology is pulling us towards the singularity, similar to that of a black hole. The question is not *if* the singularity will occur but *when*, as far as Kurzweil is concerned.[59]

There are three fields of research that are significant to the idea of radical enhancement, which relates to the law of accelerating return, which Kurzweil has shortened to three letters GNR: Genetics, nanotechnology and robotics. In the genetic field, scientists have been able to map the human genome and connect some strands of DNA with human characteristics, like proneness to disease, intelligence and ageing rate. By selecting and altering our DNA we can become more healthy and more intelligent.[60]

In the field of nanotechnology, Kurzweil envisages that we will soon be able to create 'nanobots' that can alter our bodies at the molecular level. They will perform enhancements on the body that altering the DNA won't do by itself, like cleaning up our system of unhealthy particles, repairing memory errors, and possibly also create virtual realities.[61]

Lastly, robotics is the last stage (the last foreseeable stage anyway) in Kurzweil's vision of radical enhancement. This is where we shed our human biology in favor of a robotic physique. By the time we reach this stage the genetic and nanotechnological fields will already have altered us to the degree that the 'robotic revolution becomes possible for us.[62]

Nevertheless, it is in the field of artificial intelligence (AI) that the law of accelerating returns will affect us most directly. We often think of AI as a tool to make computers think; the more they resemble human behavior, the more advanced the AI. For Kurzweil though, AI is not just about making computers smarter, but also about making humans artificially more intelligent. This is done by implanting neuroprostheses to enhance our mental capacities.

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[57] Agar (2010) p. 6
[58] Kurzweil (2005) p. 7
[59] Ibid p. 23
[60] Agar (2010) p. 6
[61] Ibid p. 6
[62] Ibid p. 7

> We'll come to understand that anything that computationally cumbersome, disease-prone neurons and synapses can do, electronic circuits can do better. This will lead to a progressive pensioning off of our biological brains, a process whose completion will see the transfer of minds from brains to machines, we will *upload* ourselves.[63]

The fact that Kurzweil has been correct about predicting future technological developments in the past gives some reason to take his predictions about AI and neuroprostheses seriously. The law of accelerating returns is itself one of the tools Kurzweil uses to make his forecasts about the future.

One of the most well-known examples of exponential technological progression is 'Moore's law', named after former Intel chairman Gordon Moore. Moore's law is concerned with the integrated circuits of modern computers, which are tiny electronic circuits made up of transistors. The more transistors they contain, the faster the calculations the circuits will do. Gordon Moore noticed that the amount of transistors in one integrated circuit doubled every two years, along with corresponding computing power. This is a clear example of exponential growth in technological development like the law of accelerating returns describes. Kurzweil thinks that what is true of integrated circuits is also true about many other technologies within communication, genetic engineering, nanotechnology, magnetic data storage, internet bandwidth etc.[64] However, the law of acceleration returns can only be used to predict how many transistors an integrated circuit will contain at a given time, not how that technology will actually be developed.

In order to construct a computer to think like human one must first of all be able to match the human brain's computational power. According to Kurzweil the brain's neurons can perform about 10^{16} calculations per second (cps), and human memory at about 10^{13} bits of information. However, in order to make a computer that can match a human brain for the purpose of mind uploading, he estimates that it should be able to perform 10^{19} cps and have 10^{18} bits of information in memory capacity, just to be sure one captures every detail of connections between neurons to successfully upload a consciousness. Making a computer with this degree of computational power is not by far

[63] Ibid p. 35
[64] Ibid p. 37

the biggest obstacle. Already in 2008 IBM developed the supercomputer Roadrunner, a computer that could perform 10^{15} cps. In 2013, five years later, the Chinese supercomputer Tianhe-2 could perform calculations at around 33 times that speed.[65]

Unfortunately, computational power is not all that counts to match human intelligence. One must also master the 'software of human thought'. Kurzweil is well aware of this and believes that one must reverse engineer the human brain, something that can be performed by accurately scanning it. Today's magnetic resonance imaging (MRI) is not accurate enough to perform brain scans like this, but Kurzweil predicts that nanobots could perform detailed scans of the brain structure once they are developed sufficiently. Once we have a detailed map of the brain, Kurzweil believes we can begin constructing an electronic duplicate of it and predicts 2029 is the year this will be accomplished.[66]

The human brain can send electrochemical signals at approximately one hundred meters per second. In comparison, a computer sends electronic signals at about three hundred million meters per second. In other words, an electronic counterpart of the human brain would potentially think millions of times faster than a biological brain. In addition, this electronic brain will be immune to neurological diseases like Alzheimer's, and have the ability to instantly share information with fellow electronic brains.

As Agar points out, it is important to be aware that Kurzweil does not envision this all to happen at once. The process of merging with machines is a gradual one, and in many respects, it is already underway. Cochlear implants, which allow deaf people to hear by applying electrical signals to the auditory nerve, is an example where the boundary between human and machine blurs.[67] Scientist are also trying to develop neuroprostheses, like electronic hippocampuses that will help Alzheimer's patients preserve memories.

At our current stage technologies like these are designed to compensate for damages and handicaps to help people with disabilities live normal lives not much different from a normal healthy person. But if we can create implants like the ones mentioned above, what is there to prevent us from making implants that improve our

[65] TOP500 as of November 2015. For an updated list of top supercomputers visit www.top500.org
[66] Agar (2010) p. 40
[67] Ibid p. 41

bodily functions beyond our normal capacity, not merely compensating for any disabilities?

> Suppose you implant an electronic hippocampus into the brain of a patient with Alzheimer's. You hope that it performs at least as well as a healthy biological hippocampus. And if it did, it would satisfy the hopes of most patients. But from a technological perspective, there is nothing sacrosanct about the level of performance typical of a human brain. Recalibrating the device may result in powers of memory beyond that of any purely biological brain.[68]

Kurzweil envisages a future where we and our descendants are presented with implants capable of connecting us directly to the internet. Moreover, the more we merge with these technologies, the more our biological body parts will seem inferior. However, there will always be those who won't participate in enhancing the biological body with electronic implants with the same eagerness as others like Kurzweil, if at all. Those who still cling to having a partly or entirely biological body, Kurzweil calls MOSH (mostly original substrate human) or TOSH (totally original substrate human). The reason some people will have inhibitions about enhancing themselves is due to a sense of nostalgia for the biological body, much like the nostalgia for vinyl records.

As soon as we have begun the process of replacing biological synapses and neurons in favor of electronic circuits, the transformations machine-humans will go through will be ever more frequent and miraculous. By the end of this century, Kurzweil predicts, the non-biological part of our brains will be "trillions of trillions" of times more intelligent than our current brains.

Kurzweil has been criticized by many, among others John Horgan, and accused of underscoring the true complexity of the human brain. Horgan for instance, points to the massive amount of connections between our brain's neurons. But Kurzweil is already aware of the brain's complexity; as we have seen he estimates that about 10^{19} cps is required to match the brain's complexity in computation power, which is a massive number, but not out of reach of the law of accelerating returns.[69]

[68] Ibid p. 41
[69] Ibid p. 45

But there could be other problems with Kurzweil's prediction that might delay his timetable for when mind uploading will be possible. According to Agar, there are two main obstacles. The first has to do with the relationship between emotions, sensations, intentions, meanings and such, and neurons and synapses. We can find out which parts of the brain is active when we have a certain thought or sensation, but not the contents of this thought or sensation. The relationship between neuronal activity and the content of this activity in terms of thoughts and emotions can be explained in two different ways: Atomistically or Holistically. Atomists believe that systems can be analyzed entirely in terms of their parts, while holists believe that the whole contains more than merely the sum of all its parts.[70]

Agar doesn't consider Kurzweil to be entirely the atomist view that once we have mapped the connections between every neuron and synapse, we would know all there is to know about the contents of the brain's thoughts and emotions. On the other hand, if holism is true, then it may be impossible to analyze the neural code completely because the content of a thought is simply more than the sum of all the neurons and synapses responsible for that thought.

> Upload technicians equipped with a complete picture of the brain at the level of individual neurons, networks, and neural maps could fail in their attempts to transfer human minds into machine. They may successfully replicate the detail of human brains at the level of neurons, networks, and neural maps but not succeed in relating them in ways that produce perceptions, memories, meanings, sensations, and intentions.[71]

The second obstacle that could delay Kurzweil's prediction is of an atomistic nature. According to Agar, to understand how close we are to having enough knowledge to upload a brain depends on how much we know about the brain, something we don't have to do when evaluation the technological progress of integrated circuits. When it comes to integrated circuits there is no ultimate end we are striving towards, we just try to make the new model better than the last.[72]

[70] Ibid p. 46
[71] Ibid p. 46
[72] Ibid p. 49

To provide a detailed account of the brain at every level is a very extensive job. One would potentially need to map the relationship between the concious levels (sensations, feelings, memories etc.) and the neurochemical levels of neuron groups, individual neurons and synapses, and their relationship in turn with the molecular, atomic, and subatomic levels.[73]

Fortunately for Kurzweil, it is probably not necessary to include all the atomic and subatomic levels when going about to map the brain. To understand a city's transportation system one does not need to know all the specific details about the individual bus drives or train operators. But it might be challenging to find out exactly where to draw the line between the significant and insignificant details with regards to the brain.

> Consider the ongoing mystery about precisely how the brain generates consciousness. While there's certainly no shortage of hunches about the brain and consciousness, few would pretend to have answered all the questions about how the activities of neurons generate the rich and vivid experience of remembering, say, one's first day at school. It's possible that the current difficulties are due, in part, to the fact that neuroscience's current lowest level just doesn't go deep enough.[74]

According to some physicists, like Roger Penrose, consciousness is created by quantum computations effected by 'microtubes' inside the neurons. It could be that this claim is merely based on a hunch, but it would likewise be a hunch to assume it to be wrong. The problem is that we still don't know enough about consciousness to be sure that quantum computation is necessary to explain it. Anyhow, Agar states that this view is compatible with Kurzweil's point about that one doesn't need to include every detail about the brain in a model of it, although it leads to a different view of what details can be eliminated from a model of the brain. Again, Agar stresses that we don't have enough information yet to know if microtubes and quantum computation is relevant to a theory about consciousness. If in the future there's been little progress on the current theories, Agar thinks we might have to take the atomic and subatomic levels into account.[75]

[73] Ibid p. 50
[74] Ibid p. 51
[75] Ibid p. 52

Next, Agar turns to the question about whether we should upload ourselves. Provided that we learn enough about consciousness and the brain that we can upload it to a machine, should we proceed in doing it? The kind of being that Kurzweil seems to be very alien from what humans are today, yet he still would considers them 'human'. He makes a point of this by asking when we cease to be human and begin to be something else, for example how many nanobots must we have inside of us before we cease to be human? For Kurzweil the answer is never, because then we would then have to define that boundary between human and posthuman.[76] Agar denies this by making a point about baldness: although there are many degrees and nuances of hair loss, there is undeniably a condition called baldness. Although there may be a vague boundary between baldness and non-baldness they are two different states. The same thing goes for the transition between human and posthuman.

> By analogous reasoning just because there may be intermediate cases that are difficult to classify does not mean that the distinction between machine and human is not conceptually clear.[77]

Further Kurzweil proposes that future machine intelligences should be called 'human' because they are based on us, regardless of what materials they are composed of, and that machine humans will look very much like they do today, because their views on aesthetics won't change much. Again, Agar is skeptical to this idea, and believes views on aesthetics is among the first things that will be done away with once we upload ourselves onto machines. One of the main reasons for this, he says, is that there is a close relationship between biology and aesthetic value. Our ideas about the beauty of human anatomy is in many respects based on the traits we appreciate for reproductive reasons. Beings who have become completely non-biological and have eternal life will have entirely different needs than we do, and their aesthetic sense will be attuned to these needs, according to Agar.[78]

Next, Agar tries to determine what the best bet is for humans, uploading our minds onto computers, or staying the way we are. By this he means what are the

[76] Ibid p. 53
[77] Ibid p. 54
[78] Ibid p. 55

chances that we will actually gain anything from uploading, and what are the chances that we will just become mindless machines? Kurzweil believes we will a have a lot to gain from uploading because he also believes in what is called strong artificial intelligence, which is the view that it is possible to create computers with genuine thought. Today's computers complete tasks merely by means of non-conscious algorithms. According to Kurzweil, due to the law of accelerating returns, progress within the work on AI will allow us to build computers with genuine thought.

There are some people however, that believe that there is an unbridgeable gap between simulated and genuine thought. These are the believers of weak artificial intelligence, which holds that the law of accelerating returns will lead to better and better computers simulating models of consciousness, but not an actually thinking computer. If the advocates of weak AI are correct, then uploading our minds would turn us into what Agar calls non-conscious symbol manipulators.[79]

One of the most important challengers of strong AI, John Searle, has a thought experiment called 'the Chinese Room'. The Chinese Room consists of a person inside a room, who receives pieces of paper with symbols on it. The subject does not know what the symbols mean, but she has a rule book that tells her that certain combinations of symbols requires responses consisting of combinations of other symbols. The responses are then passed to the outside of the room. What the subject doesn't know is that the symbols are Chinese characters and the responses she gives appear like perfectly intelligent answers to questions in Chinese. For a native Chinese speaker who knows nothing about the mechanics of the room would credit it with understanding Chinese. However, the person in the doesn't know a word of Chinese, she only manipulates symbols accordingly with a set of symbol-manipulation rules. To the subject, the symbols don't bear any meaningful content.

According to Searle, what is true about the Chinese room is also true about computers. Computers manipulate symbols and carry out tasks in accordance with a computer program, without actually understanding the content of the given symbols or tasks, and therefore have no genuine thought. This applies with same weight to laptop computers, supercomputers or any computer at all.

[79] Ibid p. 59

Agar imagines a wager between Kurzweil and Searle, somewhat similar to Blaise Pascal's wager for belief in the existence of God. Pascal's wager illustrates the gains and losses of believing in God, depending on whether God exists or not. If one believes in God, one would have a lot to gain if God exists and little to lose if God doesn't exist. If one does not believe in God one would have a lot to lose if he does exists and little to gain if he doesn't. In the wager Agar imagines between Kurzweil and Searle, God is replaced by the possibility that uploaded minds are capable of conscious thought. If one chooses not to upload oneself to a machine one would miss out on all the amazing enhancements that Kurzweil foresee, but also avoids the risk of killing oneself. If we choose to upload we would have a lot to gain, in terms of increased intellect and life span, should Kurzweil be right, but a lot to lose if Searle is right, because we would be dead.[80]

2.4 **Aubrey de Grey**

Like Kurzweil, Aubrey de Grey believes that humans will achieve immortality, or as he calls it negligible senescence, in the not too distant future, but differs in his view of the biological body. De Grey believes that we don't need to replace or biology with machinery to live forever. For us to achieve negligible senescence we must first achieve some major breakthroughs in medical science, and will require enormous amounts of money. However, like all technologies, the technologies for engineered negligible senescence will not be invented all in one go. Instead, initial life-extending therapies will add some extra time to a human life. When these therapies can add more years to a life faster than the body ages, one will have achieved what de Grey calls 'longevity escape velocity' (LEV). LEV is something we will have achieved before we actually become negligible senescent.[81]

Senescence is accumulated damage the body on a cellular and molecular level, as a side effect of living. When this accumulated decay has progressed far enough, it will disrupt the metabolism of the body enough to kill it. The more the damages to the body accumulates, the higher the chances are for life-threatening failures in our body's structure. Engineered negligible senescence will give us the ability to repair these accumulated damages, and essentially reverse aging. Today, an eighty-year old will a significantly higher chance of experiencing life-threatening failures in body functions

[80] Ibid p. 64
[81] Ibid p. 84

than a twenty-year old. However, a negligible senescent eighty-year old and a negligible senescent twenty-year old will have the same, almost non-existent chance of experiencing bodily failures.

De Grey and other advocates of negligible senescence labels the opposition to this idea, 'deathism', and the rejection of an indefinite life span as an equivalent of wanting suicide. Agar argues however, that this does not really capture the real distinction between having an indefinite and a definite life span. Whether one is negligibly senescent or not, one is still bound to die at some point. Normally, we value a long life more than a short one, but Agar believes that this might not be true outside the limits of normal life spans.[82]

According to Agar, the fear of dying will become so dominating for the lives of negligible senescent people that it will prevent them from having enjoyable experiences in their long life. De Grey himself has predicted once there is a cure for aging, driving cars will be banned, as they will be too dangerous for other people, because when death by aging no longer exist, the consequences of taking risks are much greater. This risk-aversion will likely be applied to many other risky activities.

2.5 **Nick Bostrom**

While Kurzweil and de Grey focus on the technology of enhancement, Bostrom is focused on the philosophy of enhancement. He claims that opposition to enhancement is based on a fallacy. One of the fallacies some people make in arguing against enhancement, is what Bostrom calls the 'status quo bias', in a paper co-written by Toby Ord.[83] The status quo bias is the mistake of viewing one situation better than another simply because it preserves the status quo. They describe an experiment, called the 'mug experiment' where participants of a test received either a decorated mug or a big chocolate bar as a 'prize' for completing a set of questions. The participants were then offered the option to trade their prize for the other, however about 90% of the participants wanted to keep their prize. The result of this test may be due to status quo bias, according to Bostrom and Ord. Another important factor influencing people's negative stance on enhancement is the psychological attachment people get to the situation they are in at the present time.

[82] Ibid p. 110
[83] Bostrom, Ord (2006) pp. 656-679

Agar believes that our attachment to our humanity is stronger, than the attachment we would have to coffee mugs or chocolate bars

> We've been human for considerably longer than the participants in the experiment had owned their mugs or chocolates, so we might expect our degree of attachment to be correspondingly stronger. The strength of our emotional bond with our humanity may make it rational to prefer this state of being to some objectively superior posthuman state.[84]

Bostrom also presents an argument that our human values are in themselves implying posthumanism, and that posthumanism is something that we all want without even realizing it. He uses David Lewis' dispositional theory of value to illustrate how human values may actually be posthuman values. The dispositional theory recognizes that we don't always know what we want, or that we sometimes want something that goes against our values. According to Bostrom, some of the things posthumans will value are probably things that humans would value too. For instance, would humans be able to enjoy a posthuman symphony, even though they wouldn't be able to recreate or grasp the complexity of a posthuman musical piece. At the same time a posthuman should still be able enjoy the less complex music that humans make, in the same way that a human who enjoys the music of Schoenberg may still like folksongs.[85]

Agar is not convinced by this application of Lewis' dispositional theory, and suspects that Bostrom may have misunderstood Lewis' intention with the theory. Lewis' intention with the theory is to bring light upon the values that humans currently hold, not the hypothetical values of future enhanced beings. How other beings value something differently than humans is irrelevant for how we judge the value of something. Agar thinks the correct way to apply the dispositional theory is to imagine one's ideal self making judgments in a given situation. As an example he uses a drunk deciding whether or not to drive home in a car. Whether drunk driving is part of a drunk's values or not is based on what she would do in a situation where she is not intoxicated and fully informed about the consequences of drunk driving. What a

[84] Agar (2010) p. 139
[85] Bostrom (2009) p. 132

radically enhanced posthuman would do in the same situation or how well they drive under the influence of alcohol is not relevant, according to Agar.[86]

Agar thinks that Bostrom is guilty of what he calls 'focalism', a kind of error that people tend to make while imagining future events. People tend to omit details, and overestimate the emotional response they think they will have to a given scenario of the future. The details we omit are oftentimes interpreted as non-existent. For instance, when people think of the possibility of winning a million dollars they tend to think only of the fancy lifestyle they hope that money will give them, and not on the worries about taxes and pleas for contributions. Furthermore, the more distant in the future the event will be, the likelihood that more details are omitted.

2.6 **James Hughes**

Among the four advocates of radical enhancement Agar presents in his book, James Hughes has a sociological approach to radical enhancement, specifically how humans and posthumans can co-exist together in a society. Because of the major permanent differences between humans and posthumans, there is obviously some question about how well these can harmoniously live together as equals. For Hughes, the most important factor securing the equal rights of Humans and Posthumans alike is the concept of citizenship, or personhood, which would shift away from a biological notion of kinship, such as humanity, to a kind of inter-species notion of kinship. Hughes proposes what he calls 'democratic transhumanism', a kind of society where humans and posthumans treat each other as moral and political equals, and GNR technologies is available for all humans who wish to become enhanced beings.

One of the main concerns Agar has with Hughes' optimistic view of human-posthuman co-existence, is that once posthumans are created, they might not be interested in preserving the political liberties of regular human beings at all.

[86] Agar p 143

> We can imagine that supremely intelligent posthumans may see no value in liberal social arrangements that include those whose ancestors have rejected genetic enhancements and cybernetic upgrades.[87]

Some people, like George Annas, has even argued that the creation of radically enhanced beings may result in genocide, partly because the posthumans will view the normal humans as inferior and savage, and kill or enslave them.[88]

Hughes thinks that his concept of citizenship will prevent genocide or slavery from happening. One of the main pillars of liberal democracy is the sense of equality among citizens, which Hughes thinks will survive radical enhancement and the vast differences it creates among humans and posthumans. To answer the question of how an inclusive, species-blind concept of citizenship can be created, Hughes tries to pinpoint the traits that humans and posthumans would have in common, which defines the concept of 'personhood'. According to Hughes, beings that have personhood are "self-aware beings with desires and plans for the future."[89] For Agar, this is a concept that would rearrange what we regard as kin: Some humans, like fetuses, would fall from this category while chimpanzees, which are both self-aware and have desires and plans for the future, would be included in the concept of personhood. In this sense, we may lose our humanity as a result of radical enhancement, but we won't lose personhood.[90] Furthermore, there are no degrees of personhood; having more self-awareness or more elaborate desires or plans doesn't make you more of a person. The differences in intelligence would create great variation in interests and opportunities in academia and work, but would be equally protected under the law in Hughes democratically humanist society.[91]

An important aspect of Hughes' democratically transhumanist society, is the concept of uplifting. In the society he describes, the citizens will accept responsibility towards each other, and help each other reach their fullest potential. When a fellow citizen is facing barriers in reaching their potential, be it poor health or less intelligence, it is the duty of the other citizens to help and uplift these lesser 'able' citizens. Uplifting

[87] Ibid p 153
[88] Annas et. al. (2002) p. 162
[89] Hughes (2004) p. 217
[90] Agar (2010) p. 155
[91] Ibid

could often include to actually radically enhancing lesser able beings like chimpanzees and dolphins.

Agar however is concerned about the fact that the protection of human beings by posthumans, relies on that the human-posthuman society actually honor its moral ideals. Humans would still rely on the goodwill of posthumans. According to him, what human-posthuman society will be like depends on the dominant moral codes, which democratic transhumanism may become. Agar believes that for democratic transhumanism to become the dominant moral code, one must also engage in a form of moral enhancement.

> Our current treatment of the great Apes makes it clear that democratic transhumanism does not significantly contribute to the dominant moral codes of contemporary human societies. We destroy their habitats, confine them in zoos, and conscript them in medical experiments – all activities that contravene democratic transhumanism. So some degree of *moral* enhancement must occur to transform the moral codes that regulate human societies in the democratic humanist moral code that is to regulate human-posthuman societies.[92]

To make sure that posthumans don't become antagonistic towards humans, Hughes suggests that empathy be incorporated into the programming of AI and future machine minds. Companies manufacturing cognitive enhancement software should be required by law to support empathy moral decision-making, he says.[93]

Agar is pessimistic about the prospect of moral enhancement. Cognitive enhancement is easier to grasp, as adding more transistors increases the cognitive power. But how does one morally enhance a being? This is a lot less clear for Agar. He believes that posthumans might inherit a human moral system initially, but that this is bound to change. Posthumans would have the ability to learn more about for instance chemistry than humans, and their truths about chemistry would also be true for us. But this is likely not the case with morality, according to Agar.

> Moral truths differ from truths of chemistry in being contingent, in some significant respects, on our psychological dispositions. The moral wrongness of murder, theft,

[92] Ibid p. 158
[93] Hughes (2004) p. 256

> and slavery must have something to do with a reliable tendency on the part of competent human judges to react to them in a certain way. Changes to our psychological dispositions that occur as we become posthuman could, therefore, generate different moral truths.[94]

Agar predicts that there will be two possible versions of posthuman morality, both of which will have negative consequences for humanity in his opinion. The first is called the social contract view, which defines morality as an agreement between 'mutually disinterested individuals'. The other is consequentialism, which is the idea that we should always perform actions that have the best consequences. It's important to note that even if posthuman morality is developed from one of these ideas, the details about their morality is likely to be significantly different from any human version of these moral systems. Therefore, Agar's predictions about posthuman morality are of a very general nature.[95]

In the social contract view, what is morally right or wrong is decided in an agreement between selfish individuals. In this view, people understand that they have more to gain if everyone complies with a certain amount of restrictions, and that not interfering with the liberty of others is the most rational in the long run.

Agar believes that a posthuman version of a social contract may deviate significantly from the human version, and that their version will have terrible outcomes for normal, non-enhanced humans. It is very possible that the posthumans will view humans as having less to contribute to the human/posthuman society in terms skills and abilities, and thereby grant humans less rights, and even enslave them.[96]

Furthermore, the rights of humans compared with the rights of posthumans will get increasingly worse over time. As the posthuman will continually improve their intelligence and abilities at an ever accelerating rate, as Kurzweil predicts, while humans will stay the way they are, becoming increasingly more inferior compared with the posthuman. The posthuman will then argue that humans are less worth, as their contributions become less significant.[97]

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[94] Agar (2010) p. 160
[95] Ibid p. 161
[96] Ibid p. 162
[97] Ibid p. 163

The second possible moral system that posthumans might apply is the consequentialist view, which, according to Agar, is the view that one should work to maximize the global amount of happiness and minimize the global amount of suffering.[98] One example of consequentialist moral philosophy is the philosophy of Peter Singer who argues for dramatically increased welfare of animals. De Grey, who wants to create engineered negligible senescence for humanity, is another example of someone who has a consequentialist mission.

For Agar, this moral system seems slightly better than the social contract when applied to the human/posthuman society. However, he believes that posthumans will still make their own well-being a higher priority than the welfare of human beings, much in the same way that humans tend to value the welfare of fellow humans more than the welfare of other animals.[99] According to Agar there is a possibility that posthumans will be smart enough to have no need for the sacrifice of humans for the purpose of medical experiments for instance. However, he speculates that posthumans may still have purposes that justify the sacrifice of the welfare of some humans. An increased intellect helps one to find less wasteful ways to invent or produce things, but it can also enable one to find uses in what to a less intelligent being may seem like useless objects.[100]

> Humans are certainly capable of making moral complaints. But their pleas may lack much of the moral terminology that posthumans use to conduct their moral disputes. They are unlikely to be supported by arguments that have the intellectual rigor and sophistication of posthuman arguments. Consequentially motivated posthumans researchers may take the same attitude to our complaints that human researchers take to the screeches of the rhesus monkeys they are experimenting on.[101]

To tackle this issue, Agar proposes two measures to prevent humans from living miserable lives in a posthuman society. First we could make it compulsory for everyone to become radically enhanced. In this case, those who do not agree to the enhancement procedure would be eliminated. Either everyone becomes posthuman or are destroyed.

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[98] Agar uses the term "consequentialism", but this view should probably more appropriately be referred to as utilitarianism.
[99] Agar (2010) p. 165
[100] Ibid p. 169
[101] Ibid p. 171

Agar thinks the *Terminator* movies are a good indication of how this could happen. The human-posthuman society would only be a brief intermediate stage before universal radical enhancement.[102]

The second option he proposes is to ban radical enhancement altogether, which is the option he prefers. This in turn would require two measures: first, to prevent people from being born as posthumans. Second, to prevent people from turning themselves into posthumans. He argues that we should carry out these measures by pointing to the negative effects for those who chooses not to enhance themselves. The reasoning would be the same as in a case where one wanted to prevent people from transforming themselves into psychopaths. Agar is not necessarily calling for a ban on all enhancement per se, but that society has an interest in the enhancement agendas of its citizens, and that a freedom to enhance can be compatible with a ban on types of enhancements that is viewed to be infringing on the liberties of others.[103]

James Hughes makes a point about this kind of opposition to radical enhancement might be what he calls "human-racism", the idea that "only human beings can be citizens."[104] Agar admits that his proposal to ban posthumans from coming into existence might be problematic in this regard, but argues that it would not necessarily entail that one would deny citizenship to those posthumans that *does* come into existence. He believes therefore that his proposal is not human-racist in Hughes understanding of the term, but that it may still bear a "taint of racism" because he singles out individuals by their association with one group.[105]

Agar distinguishes between two forms of prejudice: first, what he calls *actual prejudice*, i.e. racism, sexism, homophobia etc., and second, *existential prejudice*, which aims to prevent the existence of future members of a given group. People who commit genocide usually hold both of these types of prejudices as they exercise hostility towards existing members of a given group, in addition to trying to prevent future members of the group from coming into existence. Agar thinks he has a kind of prejudice of the existential kind, or *mere existential prejudice*, as he calls it, which is not necessarily a bad thing in itself, he argues. He wants to prevent posthumans from coming into existence, and since there are currently no posthumans, he's exercising a form of existential

[102] Ibid p. 173
[103] Ibid p. 174
[104] Hughes (2004) p. xv
[105] Agar (2010) p. 174

prejudice. The reason why actual prejudice is bad and not existential prejudice, is because actual prejudice is used to legitimize suffering for existing members of a group, whereas existential prejudice is simply a want to prevent non-existing groups from coming into existence. If a group has no members to begin with, it won't cause any suffering to prevent any possible members from coming into existence, Agar argues.[106]

Hughes also holds a form of existential prejudice as he wants to prevent people with lesser empathic abilities from being born[107] , though in this case, there are already people who suffer from lack of empathic abilities, such as people with psychopathic disorders. It is nevertheless a different thing to prevent future psychopaths from being born to actually cause suffering to people with psychopathic personality traits. Though psychopaths lack empathic abilities, and one can argue that we should prevent future psychopaths from being born, they still have moral status once they are already here.

This is the point that Agar is trying to make. He makes a comparison of posthumans with humans born as a result of cloning, because today there are many countries that ban reproductive cloning for humans to prevent the existence of human clones, which is a form of existential prejudice against human clones. It can be argued that existential prejudice against human clones would turn them into "illegal beings", which is likely to transform into actual prejudice once there exists human clones.[108] Agar argues however that criminalizing the act of cloning is not the same as criminalizing the clones themselves; the same way the criminalizing rape does not entail criminalizing children born as a result of rape. There might be prejudice against human clones should they ever come into existence, but this is likely to be caused by other factors than the criminalization of cloning. In the same fashion, a criminalization of posthumans does not entail a degradation of their moral worth.

In fact, Agar believes that posthumans will assume moral superiority over humans. He further suggests that allowing for the existence of posthumans is a bit like allowing for the existence of vampires. [109] From the perspective of the vampire, there would be nothing immoral about harvesting blood from humans to survive. In a similar fashion, if we allow for posthumans to come into existence, we will create a situation where the importance of human interests is significantly diminished, according to Agar.

[106] Ibid p. 175
[107] Hughes (2004) p. 253
[108] Macintosh (2005)
[109] Agar (2010) p. 176

He argues that radical enhancement is not merely an expression of freedom over one's own body, but something that possibly has disastrous consequences for those who don't follow the same path. Therefore, humans are entitled to prevent the opportunity for posthumans to obtain a moral high ground, in Agar's view.

2.7 **The Species-Relativist Argument**

Agar believes that radical enhancement will alienate humans from valuable experiences that 'give meaning to our lives', and attempts to explore what these valuable experiences are for the species *Homo sapiens*. Here, Agar makes a return to the species-relativism he introduced in the beginning of his book, and uses it to argue that radical enhancement will lead to alienation, i.e. that human beings will be removed from experiences that give meaning.

The alienation he talks about is divided into three categories. First of all, he says, radical cognitive enhancements will cause a kind of self-alienation that disrupts the relationship between us and the experiences and commitments that define our identity. Secondly, radical enhancement will alienate humans from their children, particularly in the case where the offspring become enhanced and not the parents. Thirdly, humans become alienated to those who represent the limits of human achievement, athletes in particular. Agar argues that it is a part of human value to prefer average performance of normal humans to the superior performance of radically enhanced beings.[110]

Let's start with the first form of alienation, i.e. self-alienation. Agar explores some other shared experiences that differ from those experienced by patients of serious diseases, that may be in a better position to defend a rejection of radical enhancement than Fukuyama's example of removing diseases. The forms of experiences Agar is referring to, has to do with our cognitive abilities, and what a radical cognitive enhancement might do to those experiences, and to one's personal identity. Posthumans will be both vastly more intelligent and have vastly longer lifespans than unenhanced humans. This will impact our personal identity and how we experience other people. One concern Agar has about life extension and cognitive enhancement is whether someone can really be said to be the same person after enhancement.

[110] Ibid p. 179

> The procedure that enhances your intellect will change the structure of the brain, leading to uncertainty about whether the person who emerges from the procedure is you.[111]

Philosopher Walter Glannon, who has written about personal identity, writes that personal identity is linked to a continuity of mental life. [112] In other words, your perception of a continual existence as a person is linked with the persistence of memories, beliefs, desires etc. If this psychological continuity is disrupted or radically altered, it radically alters your personal identity. Agar argues that radical enhancement is an example of something that threatens this psychological continuity and therefore threatens your personal identity.

Bostrom and Ord present a different view on psychological continuity and how it affects personal identity. They compare radical cognitive enhancement with the process we all go through when we grow from children to adults, which certainly contains some intellectual changes, which are significant changes in the course of psychological continuity.[113] Indeed, we not only survive this change in continuity; we also think of it as good. For the same reason that it is good for a child to develop into an adult, it may be good for adults to continue to develop intellectually, even if it means that we develop into different persons.[114]

Agar agrees that there is no doubt that there is a significant change in the psychological continuity when one grows from a five-year-old to a forty-year-old, but is skeptical to the idea that a further intellectual growth for adults is a good idea. One of the things people fear about a disease like Alzheimer's, which destroys a person's reasoning abilities, memories and connections with friends and loved ones, and with things that otherwise had great meaning to them. According to Agar, a significant increase in intellectual abilities may have similar effect as an equivalent intellectual decline. He thinks intellectual enhancement will sever the bonds between you and the things that have value to you.[115]

One of the ways this may work is through the way an increase in intelligence changes our interests. Agar illustrates this with a tale of a boy named Johnny. As a ten-

[111] Ibid p. 183
[112] Glannon (2002) p. 266-283
[113] Bostrom/Ord (2006) p. 671
[114] Ibid
[115] Agar (2010) p. 184

year-old, Johnny takes an interest model airplanes and video games, and he has a crush on a girl from school Mandy, who shares his interest in airplanes. What Johnny probably doesn't realize is that as he grows older, he is likely to lose interest in both model airplanes and in Mandy as an object of romantic feelings.

> There are cases of childhood sweethearts whose mutual interest survives into adulthood. But these are the exception rather than the rule, much more consequences of good luck rather than good management. As we mature, our interests and passions change in ways that are difficult predict. With increased intelligence comes an expended range of possible interests.[116]

For example, an interest in model airplanes is likely to be replaced by something else, like music. Or maybe he still likes model airplanes but gains additional passions, that become more significant to him. As he grows older, his range of interests becomes more varied and complex. So does Mandy's interests. It is then likely that thirty years later, their interests have diverged in very different directions. In addition, a person who may seem attractive to you at ten, is not likely to seem attractive to you as a grown-up.[117]

There may be changes in interests during adulthood, but they change in a different way than through the passage from childhood into adulthood, Agar argues. We may become bored of some things we used to be interested in, but they do not lose meaning the same way childhood interests become meaningless to adults. Not only do most Adults become bored of children's toys, but they become alienated from them due to the natural intellectual enhancement that occurs during growth.[118]

Nick Bostrom makes the point that it will be easier to fulfill our commitments as enhanced beings, with regards to how enhancement affects our relationship with the things we care about.[119] Agar counters that although task become easier to perform as an enhanced being, we will not necessarily take in interest in them. Adults can do most tasks that children do, like stacking blocks on top of one another, naming things in a picture etc. and they usually perform these tasks better than children. Whether we find doing these activities engaging, is an entirely different question.[120]

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[116] Ibid
[117] Ibid
[118] Ibid p. 185
[119] Bostrom (2009)
[120] Agar (2010) p. 185

An adult who goes through the same intellectual growth as that of a child growing into adulthood, is likely to experience a change of interests similarly to what a child would experience. Things that were meaningful to him before suddenly become a less significant part of his life. If he has an interest in environmental protection now, what will his interests be if he goes through a ten-fold increase in intelligence? Agar suggests that he may have the same view on pollution as before, but that he won't be as morally conscious of it, and that a concern for global environmental problems will be replaced with concerns of more galactic proportions. Agar believes that similar shifts of interests would happen in regards to romantic relationships, and other social bonds in general. He further argues that it would be a significant loss if people drastically changed their interests due to increased intelligence. He believes that having a long-standing, mature interests and commitments is what defines us as individuals and makes us distinctive. When people obtain indefinite life-spans and continual intellectual increases, it prevents them from ever gaining any such mature interests and attachments, which Agar sees as a great loss.[121]

In a conversation with transhumanist philosopher Mark Walker, Agar was presented with a dilemma: If there is a pill (they call it the Peter Pan Pill) that halts the development of a child at age ten, should it be recommended? If a person's current set of values are as important as Agar suggests, shouldn't the answer be yes? Obviously Agar doesn't believe that a child's values are as good as that of an adult, but he recognizes that in taking this point of view, it would be easier to accept radical enhancement on the ground that it replaces one's current human values with superior posthuman ones.[122]

However, Agar is still convinced that in view of species-relativism, i.e. for humans, the "human pattern" is more valuable than the posthuman one.

> Consider our reasons for rejecting the Peter Pan Pill. Children may not reflect on human development in quite the way that adults can, but, quite early on, they become aware that childhood is a temporary stage on the way to adulthood. It's the kind of existence enjoyed by their parents, caregivers, and teachers. They may be aware that their interests will change – it's apparent that their parents don't share their obsession with Thomas the tank Engine and Dora the Explorer.[123]

[121] Ibid p. 186
[122] Ibid p. 187
[123] Ibid p. 188

Agar points out that this is not how we view adulthood. It is not a temporary state where our commitments are temporary and change as we grow older. Posthumans on the other hand would be anxious to keep advancing to higher stages, and not be left in a "second childhood", Agar believes.[124]

There are other areas that alienation will manifest itself as a result of radical enhancement according to Agar. One of those other areas is in the relationship between children and their parents, and he considers shared experiences between family members to have great value. Most parents probably wouldn't trade their cognitively mediocre child for a super intelligent one, but faced with the opportunity to enhance their child without affecting or disrupting the identity of the child, many parents will accept the opportunity, claims Agar.[125]

Next, Agar makes the claim that there is a big difference between the "straightforward" endorsements of radical enhancement made by the four figures that he presents in *Humanity's End*, and more liberal advocates of radical enhancement. One such liberal advocate is John Robertson, who argues that procreative liberty is the freedom to choose not to have children and control one's own "reproductive capacity." He also extends procreative liberty to include the use of enhancement of children.[126] Agar appears to have a more positive view on this kind of liberal view of radical enhancement, rather than the views of Ray Kurzweil, for example, which he views to be more definitive, whereas the liberals aren't promoting any particular view of human excellence. Where "typical" transhumanists like Kurzweil or Bostrom would have definitive ideas about what procreative choices parents should take, transhumanists of the more liberal kind would leave the choice to the parents themselves, Agar believes.

Because liberal advocates of radical enhancements would leave procreative decisions to the parents, Agar believes their view is a less dangerous one because if parents have liberty over their own children they are likely to only pursue moderate enhancements for their children, instead of radical ones. If a child has an increase of ten IQ points, it wouldn't alter the identity of the child in any significant way, and the he could still relate to his parents as his kin.

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[124] Ibid p. 189
[125] Ibid
[126] Robertson (1994) p. 16

> The prospect of being viewed by one's child as permanently in the "da-da" stage of development would be a pretty terrifying prospect to many parents. We value being connected with our children, even if we know that severing this connection may provide them an objectively superior start in life.[127]

Parents want to take part in their children's lives, have shared experiences with them and take pleasure in their achievements and vice versa. Agar believes that neuro-implants and radical genetic modifications will threaten such shared experiences between parents and their children.[128]

The next form of alienation that Agar explores is the alienation from athletes and sports events. Agar asserts that our shared experiences during sports events justify an opposition to radical enhancement. Sport could seem as a surprising area to focus an argument against transhumanism on. Why focus on a form of entertainment? First, sports events have massive audience worldwide, and exemplifies important shared experiences people have, not just with their friends and family, but with large groups people, ranging from towns and cities, to countries and continents. Secondly, sports enhancement is one of the most widely debated forms of enhancements there is. Today, athletes are regularly tested for performance-enhancing drugs by the World Anti-Doping agency. Agar believes that this is an issue of alienation. We as spectators are attracted to athletes because we can identify with and relate with them. Athletes push the limits of human achievement, and stand as models of what *we* can achieve.[129]

Some writers on radical enhancement, like Julian Savulescu, have called for allowing performance-enhancing drugs and other GNR technological enhancements for athletes. They believe that super humanity already are the ideals of modern-day athletes, and argue that biological enhancement is the "embodiment" of the human spirit, the ability to improve ourselves based on reason, and in fact is also embodies the spirit of sports. [130] If this is true, Agar suggests we would be more willing to watch posthuman sprinters than human ones. However, he argues that people's interest in

[127] Agar (2010) p. 191
[128] Ibid
[129] Ibid p. 193
[130] Savulescu et. al. «Why We Should Allow Performance Enhancing Drugs in Sport», British Journal of Sports Medicine 38 (2004) p. 666-667

sports in defined by a value that opposes enhancement, and that enhancements would alienate the spectators from the athletes they otherwise admire.

The performance of the sprinter Ben Johnson at the Seoul Olympics in 1988 has elicited great excitement and interest, even though it was revealed that he had taken a performance enhancing drug prior to winning the men's 100m and setting, at that time, a world record. Agar believes the excitement people got out of this performance, comes from an "interest in extremes" as he calls it. This interest explains the popularity of documentaries on the biggest dinosaurs, the tallest mountains etc. Despite humans having this interest, Agar believes it plays a less important role in our interest in sports, due to the long-standing commitments people have to sports. For instance, he claims that few people would pay to see the world's tallest human more than once. After seeing the world's tallest human once, one would probably not be interested to pay to see the world's tenth-tallest human at all. Agar claims that this pattern is different from that of paying attention to sports, because sports fan tune into to sports news on a regular basis even if the impressiveness of one's favorite team varies from one performance to another. In other areas we prefer watching human athletes to machines that outperform them.

> We continue to watch human 1,500-meter runners when we know that any used car lot contains many machines that cover the distance more quickly. Garry Kasparov is just more interesting to us than the chess computers Deep Blue, Deep Junior, or any future machine that inherits the "Deep" mantle. He'd be more interesting to us than any posthuman ten-dimensional chess players slumming it by playing two-dimensional chess.[131]

Next, Agar goes on to describe why this is. He argues that is has to do with what he calls an *interest in identifying*. We *identify* with athletes because we see them as pushing the limits of what we ourselves can achieve, while at the same time sharing the same limitations we have.[132]

Enhanced beings lack the "first-person" access to and enjoyment of human performances, Agar argues. Humans, he says, would be likewise disinterested in the

[131] Agar (2010) p. 193
[132] Ibid

achievements of posthumans. We can recognize that posthuman achievements are exceptional, but hey wouldn't have the same "allure" to humans according to Agar. The reason for this is what he refers to as simulation theory, a theory that explains how people can predict other people's behavior by simulating their mental processes.[133] For example, if we see a hungry person eating a delicious meal, we can imagine ourselves being hungry in those circumstances. Simulation allows us to predict a person's behavior without having to know a lot of details about that person. This theory assumes that the mental processes of the one simulating and the one being simulated are sufficiently similar. Agar suspects that if the mental processes of posthumans, computers or aliens are significantly different from humans, the simulation will not be effective in predicting or explaining their behavior.[134]

In the same way as we can simulate the mental processes of other people, we can also simulate the mental states of characters in fiction. The simulation allows us to engage with the emotions of fictional characters, and perhaps tell us how we would have acted in a situation, and what it would be like to experience it, if we were in the place of the fictional character.[135] Likewise, we can simulate the mental states of athletic performers, and watch sports for this reason, according to Agar. We watch sports with imaginary participation in the joys and disappointments of the athletes, and at the same time learn something about "what is possible" for human beings, he says. [136] Imaginary participation relies on the premise that the participants in sports are sufficiently similar to us, and share our characteristics, Agar claims. Humans can get insight into what it is like to be an athlete because we can use our bodies the way they do, and therefore get sample some of the pleasures elite athletes get from their achievements.[137]

One might ask whether Agar, or bioconservatives like Fukuyama and McKibben, in essence are in favor of stopping the evolutionary process of humans, statically keeping us in our current form. Agar rejects this in his essay "Whereto Transhumanism?", and suggests bioconservatives would too.

[133] "Folk Psychology as Mental Simulation", Stanford Encyclopedia of Philosophy
[134] Agar (2010) p. 194
[135] Currie, "The Moral Psychology of Fiction" (1997) p. 56
[136] Agar (2010) p. 195
[137] Ibid p. 196

> While they do hope to ban certain ways of controlling the human gene pool, bioconservatives certainly do not seek to keep the human gene pool entirely static. A global ban on posthumanizing technologies would leave our species subject to the same evolutionary pressures for change as always.[138]

In his conclusion of *Humanity's End*, Agar states that there is a difference between the idea of taking control over human evolution, as Julian Huxley proposed, and the technological enhancements proposed by Kurzweil, de Grey, Bostrom and Hughes. The latter would be an enhancement that is more abrupt, and doesn't manipulate the evolutionary forces, though they may certainly redirect human evolution. Because technological enhancement is abrupt, they threaten the bonds between ourselves and other humans. Agar therefore appears to be more in favor of a form of enhancement similar to Huxley's eugenics program, which entails taking directorship of human evolution.

> Huxley's evolutionary path would see humans traveling the path to a radically enhanced future collectively. It would also take time. Over many generations, it could lead to beings that are so different from us that they are not properly considered human. But the gradual nature of this transformation wouldn't prevent us from relating to our former selves, our children, and our fellow citizens in ways compatible with human values.[139]

It would appear that Agar doesn't mind radical changes in the human species as long as they happen gradually over several generations. Agar doesn't believe that the human species will, or should, last forever. But he doesn't see that as a reason to expedite the end of our species by removing ourselves from it.[140]

[138] Agar (2007) p. 13
[139] Agar (2010) p. 197
[140] Ibid, p. 198

Chapter 3 – Criticism of Agar's View of Radical Enhancement

3.1 **Introduction**

In this chapter I will give my response to his argument about radical enhancement. There are in my opinion obvious problems with it, which will be examined in this chapter. Here I will also give my own take on radical enhancement, in particular moral enhancement, because it is a form of enhancement that it seems Agar has paid little attention to. It is possible that moral enhancement evades some of the problems that Agar raises, in particular possible tyranny over humans by posthumans. At the core of Agar's argument against radical enhancement is alienation. He focuses on three forms of alienation: Self-alienation, which is triggered by drastic shifts of interests due to increased intelligence and longevity; alienation of children from their parents; and surprisingly, alienation from athletes and sports events. There are three areas of Agar's argument for rejecting radical enhancement. The first is on his separation of human and posthuman values, and I will use a dialogue between Agar, Hughes and Bostrom to try to identify the problem with this separation. species-relativism. Secondly I will take on his view of alienation and species-relativism, which seems to be the most important part of his argument against radical enhancement. Third is the area of moral enhancement

3.2 **Dialogue between Agar, Hughes and Bostrom**

Agar's essay "Whereto Transhumanism?", which was published in 2007, three years prior to *Humanity's End*, makes some of the same points he would later make in the book, for example the need for caution against more pro-creative liberties, and the extension of enhancement technology to such liberties. For instance, he implies that a possible harm of allowing people to enhance their offspring, even moderately, will exacerbate social inequality by creating a genetically superior class of humans.

James Hughes responded to this essay by agreeing with Agar that there should be certain regulations on altering the genes of one's offspring, and claims most transhumanists will agree with the need for regulations. Hughes thinks it should be acknowledged that some enhancements may have adverse effects, but that this alone is not reason to ban all enhancements outright.

> Yes, some genetic tweaks may be unsafe or harmful, but we can regulate those without forbidding life-extending and ability-enhancing therapies. Yes, if only the wealthy can cognitively enhance themselves and their children this might exacerbate inequality. But, as with literacy and laptops the preferred method to address these gaps should be to expand access to enhancement.[141]

Agar is aware of this point, but is skeptical that everyone will engage in enhancement even if they have access to it. Some people, particularly members of some religious groups, who are likely to reject any form of genetic alterations of their offspring. Over time, when the social and genetic inequalities between people widen, liberal democracy comes under threat, because supremely intelligent posthumans may not see the value of social systems which includes people whose ancestors rejected enhancement.[142]

Further, Agar claims that the fragmentations of society can be avoided if we can find "something to say" to those who want to stay unenhanced. One possibility that Agar have noticed Bostroms suggestion that many of human values are already of a posthuman nature. We saw in chapter 2 how Bostrom uses a "dispositional theory" to show how our values are disguised posthuman values, for instance that someone who don't know J.S. Bach's B-minor Mass may value it if he were acquainted with it, or that a chess lover who has no grasp of 8-dimensional chess, may value it if he were acquainted with it.

We saw in chapter 2 how Agar rejects Bostrom's use of the dispositional theory, but he also to a curious trait of the theory, which is that it also tells us to reject values that we thought we had:

> For example, you may pronounce yourself a fan of Wagner's Ring Cycle after listening to the couple of minutes of "Ride of the Valkyries" featured in the movie *Apocalypse Now*. Yet if exposure to the full fifteen hours would cause you to withdraw your endorsement, then the Cycle does not belong among your musical values even if you think it does.

[141] Hughes, response to Agar's Essay "Whereto Transhumanism?", published in the *Hastings Center Report* (2007) P. 4
[142] Agar (2007) p. 15

Furthermore, posthuman music lovers may find such music dull or banal, and therefore not value it. Or they might value it only as a curiosity. Agar thinks there is nothing wrong about the way posthumans value such music, but that we shouldn't be incline to echo their values.[143]

Agar, distinguishes "universal" values from "local" values. Universal values are values for everyone, for example the moral status of a person has value independently of who is making the judgements. Another example that Agar claims is a universal value is the valuing the elimination of horrible diseases, which he believes can be done without becoming posthuman. Local values, however, do depend on who is judging. An example of such valuing, is the valuing one's own child compared with the children of others. Normally, people will value their own children higher than other children, even if those other children have higher cognitive or physical abilities. By the same token, a human might value its own humanity higher than posthumanity even if it is objectively superior.[144]

Bostrom responds to Agar by clarifying what he means by the notion that human values are covertly posthuman values. What he means is that for our values to be fully realized it would require posthuman abilities.

> Many of us greatly value remaining in excellent health over getting sick, demented, and dying; yet our present human bodies unfortunately make the full realization of this value impossible. I find it noteworthy that towards the end of his article, Agar argues for the existence of "universal values" and gives as an example of such a value "the elimination of horrible diseases".[145]

However, Agar's reply to Bostrom is, as we have seen earlier, that he misunderstands how to properly use the dispositional theory; that the theory is about elucidating values we already have, not ones we will hypothetically have after a radical enhancement procedure.[146] However, the example used by Bostrom (and Agar himself) that we value eliminating diseases, seems to be example of a value under the dispositional theory, that humans have, but that requires posthuman capacities. Agar appears to have missed this.

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[143] Ibid p. 16
[144] Ibid
[145] Bostrom, response to Agar's Essay "Whereto Transhumanism?", published in the Hastings Center Report (2007) p. 5
[146] Agar (2007), reply to Bostroms response, published in the Hastings Center Report (2007) p. 6

Furthermore, if we realized the value of eliminating horrible diseases, Bostrom asserts that we would live to be approximately one thousand years, a "distinctly posthuman duration".[147]

3.3 **Species-Relativism**

As we have seen, one important element of Agar's argument against radical enhancement is what he calls species-relativism. In the species-relativist view, experiences properly valued by members of one species can be viewed as not having values for members of a different species. Species-relativism is similar to cultural relativism in that regard, in which the truth-value of moral judgements or cultural practices are relative to a culture. For a cultural relativist, to claim that female genital cutting is morally wrong may be true in one culture but false in another. This is a view that has few supporters within philosophy, but Agar believes species-relativism is different from cultural relativism, because there is a genetic barrier between the species, which is not the case for different cultures, and therefore he believes that species-relativism is easier to defended than cultural relativism.

> The importance of species boundaries is not an issue that divides those who take different sides in the long-running nature-nurture debate. Those who oppose cultural relativism because they think that morality is shaped substantially by biology should be open to the idea that the different biologies in different species can generate moral diversity that is both genuine and fundamental.[148]

Although biological species are more permanent than cultures, there is still debate among biologists how to define the term "species", most of all because there are often fuzzy boundaries between two different species. Agar suggests that, if we engage in radical enhancement, which will most likely include genetic engineering the boundaries between us and other species will effectively evaporate. Whether radical enhancement will make humans and post-human unable to produce offspring or not, the barriers between species in general may begin to dissolve as techniques in genetic engineering becomes more advanced.

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[147] Bostrom, response to Agar's Essay "Whereto Transhumanism?", published in the Hastings Center Report (2007) p. 5
[148] Agar (2010), p. 13

> The same tricks that introduce fish genes into tomatoes could easily add those same genes to human genomes. [Allen] Buchanan proposes that phenomena such as these render "the notion of 'species boundaries' itself suspect." We should expect scientists with radically enhanced intellects to be even better at combining the genetic material of very different-seeming organisms, thus further reducing the value of the biological species concept in evaluating what might befall humans.[149]

However, Agar argues that this may not be directly relevant to deciding species boundaries, because individual lifeforms are assigned a species based on what occurs in nature, not what may or may not occur in a future post-human laboratory.[150] This argument, on the other hand, depends on what one means by the term 'nature'. One can argue that humans are part of nature, and further that technological advances are just as natural as evolution or anything else that occurs in 'nature'. Why then isn't blending the species barriers through genetic modification natural? I am not suggesting that genetic modification is moral if it is natural, only that the term 'nature' is too ambiguous. If humans are products of natural processes then I think it would be paradoxical to suggest that human behavior somehow isn't natural, regardless of morals.

Therefore, it is probably a mistake to separate human activity from nature. Our desire to invent new things might be just as natural as ants building anthills. Some may say that ants just follow their instincts, while humans have self-awareness and free will, but I would argue that a human's drive for progress, and to invent new tools to make life more comfortable and safe, is a strong instinct among humans. We follow our instincts just as the ant does, the difference is that we are aware of our instincts and are therefore able to change our behavior, which is where morality comes in. Although some animals may demonstrate some primitive forms of morality, for example when chimpanzees show outrage in face of violations of social order, or treat other chimpanzees with compassion to get some good in return, humans are unique in the way different groups of humans develop cultures and social norms so different from one another. But this trait of humans is something that has developed in nature, so there shouldn't be anything unnatural about this. If one sees human behavior as part of natural processes,

[149] Ibid p. 22
[150] Ibid

the desire some people have of becoming posthuman is perfectly natural, and so is the actual process of splicing genetic material from different species. And when that happens, the concept of barriers between species will become less meaningful. The question is however not whether enhancement is natural, but whether it is moral.

To summarize, the species-relativist view assumes that there are certain experiences and activities that have value to humans, but lack value to other species, and vice versa. Further, it assumes that radical enhancement will lead to the creation of beings that are not human, and therefore don't have experiences that have value to humans. Since these beings don't have experiences that are valuable to humans, radical enhancement should be avoided.

However, the concept of species-relativism reveals what I think is a misunderstanding about naturalness that seems to persist in other areas of Agar's argument against radical enhancement. The misunderstanding appears to be this: that being human is a "state" that is more permanent and natural, and therefore valuable. Posthumans, which is what transhumanists think *we* should become, may well have experiences that are valuable to them, but it doesn't count as long as they don't have value to humans. Related to this misunderstanding is the old misunderstanding that nature is something permanent, a state which should be preserved, as far as we are able. I will return to this again in the section about Alienation, and how it seems to lead Agar into a circular reasoning.

3.4 **Self-Alienation**

I will now focus on some of the possible adverse outcomes which Agar believes will emerge from radical enhancement, and then question how well they work as valid objections against radical enhancement. I will also go into more detail on what I believe is a circular reasoning on Agar's part. As I described in Chapter 2 of this paper, Agar is concerned with how radical enhancement will take important experiences from us, and therefore alienate us from ourselves. At first, he references Fukuyama and McKibben, and their warning that the transhumanist goals of removing suffering will also remove goodness in those who pursue radical enhancement. Fukuyama states that our ability to good is tied with how we deal with suffering and death.

As it stands, this statement is uncontroversial. We wouldn't have evolved if our ancestors hadn't met any forms of resistance to their existence. Fukuyama's statement

and McKibben's personal story about his childhood friend with cystic fibrosis should not be mistaken for an encouragement to celebrate misery, or prevent people from getting treated for life-threatening diseases. However, he is against going as far as developing technology that would make us immortal and disease-free. So it seems that he is only in favor of improving humanity's condition to a certain extent. Fukuyama asserts that the removal of suffering is somehow tampering with our complex nature, and with the diversity of our species.

> For this will be the constant trade-off that biotechnology will pose: we can cure this disease, or prolong this person's life, or make this child more tractable, at the expense of some ineffable human quality like genius, or ambition, or sheer diversity.[151]

Here, Fukuyama seems to suggest that being a smart, creative and productive human being somehow depends on suffering in some form. There is certainly some truth to the notion that crises and hardship sometimes stimulates innovation and technological leaps. For example, without World War II, Alan Turing probably wouldn't have been prompted to develop the Turing machine, which would revolutionize computer science. In addition, there were significant progress made within nuclear and rocket science. The question is whether the technological progress outweighs the suffering that war creates. It may well be that if WWII never happened we would have saved millions of human lives, and still have progress within computer science, though it might have taken a little longer before an equivalent of the Turing machine had been invented. One could argue that because the Turing machine was invented sooner (due to the war) more total lives would be saved and/or improved, than if the war never happened and the Turing machine was invented later. Even if that was true, it is a poor way of justifying not preventing misery and death on a mass level, because of a slightly better outcome in the future. There is a good chance that the millions of people who lost their lives during WWII, would gladly wait a decade or two for the modern computer to be invented, if it meant their lives were spared. If it were to be justified, the long term positive outcomes must outweigh the suffering significantly and definitively.

[151] Fukuyama (2003) p. 169

Likewise, it would be a poor argument that diseases shouldn't be prevented because those who get the disease will be better human beings. First of all, it probably wouldn't be much of a consolation for the terminally ill that they are better human beings, if they are going to die. Secondly, though it may be true that becoming terminally ill does something to a person's appreciation of other people and life in general, we don't have any reason to believe that a hypothetical patient wouldn't be a good, reflective and creative person if she *didn't* have the disease in the first place.

If one assumes that disease has positive outcomes for a person's morality, should that mean that we should introduce *more* disease into the population in order to increase the morality among people? I would imagine that Fukuyama would not favor a policy to introduce more disease. What is more likely is that Fukuyama thinks we need a little bit of it, just enough so that people become more compassionate towards each other. But How will we know where that sweet spot is, where we have just enough suffering

Furthermore, the increase and compassion in a person are some of the things that many transhumanists intend to improve, through intellectual and moral enhancement, the latter exemplified by Julian Savulescu and Ingmar Persson, which we will come back to later in this chapter. Therefore, there appears to be little basis for the notion that we will become less creative and less compassionate if we enhance ourselves. Still, Fukuyama will probably not be impressed by the notion of radically enhancing either a person's moral values or empathic abilities. Radical enhancement can potentially change humanity beyond recognition, which instinctively raises concern. There are legitimate concerns about the consequences of radical enhancement

Though the removal of suffering and treatment of life-threatening is perceived to negatively impact a person's goodness, Agar agrees that the pain and misery caused by keeping life-threating diseases around is a too big price for the goodness it might inspire. Nonetheless, he thinks that Fukuyama offers important insight that he believes should convince us to reject radical enhancement.

> The distinctive varieties of goodness occasioned by serious disease may be considerable, but their value doesn't justify keeping it around. […] [However,] disease and death present the opportunity for shared experiences. To use

> Fukuyama's words, all of us "react to, confront, overcome, and frequently succumb to pain, suffering, and death."[152]

However, Agar puts forward what he believes is a better reason for rejecting radical enhancement, something which he thinks has a greater alienating effect than the loss of suffering. He believes that increased longevity and intelligence will lead to drastic changes in a person's long-standing interests and commitments, which in turn leads to a depersonalization or self-alienation of those who chooses to enhance themselves.

It is possible that in becoming post-human we would lose many experiences important in regard to being human, but that doesn't suggest that they are important to post-humans. It is true that post-human life would likely be very alien to the life of a human, but that doesn't suggest that post-humans wouldn't have valuable experiences of their own. Let's say one decides to enhance a cat to the point where it has the same intelligence of a human being, and having an advanced language center in the brain, making it able to communicate in human language. Certainly this will deprive it of the many valuable experiences a cat has during its lifetime, but it would also give it many new experiences, like perhaps a closer bond with humans and a higher understanding of philosophical problems.

Agar's main argument however is that radical enhancement is wrong, not because posthumans (or postcats) would have experiences that have no value to *them*, but because they would have experience that have no value to *humans*. Posthumans may well have experiences valuable to themselves, but not to humans. I believe that Agar's reasoning contains a circularity which I will now try to show.

A circular argument is where the conclusion is itself a premise for the argument, i.e. X is true because Y is true; Y is true because X is true. This kind of reasoning is often not explicitly presented in this way. Usually the premise and conclusion are formulated in different ways, even if they basically make the same claim. A classic example of this line of reasoning could be as follows:

1. According to the bible, God exists
2. The Bible is the word of God
3. Therefore, God exists

[152] Agar (2010) p. 181

As one can see in this argument, the line of reasoning doesn't really bring us any new information, because in essence, the conclusion and the first premise makes the same claim. Therefore, one can say that the conclusion is a premise to itself, since the bible refers to itself as an authority on the question of the existence of God. Usually circular arguments are logically valid, since the conclusion is true if the premises are true. However, such arguments are incomplete, because the premises themselves need to be proven, and therefore makes the argument unconvincing.

The species-relativist argument follows a pattern that I argue is circular. Agar claims that humans have experiences that are valuable to them, and obviously, that we ought to preserve those valuable experiences. His argument can be summarized as follows:

1. Being human is our current form
2. Radical enhancement will take away important experiences that have value for humans
3. Humans should reject radical enhancement (i.e. remain human)

In this argument, the conclusion (3) seems to express something similar to premise (1), i.e. rejecting the experiences of posthumans can be seen as expressing the same intent as valuing human experiences. It is implied by Agar that human beings should preserve human experience, simply because they are human, regardless of whether posthumans have experiences that are important and valuable to them. Perhaps Agar's argument can be simplified even further:

1. Human values are not posthuman values
2. Posthuman values are not human values

This could be helpful to identify the incompleteness of Agar's species-relativist argument. Though it may be true that some experiences are lost on the way from humanity to posthumanity, Agar doesn't identify what in particular it is about being human that is preferable to being posthuman. A posthuman could use a similar reasoning as the one above to argue why it is better to be posthuman, rather than

human. A posthuman could argue that their experiences have great value and importance, and that's why it's important to promote posthuman experiences, rather than human experiences. It appears that the species-relativist argument struggles with some of the same challenges as cultural relativism, and that the species boundary may be a too weak foundation for the species-relativism. Agar needs to show what makes the boundary between species a moral boundary. He needs to show how crossing a perceived species boundary between human and posthuman is crossing a significant moral boundary.

When we evolved from early hominids into humans there were probably many experiences valued by our predecessors that were lost on the way, though we gain many new experiences which our ancestors may not have valued. We can probably say that we have become alienated from their way of life. Does that mean that it was bad that we evolved into humans? For the human species it was obviously a good thing, otherwise we wouldn't be here (provided that one considers to be in existence better than not being in existence). But what about the other hominids who took different evolutionary paths? All the other species of the *Homo* genus have gone extinct, except for *Homo Sapiens*. In some cases, they may even have gone extinct partly because of us. For example, it is believed by many scientists that the Neanderthals went extinct due to diseases brought by Homo Sapiens, though others have also pointed towards the effects of climate change and interbreeding between the two species as important factors. Others still theorize that the Neanderthals were outright out-competed and marginalized by the modern human.[153]

Agar does raise an important concern about what will happen if there is a split in the human species, i.e. those who takes part in radical enhancement and those who don't, and in particular what will happen to the humans who chooses to opt out of using radical enhancements? Will they be out-competed and marginalized in the same fashion as the Neanderthals and the other human subspecies who went extinct?

However, I'm not convinced that the answer to this problem is to ban radical enhancement altogether, partly because radical enhancement is likely to be a reality at some point anyway. Besides, I suspect that Agar may have a too narrow view of what a radical cognitive enhancement contains. It probably will include more than just

[153] Jordan (2001)

increased problem-solving abilities, but for example increased empathic abilities as well, which is part of what is often referred to as "moral" enhancement, which I will write about in more detail later in this chapter. Moral enhancement can refer to a variety of possible procedures for making people more good or benevolent. This is a type of enhancement that Agar doesn't mention in *Humanity's End*.

3.5 **Parent-child Alienation**

Agar believes that few parents would want to radically enhance their kids, and claims that radical increases in cognitive performance would alienate parents and children from each other, as they wouldn't be able to relate to each other, even if it would mean that the child would live a better life. Agar argues that parents would reject radical enhancement of their children for the same reason that poor parents don't give up their children to wealthier families, even if their quality of life would be much better.

> We reject the radical enhancement of our children for the same reason that we don't offer them to Brad and Angelina. We value experiences shared with our children. We want to understand and take pleasure in their achievements, and we want our achievements to be meaningful to them. Neuroprostheses and genetic upgrades that radically enhance our children's cognitive powers place these experiences under threat.[154]

It could be true that few parents would want their kids to have, say, a ten-fold IQ-advantage over themselves. If two individuals have a ten-folded differences in IQ, it is not difficult to see how they would have a hard time relating to one another. However, this claim presupposes that the parents themselves won't engage in radical enhancement. I think it's fair to say that those parents who are inclined to enhance their own children with neuroprostheses, are likely to be inclined to want that for themselves.

On the other hand, Agar seems more positive to the idea of pursuing moderate cognitive enhancements of one's child. That way, the identity of the child won't be significantly altered, and the bond between parent and child would stay intact. After some generations of continual moderate enhancement, people may end up being radically enhanced from the pre-enhancement human, but in this case the enhancement

[154] Agar (2010) p. 191

process is probably more stable and secure that in the case of sudden radical enhancement. The former type is probably easier to control and predict the outcome of, than the latter.

Several transhumanists do support this approach. For example, in a paper by Nick Bostrom and Rebecca Roache, they envision a form of child enhancement used with the help of pre-implantation genetic diagnosis (PGD), to determine the genetic features and possible disposition to diseases (like cystic fibrosis) and selecting those embryos with the desired features. Further they propose that we make sure that the parents themselves have the desirable genetic traits, like higher intelligence. This can partly be done by allowing infertile couples, or single parents to purchase gametes (egg or sperm cells) from people with higher education.[155]

3.6 **Sports and Shared Human Experiences**

As I have laid out in chapter 2 of this paper, Agar claims that enhancing athletic performers alienates the spectator from the athletes, because as humans, the spectators will not be able to relate to the athlete or empathize with the athlete's struggle to become the best.

I suspect that this reasoning contains the same kind of fallacy as in the case of self-alienation. Notice that Agar's opposition to athletic enhancement is because it would have no value to *humans*. This argument only works if one presupposes *human* experiences to have value in itself. Agar assumes that *posthuman* spectators would value the performances of enhanced athletes, but doesn't consider that to be of great importance. What's important is what value it has to humans. This reasoning has the same kind of circularity as with his argument about self-alienation, because it all comes back to why human experiences are more valuable than posthuman experiences. It is possible to imagine that the experiences of other beings won't have any value to humans, but this doesn't work well as a reason for not enhancing human abilities. This is a kind of anthropocentric view that needs to explain why the boundary between humans and other beings is a significant moral boundary.

But is Agar even right that radical enhancement would alienate athletes and spectators from each other? Do spectators have to personally identify with athletes to be

[155] Bostrom/Roache (2008) p. 19

able to enjoy sports? There are many examples of sports that does not primarily depend on human athletic abilities, such as horse racing, dog racing or car racing, which depend on the performance of animals or mechanical vehicles. Many humans find dog races exciting to watch and follow, even if they don't personally identify with the dogs involved. With this taken into consideration, why wouldn't humans also be interested in posthuman performers too?

In the paper by Bostrom and Roache called "Ethical Issues in Human Enhancement", they also comment this issue of radical enhancement of athletes. They believe physical performance enhancing drugs are useful both for ordinary people who just want to improve their performance and enjoyment in leisurely sports activities, and for people who are recovering from serious injuries. They argue that such drugs, up to a certain point, should be permitted in professional sports. One of the main arguments against "doping", is that it would be less exciting to watch when the athletes are using performance enhancing drugs. However, as journalist David Owen points out, watching an enhanced athlete can be exciting as any other:

> I have a guilty secret. I think Ben Johnson's "victory" in the men's 100m at the 1988 Seoul Olympics is just about the most exciting 10 seconds of sport I have ever witnessed. ... what stood out for me mainly was the sheer bullocking power of Johnson's sprinting.[156]

Bostrom and Roache believes this demonstrates that some people find record-setting athletic performances exciting even when they are achieved with the assistance of performance enhancing drugs. It should be noted, though, that nobody was aware that Johnson had used performance enhancing drugs to achieve an advantage over the other athletes. Would it be as exciting to watch if it was known beforehand that he had been enhanced? As of today, performance enhancing drugs like steroids aren't legal, so we can't know for sure what kind of reaction people will have to openly drug-enhanced athletes. However, there are some sports where drug enhancements are an open secret, and where many athletes are rumored to use them regularly such as in American football.[157] Other sports, such as cycling or cross country skiing, have a long history of

[156] Owen (2006)
[157] Former NFL QB Brady Quinn told CBS Sports in 2015 that about 40-50% of players are taking performance enhancing drugs, according to Business Insider UK.

doping scandals, notably the scandal around Lance Armstrong and the US Postal Service Pro Cycling Team, who conducted one of the most sophisticated doping schemes in sports history.[158] However, despite these cases there doesn't appear to be any diminished interest in these sports by sports fans. There are also performance enhancing drugs that *are* legal. Caffeine, for instance, is often used by athletes during competition to build endurance. In addition, supplements like protein and amino acids are widely used.

Another point that can be made is that there are several factors in competition that can give "unfair" advantages to some athletes, other than drug enhancements. Some countries spend more money on certain sports than others, and provide access to perfectly legal "enhancements" such as improved equipment, fitness consultants, coaches, doctors, facilities for optimal training, nutrient supplements etc., which could give some significant advantages to those athletes living in those countries. Some might view this as an unfair advantage. Yet this doesn't seem to affect people's interest in following sports in a negative way.

Others express concerns that enhancement will damage "the spirit of the sport", which the World Anti-Doping Agency calls a "celebration of the human spirit, body and mind."[159] Bostrom and Roache argue however, that if a limited enhancement of 10% was available to all athletes, it would not undermine the significance of biological predispositions. If all athletes increased their performance by 10% it would not change the fact that men generally are stronger than women or that adults are stronger than children.[160]

If all people, athletes or otherwise, enhanced their overall physical strength by 10%, then nobody is really better off compared to each other than before, so Agar's notion of alienation between athletes and spectators would probably not exist in a case like that. However, this example deals with a modest form of enhancement. It would be a totally different question what role sports would have if humanity became enhanced in other aspects, for instance vastly increased intelligence, mind uploading or increased longevity. Perhaps our current idea of sports would seem completely trivial to the posthuman, but that is not to suggest that posthumans won't have meaningful, shared

[158] http://cyclinginvestigation.usada.org
[159] WADA Athlete Guide, third edition, p. 4
[160] Bostrom/Roache (2008) p. 9

experiences. There is no reason to think that posthumans won't be competing against each other in some fashion.

But again, Agar's argument is not that athletic enhancement is wrong because posthuman spectators wouldn't enjoy watching enhanced sports, but because *human* spectators wouldn't enjoy it, which seems to be based on the circular notion that human mental states should be preserved for its own sake.

3.7 **Moral Enhancement**

It is possible that Agar's view of cognitive enhancement is a bit narrow. An enhancement of a person's cognitive abilities entails more than just an increase in the ability to solve problems and discover patterns (which is measured by IQ level), but also, according to many transhumanists, an increase in morality. Agar has focused a great deal on the consequences of intellectual enhancement, but almost completely overlooked the enhancement of morals, which is an important topic in the field of radical enhancement. Some would say it is just as important, or even more important, than intellectual enhancement. The application of moral enhancement may also relieve some of the concerns that Agar has for the prospect that posthumans will introduce a tyranny over un-enhanced humans. Julian Savulescu and Ingmar Persson also believe that moral enhancement is important to solve many of the conflicts and disasters that humans already deal with, believing that the human species by nature lacks a "moral psychology" in order to responsibly develop and administer advanced technology.[161]

As we saw in section 2.6, Agar sees two possible applications of moral enhancement in a society consisting of both humans and posthumans, one being the social contract, the other being consequentialism. Agar claims that both these moral applications will lead posthumans to prioritize their own well-being, at the expense of non-enhanced humans. The reason for this is the vast difference in intelligence, which will cause posthumans and humans to fail to recognize the needs of the other. What I suspect from this is that Agar may have a limited understanding of how moral enhancement can be applied. Furthermore, Agar doesn't seem to specify exactly what he thinks will be enhanced by a moral enhancement, and how, specifically how it will diminish the moral standing of humans.

[161] Savulescu/Persson (2012) p. 1

I will agree with Agar that a social contract between humans and posthumans bears little purpose: If the posthumans have a vastly altered intellectual and emotional abilities than humans, then their interests will diverge correspondingly. But this doesn't entail that posthumans will enslave humans as Agar fears. It probably means than humans and posthumans ought to live separately. However, we provide that moral enhancement means a decrease in aggressive behavior and an increase in empathic or altruistic behavior, what is the reasons that this will *increase* the likelihood of enslavement of humans?

Agar is right to be concerned about how posthumans will treat non-enhanced humans, and those who favor radical enhancement should carefully design a plan to prevent posthumans from becoming tyrannical towards other lifeforms. Provided that we find a way to diminish adverse behavior, it is more likely that non-enhanced humans will face more tyranny from each other than from those who are enhanced. Many humans have already faced enslavement and extermination from the beginning, and still do, from *fellow* humans, which is what the purpose of moral enhancement is to bring an end to.

Earlier, we saw how Agar views getting rid of diseases might be a universal value that humans should work towards. He should then also have no problem with recognizing the end of enslavement and violence as a universal value as well. As, with eliminating diseases, eliminating tyranny and aggressive behavior, not just over humans, but for other animals too, is another example of a value that Nick Bostrom probably would say requires posthumanity to realize.

Let's now focus specifically on what the concept of moral enhancement would actually entail. There could be a problem with the use word "moral" in moral enhancement, which seem to imply that it's specifically about installing a set of moral principles. However, the concept of moral enhancement actually contains a variety of different possible enhancements, and is therefore a very broad term. The term "moral" itself is an ambiguous category. Some actually argue for a specific moral programming of humans, while others envision a general increase in positive behavioral traits, and a decrease in negative behavioral traits. One such enhancement is the use of smart drugs to alter one's behavioral patterns, such as an increase in empathy, or a decrease in aggression. Another type of enhancement is through genetic engineering and selection of genes linked with altruistic inclination, and leaving out genes linked with adverse

behavior, in order to create biologically more empathic people, and less people with destructive traits, though it might be a stretch to call mere empathy the essence of morality. "Moral" enhancement is nonetheless the term used in the discourse about radically enhancing human behavior patterns. Savulescu and Persson specifically understand moral enhancement as application of pharmacological products, and genetic engineering and selection.[162]

As with the idea of human transition into super-humanity, ideas of moral purity are probably as ancient as humanity itself. Most major religions are rich with moral codes designed to elevate humanity into a higher, more prosperous sphere. Normally, creating morally perfect humans have only been attempted through indoctrination. This is practiced not just in religions but also in various political ideologies. The problem with indoctrination is that it is often ineffective in removing objections to particular moral doctrines, even if these objections are held private. For instance, the idea in the Abrahamic religions that it is sinful to have sex outside of marriage, does not really prevent some people from fantasizing about having sex with their neighbors' spouse, or even acting upon those fantasies. One might act in accordance with the moral law in public, but hold views that goes against the moral doctrines in private. Furthermore, there is always the problem of who dictates who in a case of indoctrination. Who is the ultimate arbiter of what is morally right? The masses receive the moral teachings from a priest, who in is taught by someone else, who in turn is taught by someone else, and so on.

The doctrines passed between generations rarely stay constant over several decades or centuries, but constantly mutates. One reason is simply because people remember and interpret the doctrines they have been taught differently than their predecessors. Another reason is shifting political constellations, and technological progress, which forces religious of philosophical thought systems to adapt itself. Without adaption it might face competition with other thought systems more "compatible" with current scientific knowledge and lose its influence. Richard Dawkins coined the term "meme" to refer to the way ideas spread, develop and adapt, similar to what genes does in biology.[163] In a sense, the way moral doctrines mutate, adapts and

[162] Ibid p. 2
[163] Dawkins, *The Selfish Gene* (1976)

competes with other doctrines is very organic, which is similar for the development for any idea or thought system or language.

What is the difference between moral enhancement and moral indoctrination? One characteristic of indoctrination that stands out is that it seems to be a reversible process, i.e. no matter how brainwashed an individual is in one moral doctrine, there is always a possibility that one can be persuaded to believe in another doctrine in the future. In fact, there is evidence that massive populations can change strongly held political or moral views over relatively short periods of time, for instance when ruling political groups are toppled in revolutions and war. If one engaged in a type of bio-enhancement of human morals through genetic engineering, it is likely to have a permanent effect.

In the book *Unfit for the Future*, Ingmar Persson and Julian Savulescu makes an account of the many global catastrophes that we face, many of which we as a species are directly responsible for. These catastrophes are climate change and the destruction of biological diversity one the one hand, and terrorism and weapons of mass destruction on the other. According to Persson and Savulescu, liberal democracies are not capable of dealing with these problems, and are in fact making them worse. In the case of terrorism and WMDs, liberal democracies must sacrifice its principles of personal liberty and privacy and intensify surveillance of its citizens, they write.[164]

> But it will probably prove even harder for liberal democracies to tackle the problem of climate change and environmental destruction, for in order to do so a majority of their voters must support the adoption of substantial restrictions on their excessively consumerist lifestyle, and there is no indication that they would be willing to make such sacrifices of personal welfare in order to promote the interests of future generations and non-human animals.[165]

They argue that humanity by nature lacks the moral psychology necessary to deal with these major challenges, and propose moral enhancement, or moral programming of human beings through the use of genetic modification, medication or possibly neurological implants, as a way to deal with catastrophes that might threaten our

[164] Persson/Savulescu (2012), p. 1
[165] Ibid

existence as a species. They further argue that the technology that our species now possess, should only be accessible to those sufficiently enlightened in morals.[166]

Persson and Savulescu make grim predictions about the future and believe it might be too late for humanity to undergo moral enhancement before we use our technological powers to catastrophic use, and also point out how ineffective the moral teachings of religion and philosophy have been.

> The moral improvement achieved by traditional methods of moral training in the 2,500 years since the first great moral teachers, e.g. Buddha, Confucius, and Socrates, appeared falls short, and effective means of moral bio-enhancement are not yet in the offing.[167]

They do admit that there is one major challenge of applying the various forms of enhancements we can have, namely that the same people who are the most morally inadequate need to seek out these enhancements. And why would any morally inadequate person want to seek out moral enhancement? Humans are significantly different from other animals by nature in regards to our ability to learn from experience, but it cannot be reliably predicted when or to what degree we will use our experiences to improve or own morals.[168] In fact, if one looks at the issue of climate change, which has been discussed for many decades already, little is done to deal with environmental destruction, even though it has disastrous consequences for humanity. Persson and Savulescu believes that the solution global catastrophes, like environmental destruction, does not primarily lie with creating better technology (for example renewable energy), or with political agreements. The solution lies in their opinion with improving the morality of the general population.

> For these problems have to do with such matters as people being too little concerned about others who are beyond their immediate circle of acquaintances, especially large numbers of such strangers, too much preoccupied with the present and imminent future, and feeling too little responsible for their omissions and collective contributions. […] To develop this technology requires financial resources

[166] Ibid, p. 2
[167] Ibid
[168] Ibid p. 3

> that must be extracted in ways that impose costs upon us, like taxes and restrictions on fossil fuels and on certain kinds of food, and to put this technology in use requires our willingness to adopt more costly alternatives to present practices.[169]

In order to improve people's morality, we need to have a clear definition of what that morality entails. Persson and Savulescu specifically points to a sense of justice and altruism as core properties of a moral being, and which they believe to have biological bases of an evolutionary origin. What they understand as altruism is (1) *empath*y, or the ability to put oneself in the position of others and simulate their pleasure or pain, and (2) *sympathetic concern* for someone for their own sake. Some animal studies show that at least dolphins, elephants and several primates are capable of showing this kind of altruism, Persson and Savulescu thinks.[170]

If we accept Persson and Savulescu's notion that human beings are by nature morally deficient, even though we have the ability to improve ourselves, how do they propose that moral enhancement can be done in a practical way? Why is it not enough to just give people more moral education to make people more moral? First, every generation has to be taught moral codes from scratch Persson and Savulescu believes it's not enough to simply know right from wrong. One needs a motivation strong enough that that it overrides selfish and otherwise adverse impulses. The dangers of consuming tobacco, sugary and fatty foods are widely known, yet people can't stop indulging in such things, they say. [171] To deal with such impulses they propose pharmaceutical treatment to improve our behavior and mood, many of which are already in use, for instance SSRIs[172] such as Prozac to treat depression or methylphenidate and dexamphetamine to help ADHD patients concentrate.

Another example of such treatment is the administration of the neurotransmitter oxytocin, which is naturally released during sex, childbirth, and bodily contact. Oxytocin mediates bonding between mother and child, between couples, and has also been associated with trust and generosity. In studies where participants randomly receive a nasal spray containing either oxytocin or placebo, the participants that were given oxytocin exhibited amount of trusting behavior.[173]

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[169] Ibid p. 104
[170] Ibid p. 108
[171] Ibid p. 117
[172] Selective serotonin reuptake inhibitor
[173] Kosfeld et. al. (2005)

Chemicals like oxytocin may have some downsides as well. For one thing test subjects seem to be exhibit more altruism to their own group, while being less altruistic toward outside groups. Since favor of in-groups often causes class and racial discrimination, oxytocin probably isn't a sufficient requisite for moral enhancement. [174] Another issue is that an increased sense of trust may also increase naïvety in a person, leading her to be trusting of people that might take advantage of her trustiness.

Although Persson and Savulescu do not propose that oxytocin alone underpins "morality", they do believe it stands as an example of how manipulation of biology has cosequences for morality, and that future drugs may be more precisely designed to mediate moral behavior. There are many other drugs that can improve a person's empathic properties. At the moment, the purpose of drugs like these is to make up for an ability that the patient lacks, but there might be potential for drugs not only to compensate for deficient properties, but also make them better.

There are also some possible low-hanging fruits that we can deal with in terms of bio-enhancement, for instance psychopathy, which in many instances can be genetically determined. If one can find a way to alter the psychopathic genetic trait, or somehow turn it "off", we can cure this mental disorder and possibly rid the world of a lot of problems. The challenge is to get the psychopath to go through the morally enhancing procedure, whatever it may be. It is likely that very few psychopaths will agree to it. If one were to make the procedure on unborn fetuses, one wouldn't require their consent, but we would have to wait many years for it to have an effect on global society as we would have to wait for all the psychopaths to die out.

The are some other practical problems of moral enhancement. One obvious question is that if one agrees to a procedure that will permanently enhance one's morality, i.e. genetically or otherwise programmed to only make morally good choices, can one be said to be a moral agent at all? How can an action be said to be morally good if that action is based on "pre-installed" instincts as opposed to a reason-based thought process? In a way we could be removing one of the important traits that make us different from most animals, not to mention robots, namely the ability to make rational choices based on previous experiences.

[174] Persson/Savulescu (2012) p. 120

Another important issue with implementing moral enhancement is who is qualified to determine what kind of morality the public should be enhanced to have? I believe that the same problem of who dictates who is the same in the case of moral enhancement as with religious indoctrination. If one agrees to be morally enhanced one has to be enhanced by *somebody*, and that *somebody* in turn needs to have the "right" moral values. Assuming that humans in general are morally deficient, they ought to be morally enhanced themselves before they conduct moral enhancement on others. If we design policies of moral enhancement before the moral values themselves have been enhanced, the policies of enhancement will most likely be influenced by deficient moral values. We therefore find ourselves in a paradoxical circle. Overcoming the obstacle of this paradox is probably the most difficult aspect of the implementation of moral enhancement.

Yet another issue concerning moral enhancement, which touches upon the question of what the nature of morality is in the first place, is whether someone who has undergone a radical enhancement of her morals really has morality. If a person is programmed to only have a specific set of values, can that person be said to be a moral agent at all? Would it be an end of morality altogether? Provided that we find a way to actually program the human mind to act or think in a certain way, our morals would still have to be adaptive to a developing society and emerging technologies, i.e. our enhanced moral values would still have to mutate memetically[175] like any other thought system in order to be as compatible as possible with the current level of technological sophistication. As with radical enhancement in general there probably isn't going to be a one-time enhancement that will take is from human to posthuman, or from morally deficient to morally superior, in one go. One has to expect a series of before one has reached the point where one can no longer be properly called human. Therefore, there is probably no "final solution" for moral deficiency, as an ever increasing sophistication in human intelligence, technology and society that radical enhancement allows for, opens us to yet undiscovered philosophical problems, which forces us to continually adapt our morality. There is a possibility that enhancement will branch humanity off in several different directions, with various specializations in their favored traits or moral beliefs, possibly competing against each other.

[175] Of «Meme»

What the different branches of progression will look like is speculation of course, but by studying evolution, and human society, one sees a clear pattern of groups (e.g. species or ideologies, genes and memes) splitting up and forming new groups, competing against each other. Why should the pattern be any different with posthumans?

3.8 **A Huxleyan Approach to Radical Enhancement**

One might be inclined to ask whether bioconservatives actually want to freeze the evolutionary process and keep humanity in its current state as much as possible. Agar, who I take not to be a bioconservative, but perhaps representing a middle ground between transhumanism and bioconservatism, claims that bioconservatives don't want to stop the evolutionary process. Here is what Agar has to say about the bioconservative view of human genetic mutation:

> While they do hope to ban certain ways of controlling the gene pool, bioconservatives certainly do not seek to keep the human gene pool entirely static. A global ban on posthumanizing technologies would leave our species subject to the same evolutionary pressures for change as always.[176]

So according to Agar, bioconservatism doesn't necessarily entail that humans will, or should preserve their current form for the rest of time. But it raises an interesting question: why is genetic mutation ok if it happens arbitrarily, but not ok if it is directed by human minds? What is it about human intervention into the genetic structure of a person that makes it immoral to bioconservatives? One might say that human lack the skill or the moral compass to produce the "right" kind of genetic mutation. But provided that we do acquire the skill and proper legal regulations necessary to produce the "right" kind of genetic mutations, wouldn't this be a better alternative to arbitrary mutations which may or may not give the desired traits? Hopefully, some bioconservatives have reflected on this question.

How does Agar represent a middle ground between bioconservatism and transhumanism? The way I interpret Nicholas Agar is that he seems to be against radical enhancement only when it is sudden, not when it is gradual, spanning over several

[176] Agar (2007) p. 13

generations. He seemed to imply this when he talked about parent-child alienation. He argued that if families had the ability to choose for themselves, they would only moderately enhance their children as to not sever the bond between parent and child, and meddle with the child's identity in a significant way. An example of this could be increasing the intelligence of one's offspring by, say, 20-30 IQ points, and their offspring again by the same amount. Over the span of several generations of moderate enhancements one will achieve a form of radical enhancement that doesn't alienate humans from themselves or their family. This is an example of where Agar implies that he is in favor of what we might call a "Huxleyan" approach to enhancement, and where I suggest he is more on point, in contrast to his concern for the value of human experiences. He is more explicit about this at the very end of his last chapter of *Humanity's End*.[177] This is an approach that stands in contrast to Kurzweil, de Grey, Bostrom and Hughes, in addition to Persson and Savulescu, who all appear to be in somewhat of a hurry to radically enhance humanity.

But why is radical enhancement ok if it only happens slowly, over several generations? If we have the ability to increase the cognitive capacities by 300 IQ points in one go, why wouldn't we do this? One simple answer to that is that we have little information about what the ramifications are of that kind of sudden enhancements. If everyone increased their IQ by 300 points today, we will be releasing very unpredictable genie that is impossible to put back in the bottle. The effects may be positive, but there is by no means a guarantee that it will be undividedly positive. It might as well simply unleash chaos. If done slowly, the outcomes of enhancement can be more precisely determined.

Either way, the result is that we end up becoming something different than the humans we are today, possibly a different species. Considering the current technological level, it is possible that the Huxleyan eugenics platform actually is the most probable way we will enhance ourselves. Mind uploading and negligible senescence are for the moment speculations about how far we can reach, and are technology that won't be available in the foreseeable future, if at all possible. On the other hand, humans have known how to take advantage of the evolutionary mechanisms of biology to create new strains of crops and livestock for millennia. We also know how to identify particular

[177] See quote in chapter 2 p. 33, in this paper

genes, although mapping the entire human genome has yet to be completed. This is technology that is familiar to us, that we are well within reach in our day and age to exploit in order make improvements on the human species.

Conclusion

In this paper we have looked at one criticism of radical enhancement put forth by Nicholas Agar in his book *Humanity's End*. In his book Agar makes the claim that the boundary between different species is morally significant, i.e. that experiences had by unenhanced humans won't have value to posthumans and vice versa. Based on this premise, Agar argues that radical enhancement will lead to alienation, and therefore should not be pursued.

I have countered that Agar's argument takes a circular form, rooted in a favoritism for humans, simply because that's what we are at present. It is possible that radical enhancement will alienate those subjected to it from their former nature, but that is not to say it is morally wrong. Modern humans' evolution from *Homo Erectus* to *Homo Sapiens* may have alienated us from the life of *Homo Erectus*, but it doesn't mean it was a moral loss on our part to do so. Agar needs to show why humans deserve a higher moral consideration that other being, in particular for our purposes posthumans.

Agar is however positive to a "slow" radical enhancement, similar to Huxleyan eugenics, consisting of moderate enhancements of genetic traits, one generation at a time, eventually leading to some being radically different from the starting point. He argues that this kind of development is easier to predict and more manageable, and therefore a better alternative to radical enhancement.

Consider the following analogy: Think of humanity as a clock in need of repair. A clock is a fine tuned machinery, and must be carefully assembled in the right order to work properly. If one sees enhancement as a way to "fix" humanity, one requires patience and attention to details in order for the future human to "work" properly. A sudden increase in IQ of 300 points, may be analogous to throwing a hammer into the broken clock; there may be a chance that this will fix the clock, but it probably more likely to cause irreparable damage to it. Therefor one needs to be smart about how one implements enhancements on human beings. Going "slow" and doing things in the right order, is probably not a bad idea.

Julian Huxley was in favor of a eugenics program that benefits all of humanity, not just a particular social class or race. If we want to avoid a widening of social differences, which Agar is concerned about, one needs to implement policies that lift people in the

developing world out of poverty, and prove better education etc. In addition, people should be give universal access to contraceptives and important medicines. These are measures that should be done before we allow for radical enhancements.

Human enhancement is a field that may have great potential to make the world a better place. How to implement it in a smart, well-designed way and its ramifications should be studied further.

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