Moral Bioenhancement: A Discussion of the Conceptual and Practical Considerations

by

Nicholas Schroeder

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Contents

Abstract

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Nicholas Schroeder

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In recent literature, there has been much debate about the conceptual and practical considerations for moral bioenhancement. Many authors offer competing views on what moral bioenhancement might be. Furthermore, authors argue that if moral bioenhancement were safe and effective, then how a project to biomedically enhance the moral character of humanity could look. In this thesis, I explore many of the dominant understandings and definitions of moral bioenhancement. Specifically, I examine the distinction between treatment and enhancement, a welfarist definition of enhancement and three conceptions of moral bioenhancement offered by Douglas (2008), DeGrazia (2014), and Ahlskog (2017). I then present the definition of moral bioenhancement I believe to be most defensible and plausible. I go on to defend this definition from criticisms which argue that any conception of moral bioenhancement requires a consensus on what comprises a morally desirable action. The next two sections of this thesis explore the potential goals and implementation methods of a moral bioenhancement project. I first examine the universal and compulsory version of a moral bioenhancement project favoured by Persson and Savulescu (2008) which aims to mitigate the threat of catastrophic harms to humanity. I argue that such a project would be implausible to implement and would unacceptably limit individual freedom. However, I defend a position offered by Persson and Savulescu's that argues

there are no important differences between moral bioenhancement and traditional moral enhancement in respect to free will. Lastly, I present a more plausible and defensible version of a moral bioenhancement project which relies on voluntary and partial moral bioenhancement. I outline the goal of this moral bioenhancement project as reducing all societal harms rather than merely avoiding existential threats to humanity and argue that this goal is more defensible than Persson and Savulescu's project. I then defend a voluntary and partial moral bioenhancement project from the criticism that argues any such project which relies on individuals voluntarily undergoing moral bioenhancement would fail as it would require people to be sufficiently morally motivated to begin with. I argue that there is, at least, a plausibility that voluntary moral bioenhancement could be prudentially good and that self-interested individuals could be sufficiently motivated to undergo such a project. I conclude by saying that much more research into moral bioenhancement is necessary to make such a project even a distant future possibility. Furthermore, any plausible moral bioenhancement project must be accompanied by an education program.

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Dedication

I dedicate this project to my family:

Mary, Uwe, Mackenzie, Erin

and all the others who have helped me along the way.

Thank you for your enduring love, encouragement, and support.

Introduction

In recent literature, there has been much debate about the conceptual and practical considerations for moral bioenhancement. Many authors offer competing views on what a moral bioenhancement is and how it could be used to benefit humanity. In this thesis, I attempt to untangle some of the dominant views and definitions of moral bioenhancement. I then offer what I believe to be the most defensible definition of moral bioenhancement. Following the conceptual discussion, I explore an argument that moral bioenhancement and traditional moral enhancement are indiscernible with respect to free will. I then go on to examine the goals and implementation methods of two contrasting moral bioenhancement projects: compulsory and universal moral bioenhancement and voluntary moral bioenhancement.

In Section 1, I begin by discussing the distinction between treatment and enhancement. One potential way of understanding an enhancement is to contrast it with a treatment. Treatments are often understood as interventions to restore normal human functioning whereas enhancements are interventions which aim to surpass normal human functioning. I argue that such a distinction is challenging to make because there is often no clear way to tell if an intervention is treating or enhancing an individual. Moreover, drawing a distinction between treatment and enhancement becomes more challenging when moving from physical enhancements to moral bioenhancements. I, therefore, suggest to abandon this method of understanding enhancement and instead look to an individual welfarist definition of enhancement provided by Savulescu (2006). I argue that this definition, when amended for societal welfare rather than individual welfare, is helpful to understand what a moral enhancement could be. I then go on to discuss two different definitions of moral bioenhancements: one from Douglas (2008), who argues for improving moral motivations by

reducing counter-moral emotions and a second from DeGrazia (2014) who identifies the moral bioenhancement goal of behavioural improvement and argues that the two components important for behavioural improvement are improved moral motivations and improved insight. I go on to discuss a series of objections, one such objection coming from Ahlskog (2017) who argues that rather than increase pro-social motivations, moral bioenhancement should aim to reduce self-interested motivations. Lastly, in Section 1, I address the criticism which argues that any conception of moral bioenhancement requires a consensus on what comprises a morally desirable action

Section 2 aims to explore the arguments of Persson and Savulescu who argue in favour of universal and compulsory moral bioenhancement. I present their argument and argue in support of many of their premises. However, I ultimately argue against their view on the grounds that any universal and compulsory moral bioenhancement project is implausible to implement. I go on to examine further criticisms of their argument that argue 1) universal and compulsory moral bioenhancement unacceptably limits individual freedom and 2) moral bioenhancement threatens free will in a way that traditional moral enhancement does not. I support the criticism that Persson and Savulescu's version of a moral bioenhancement project unacceptably limits individual freedom on the grounds that such a project is insufficient to accomplish its intended goal. However, I defend Persson and Savulescu from the criticism that moral bioenhancement threatens free will more than traditional moral enhancement. Lastly, Section 2 presents a criticism that moral bioenhancement bypasses the "space of reasons". The critic argues that traditional moral enhancement facilitates the understanding of moral reasons and is therefore valuable as it allows for moral development. The critic argues that moral bioenhancement does facilitate the understanding of moral reasons and is, therefore, less desirable. I refute this claim

by arguing that moral bioenhancement merely increases the influence of moral motivations in the same way as traditional moral enhancement, therefore nothing of value is lost by adopting moral bioenhancement over traditional moral enhancement.

Section 3 examines a different approach to moral bioenhancement, specifically voluntary moral bioenhancement. This section begins by discussing a more defensible goal for a moral bioenhancement project which is the reduction of all societal harms. I argue that moral bioenhancement ought to address all social harms rather than merely the existential threats identified by Persson and Savulescu. I go on to suggest that a more defensible moral bioenhancement project would rely on voluntary moral bioenhancement. I then defend a voluntary and partial moral bioenhancement project from the criticism that argues any such project which relies on individuals voluntarily undergoing moral bioenhancement would fail as it would require people to be sufficiently morally motivated to begin with. I argue that there is, at least, a plausibility that voluntary moral bioenhancement could be prudentially good and that self-interested individuals could be sufficiently motivated to undergo such a project.

I conclude by saying that much more research into moral bioenhancement is necessary to make such a project even a distant future possibility. Furthermore, any plausible and defensible moral bioenhancement project must be accompanied by an education program to improve insight along with improved moral motivations.

Section 1

This section closely examines a few of the most prominent conceptions and definitions of enhancement and what it means to be enhanced. To better understand the current conversation on moral bioenhancement, it may be helpful to understand what has been said about enhancement generally. I will begin by outlining a conception of enhancement that appeals to a baseline. I argue that trying to develop an understanding of enhancement by appealing to a baseline is conceptually difficult, especially when it comes to a moral bioenhancement. I then suggest that an amendment to the welfarist definition provided by Savulescu (2006) provides a more useful understanding of moral bioenhancement. Following this, I provide a few different conceptions of moral bioehancement and discuss the challenges and benefits to each. Although these conceptions are not an exhaustive list of the different approaches to moral bioenhancement, I believe that the views offered in this section capture the major ideas that are common in the current literature. Then, I will offer my definition of what a moral bioenhancement is. Lastly, I will respond to an objection that argues any plausible understanding of moral bioenhancement requires a consensus on what comprises a morally right action.

1.1 Understanding Moral Enhancement

One way to understand an enhancement is by contrasting it with a treatment. A treatment is often considered an intervention to a person that restores a normal level of functioning, but an enhancement is an intervention to a person in which the normal level of functioning is surpassed. The threshold separating treatment and enhancement is referred to as a baseline and is generally considered the average of all human functioning. For example, suppose the overall average eyesight in humans is 20/20 vision. A treatment would be an intervention which brings a person to this baseline and an enhancement would be an intervention which allows a person to surpass

this baseline. Eric Jeungst's 1997 article "Can Enhancement be Distinguished from Prevention in Genetic Medicine?" provides a conception of enhancement which I will refer to as the biomedical definition. Juengst offers the view that enhancements are "interventions designed to improve human form or functioning beyond what is necessary to sustain or restore good health". This definition appeals to a baseline, in this case, normal human functioning, and defines an enhancement as any intervention which allows a person to surpass that established baseline. The example which I gave before shows the biomedical definition at work. An intervention is an enhancement if and only if the intervention leaves a person with a level of function which exceeds the established baseline, so an intervention which leaves a person with vision exceeding 20/20 ought to be considered an enhancement.

A conception of enhancement that uses baselines is appealing for at least one reason: it can be useful to determine the obligations that doctors, and healthcare generally, have to individuals. On many accounts of healthcare, doctors have an obligation to help people maintain good health, but not to surpass it. For example, doctors might have an obligation to help try and restore muscles in patients with ALS. However, doctors are not expected to give a person superhuman levels of strength as that surpasses what it means to be healthy under most accounts. A problem may occur when trying to determine whether an intervention is a treatment or an enhancement and therefore if a doctor or healthcare system has an obligation to provide it. For example, Jane has an average-looking nose but decides that she would look even better with an above-average nose. There is nothing biomedically wrong with the nose she currently has, and such an intervention would be considered an enhancement. Therefore, doctors would likely not have an obligation to provide this intervention. However, it is possible that Jane believes that her original nose makes her unattractive. This sense of unattractiveness significantly impacts her

mental health and her overall health begins to suffer as well. She does not eat as much as she should, she stops exercising and becomes sick. It seems at least possible that an intervention to improve her appearance would actually be a treatment as it would dramatically improve her biomedical functioning. In this case, doctors may have an obligation to perform the intervention. Another example might be Josh who is born with a pituitary gland deficiency. Due to this deficiency, he is very short. Although there is nothing threatening his health, his quality of life might be diminished. For example, Josh might struggle to attract a mate or be unable to participate in competitive sports. In this case, a healthcare system is likely obligated to provide growth hormone therapy to Josh. In contrast, Josh's brother Patrick is just naturally short. He wants the same growth hormone therapy as his brother but since there is nothing biomedically wrong with him other than unfavourable genetics, he is denied the therapy as it would be an enhancement. These examples show that an identical treatment can be considered both a treatment and enhancement depending on the circumstances. Therefore, the distinction between treatment and enhancement can often be difficult to make.

The problem of baselines becomes more complicated when moving from physical enhancement to moral bioenhancements, specifically in determining what the normal human levels of morality are. Ignoring differing moral theories for now, suppose we use a utilitarian perspective that the best action is one that causes the most good for the most people. Mark donates a small percentage of his pay to charity but otherwise lives a self-interested life thinking mainly of himself. Comparatively, Jack donates all that he does not immediately need. Further still, Jacob gives no thought towards others at all. Which person is the moral average? It might be clear that one person is morally better, but consider that all people may fall differently on a moral spectrum. Suppose a person underwent a serotonin therapy to increase their empathy for

others. If a person underwent such an intervention, at what point does he reach and then surpass the moral average of all people? It becomes very challenging to draw a line between treatment and enhancement. Therefore, a conception of enhancement which appeals to a baseline is unhelpful when determining which interventions are enhancements or treatments with respect to morality.

One way of moving on from this problem is to disregard the distinction altogether. The distinction between treatment and enhancement is conceptually difficult when focusing on biomedical functioning and becomes even more difficult when applied to moral enhancement, although for the biomedical definition there seems to be at least some purpose to the distinction when determining the obligations of a public health system. However, the goals of moral bioenhancement are often to improve the social interactions between individuals and to improve society generally. It is likely in the best interest of society if moral bioenhancement interventions are made available to all. Therefore, a treatment and enhancement distinction does not seem appropriate when applied to moral bioenhancement.

Another definition of enhancement comes from Savulescu in his 2006 article "Justice, Fairness and Enhancement". Savulescu gives an account of enhancement which he calls the "welfarist definition of human enhancement," which states that an enhancement is "any change in the biological psychology of a person which increases the chances of leading a good life" (Savulescu, 2006). Simply put, an enhancement is any intervention to a person that increases the welfare of that person. A benefit of this definition is that it avoids the distinction between enhancement and treatment altogether. Since any intervention that improves the quality of life of a person is an enhancement, there is no need to distinguish between them.

A problem with the welfarist definition, if taken as a definition of moral enhancement, is that an intervention is considered an enhancement if it leads to the person increasing their own well-being without necessarily regarding the well-being of others. For example, Mason is a very greedy executive and brings about happiness to himself by gaining wealth, often to the detriment of others. He chooses to lay-off hundreds of employees to save a few dollars. Mason decides that although he is already very selfish, the tiny amount of altruism he does have is likely costing him money. He, therefore, decides it is best to undergo an intervention to eliminate his capacity for altruism altogether. Under the welfarist definition, this sort of intervention would be considered an enhancement. However, not all enhancements are moral enhancements.

The goals of any moral bioenhancement project, including the one by Savulescu to be discussed later on in this paper, require moral bioenhancements to better the agent in morally desirable ways from a pro-social standpoint or to add to the overall moral betterment of humanity as a whole. However, a simple amendment to the welfarist definition can leave us in conceptually better shape for defining a moral bioenhancement. If we change the goal of the welfarist definition to increase welfare to society rather than to the individual, then we can understand a moral bioenhancement thusly: a moral bioenhancement is any intervention which increases a person's tendency to act in regards to the welfare of society or its members. Consider Mason again. He is strongly motivated by greed but sees there is suffering all around him. He knows that he not only could, but should, help others, but also knows that every time he is presented with an option that will increase his personal well-being, he will take it. Mason decides the best course of action is to morally bioenhance himself. Mason undergoes oxytocin therapy to increase his capacity for altruism. Now, when presented with an option that favours the many instead of himself, he chooses to forego his own excessive self-interests. Society is better off

because of it. This sort of intervention would be considered a moral bioenhancement under this new version of the welfarist definition. For the purposes of this paper, the goals of the moral bioenhancement project will be aligned with the welfarist definition of moral bioenhancement, specifically for an overall increase to the welfare of a society or its members.

As previously noted, the idea that a moral bioenhancement is an intervention to a person which increases their tendency to act in regards to increasing the welfare for society is common in the moral bioenhancement literature. Thomas Douglas (2008) seems to agree with this conception of a moral bioenhancement when he gives his definition: "a person morally enhances herself if she alters herself in a way that may reasonably be expected to result in her having morally better future motives, taken in sum, than she would otherwise have had". The main idea of Douglas' definition of moral bioenhancement is that it involves bringing about morally better motives. These sorts of motives are psychological states that increase the likelihood of a person acting morally better (Douglas, 2008). Interestingly, Douglas stays away from determining what the moral goodness of a motive is. He says that he will "remain neutral between the views that the moral goodness of a motive is determined by the sort of act it motivates". For instance, a utilitarian would believe that a moral bioenhancement is the addition of a motive which increases the likelihood of a person acting for the benefit of the many. However, a deontologist might believe that a moral bioenhancement is the addition of a motive that moves a person to act from a sense of duty. Furthermore, Douglas (2008) says that the moral goodness of motivations might be determined by the role one fills. A role of a judge requires one to be motivated by the desire to promote justice and therefore a morally better motive for a judge would be one that increases the chances of acting justly. A parent should be motivated by love and caring and may consider a

morally better motive one which increases empathy and compassion. The judge, however, might not consider empathy the central moral good for his role in society (Douglas, 2008).

Douglas (2008) has a solution to this problem. He believes that instead of seeking to add morally better motives, we should attempt to reduce what he calls "counter-moral emotions". Counter-moral emotions run contrary to what people would generally consider moral motivations. For example, racial bias is a counter-moral emotion, as is aggressiveness. Douglas argues that a reduction of these counter-moral emotions would generally be agreeable to all to constitute a moral bioenhancement. A problem with Douglas' solution to this issue is that it leaves him with the admittedly weak claim that moral bioenhancements consists solely of reduction of counter-moral emotions (Douglas, 2008). I believe that this sort of claim is possibly sufficient, but not useful nor necessary when giving a definition of moral bioenhancement. To see why it is perhaps sufficient but generally unhelpful, consider an objection raised by Melo-Martin and Salles (2014) that describes a racially biased judged named James. He unfairly gives out harsher sentences to racial minorities. James also recognizes the role of a judge is to be fair and impartial and decides the best way to reduce his racial bias is to undergo moral bioenhancement intervention. After the intervention, the counter-moral emotion is gone, and James now treats all cases as equal. Fairness in the courtroom is improved. However, James is also overly aggressive and selfish. He abuses his wife at home and spends all of his salary on unnecessary items for himself. Melo-Martin and Salles (2014) argue that James is not any morally better after the intervention when they say that even though "he is somewhat less racist, it may not justify a change in our evaluation of his character and behaviour in general". I disagree with the claim that Melo-Martin and Salles are making here; however, I do believe that they are perhaps partly correct. Douglas is right that, in at least this one way, James *is* morally

better. Therefore, Douglas' claim that James is morally bioenhanced is plausible. However, as Melo-Martin and Salles seem to imply, it does not seem useful to limit moral bioenhancement to the reduction of single counter-moral emotions. For instance, for James to be an overall moral person, many different interventions would have to be done such as reducing his excessive self-interest and aggressiveness. This leads me to the next point that Douglas' conception of moral bioenhancement is also unnecessary.

Consider the welfarist definition of moral bioenhancement again. A moral enhancement is an intervention which improves the overall welfare of a society or its members. Thus, the goals of a moral bioenhancement project should be to promote interventions that lead to pro-social outcomes. I think that Douglas has a similar idea but believes that this can only be done through small reductions to generally agreeable counter-moral emotions. My suggestion, however, is: instead of reducing counter-moral emotions, moral bioenhancement can add 'pro-social motivations'. If this is true, then Douglas' conception of moral bioenhancement is unnecessary. A pro-social motivation would be a motivation to act in the best interest of society.

Moral bioenhancement could be the addition of pro-social moral motivations. Pro-social motivations are moral motivations to act for the betterment of society. An objection to this view is that people often are not motivated by the betterment of society generally, even when acting morally. For example, suppose Jane has an elderly neighbour and offers to shovel her snowy walkway. It seems unlikely that Jane is motivated by 'the betterment of society' rather than the simple betterment of her neighbour's life. However, there are many reasons that micro social actions are morally valuable. For example, they promote utility, kinship and fulfillment of duties to others. There are also many macro social actions that are also morally valuable. For example, Jane might campaign the government for improved women's rights. Therefore, it seems that a

general ‘pro-social motivation’ to act in the best interest of society is insufficient for a moral bioenhancement to work in the intended manner. A solution to this problem is that instead of pro-social motivations for the betterment of society, a moral bioenhancement could be considered a motivation to bring about pro-social outcomes. This conception of a moral bioenhancement, therefore, captures both the macro social actions (campaigning the government) and the micro-social actions (helping a neighbour in need).

A second objection to my view that moral bioenhancement could be the addition of pro-social moral motivations is that even if someone is pro-socially motivated, it may be challenging for them to know what is the most pro-social action to take in a given situation. As such, a moral bioenhancement that does not leave an agent with better behavioural guidance is problematic. Reducing a counter-moral emotion leaves a clearer understanding of how a person should act. To help show this objection, consider Paul and Tim. Paul is very aggressive and, when given an option for violence, he will take it. Paul decides it would be better for his family and friends if he was not overly aggressive anymore. He, therefore, decides to undergo moral bioenhancement to reduce his aggressiveness. Now when faced with a choice between violence or non-violence, he more often takes the non-violent option. In contrast, Tim is morally bioenhanced to have moral motivations towards producing pro-social outcomes. Suppose that he must decide if he should give his spare change to a homeless person on the street. What is the best way for him to act pro-socially here? The objection is that Paul has a clear best action to take – whatever is the least aggressive. However, it is less clear what the best action for Tim to take is. Giving money might perpetuate the homeless person’s addiction but not giving might deny the homeless person the resources he needs to survive. Thus, being morally motivated to produce pro-social outcomes leaves Tim unsure of what the most moral action to take is. A response to this objection is that

increased pro-social motivations still allows for attributes like pre-existing knowledge, a desire to learn and common sense to affect one's decisions. For example, Tim may realize that the risk of giving money with the potential to perpetuate an addiction outweighs giving money with the potential of positive outcomes. Therefore, Tim might choose not to act at all. By omitting action altogether, Tim is still motivated by producing pro-social outcomes and decides to take the most moral action. Moreover, a pro-social motivation might cause Tim to seek out further information so when next presented with a similar situation, he knows the best action to take. Therefore, my account of moral bioenhancement is an account of motivation to act according to the insight that a person already has.

This idea of motivation is found not only in Douglas (2008) but also in DeGrazia (2014). DeGrazia (2014) states that an enhancement is "any deliberate intervention that aims to improve an existing capacity or create a new capacity in a human being". DeGrazia believes that improvements which represent an overlapping consensus among reasonable moral perspectives count as a moral enhancement. This means that if an intervention improves or creates a capacity that represents a reasonable moral perspective, it is a moral enhancement. For DeGrazia there are three different areas that are possible to improve. Firstly, moral motivation can be improved. Moral motivation is the desire for a person to do what they know to be the right thing (DeGrazia, 2014). For example, I might know that having long showers is wasteful and deprives others of clean water, but I may not be motivated to act on that knowledge. For instance, I could just not care for the well-being of others at all. Or, I perhaps I do care, but I care about myself more. In either case, I understand what the best moral action is, but do not have the moral motivation to actually do it. Secondly, insight can be improved upon. I can improve my understanding of what the right action is (DeGrazia, 2014). I can learn more about the impact my long showers are

having on the environment and understand that it is immoral to be so wasteful. Lastly, there is behavioural improvement which DeGrazia (2014) defines as “greater conformity to social norms and therefore greater frequency of right action”. In essence, behaviour improvement is about knowing what is right, being motivated to do what is right and therefore behaving in a morally desirable way. For DeGrazia, the goal of moral bioenhancement is behavioural improvement, and motivational and insight improvement are instrumental in achieving it.

I agree with DeGrazia when he says that the goal of moral bioenhancement is behavioural improvement. This must be true. What good is moral bioenhancement if it does not intend to produce morally better actions? As I have already argued, the behavioural goal of moral bioenhancement is to create pro-social outcomes. The way to achieve this goal is through improved or newly created moral motivations. In order to see the desired behaviours, motivation to act in desirable ways must be improved. The last part of DeGrazia’s formulation is improved insight. I do not believe that insight improvement can be directly created through moral bioenhancement. Additional means such as education and experience are required for improved insight. In addition, there could be an argument that cognitive enhancement – the enhancement of mental functioning capacities - can lead to improved insight but that discussion is not in the scope of this project. However, improved insight can be indirectly created through moral bioenhancement. A sufficiently morally motivated person might understand their lack of insight is affecting their ability to make the best moral choice and therefore might seek it out. That said, the insight itself must still come from external sources.

An objection to DeGrazia might be that motivational and insight improvement are neither sufficient nor necessary for behavioural improvement. Behavioural improvement can be created without any improved insight or morally better motives. Consider traffic laws: people are often

not motivated to obey the speed limit from a sense of moral obligation to the safety of others or understanding of the dangers of speeding. Rather, they are motivated because they do not want a speeding ticket. Another form of behavioural improvement is social shaming. A person might choose to not post racist things on social media, not because they have a moral objection to it or an understanding of the impact it could have on the target group, but because their peers will think less of them and they might face poor treatment as a result. This external behavioural improvement is often effective enough to cause people to act in the desired way. However, there might be limits to this form of behaviour improvement. There are few laws that call for pro-social behaviours such as helping others or supporting progressive social policies. Moreover, social pressure might not be enough to actually cause desirable moral behaviours. For example, a morally right action could be telling the truth. However, if it is likely that nobody will discover that you lied, there might not be sufficient pressure on you to act morally. Therefore, moral motivational and insight improvement might actually be necessary for some desirable pro-social behavioural outcomes. Even if they are not, it is likely that they are a more effective method of creating pro-social behavioural outcomes.

The second concern is that motivational and insight improvement are not sufficient for behavioural improvement. This is to say, even if it is agreed that they are necessary for at least some behavioural improvement, there is no reason to think they actually will lead to it. The main reason for this conclusion relates to motivations that are contrary to the desired motivation. For example, I might have pro-social motivations but also have self-interested motivations. I want to help others by donating to charity, but I strongly want a new, expensive computer and my resources are limited. In this case, the motivation to fulfill my own excessive self-interest may supersede my pro-social motivation. Although this sort of situation is possible, it is not a reason

to give up on motivational and insight improvement. Generally, people who are motivated to act and have an understanding of how to act will act. There are always cases where people have stronger contrary motivations but the purpose of moral bioenhancement is to improve upon or create new motivations for the situations where the lack of moral behaviour is due to a lack of moral motivation. Moreover, even if in some instances a person might have stronger motivations to act in their own self-interest, improved motivations likely will lead to more cases of improved behaviour than there would have been otherwise. This is enough reason to agree with DeGrazia that motivational improvement and insight improvement are, at least, important for overall behaviour improvement.

An objection to moral bioenhancement which focuses on increasing pro-social behaviour comes from Ahlskog (2017) who argues that moral bioenhancement should focus on decreasing self-interest rather than increasing pro-social behaviour, which Ahlskog refers to as "other-regarding". Ahlskog (2017) argues that when people regard others, it is either in a "wide sense" or a "narrow sense". The wide sense centres on helping all of humanity equally. An example of this would be donating money to a charity that can help the most people possible, regardless of who or where they are. The narrow sense is that we should help our immediate in-group before helping others. Ahlskog goes on to argue that if we increase pro-social motivations, we necessarily increase our wide sense or narrow sense of other-regarding behaviours, but not both. As the narrow sense increases, the wide sense suffers and vice versa. He explains this when he says "that if we modulate emotions that drive narrow other-regarding motivation, this will have adverse effects on prosocial behaviour directed at the wider circle…Similarly, if we increase regard for the wider circle, less resources would be spent on the narrow group" (Ahlskog, 2017).

The worry is that an individual only has so many resources to give, and we necessarily have to choose between the wide and narrow sense. If we choose one, the other suffers.

Ahlskog's (2017) solution to this problem is the following: rather than increasing pro-social motivations, we ought to decrease self-interest. Once self-interest is decreased, the other-regarding sentiments will both increase. I refer to this approach as the "Let the chips fall where they may approach" as it hopes that there is enough diversity between people's pre-existing moral sentiments to cover both senses of other-regarding behaviours. However, it seems unclear if there is a problem to begin with and, if there is, how Ahlskog's solution solves it.

Ahlskog (2017) believes 1) moral bioenhancement forces us to choose between directing pro-social motivations at either the wide or narrow sense. Moreover, he believes 2) because of claim 1, it is necessary for either the wide or narrow sense of other-regarding behaviour to suffer as the other increases. I do not believe his second claim is true. To understand why, consider his first claim. He argues that moral bioenhancement that increases pro-social motivations necessarily leads to someone making a choice between the wide or narrow sense. However, although Ahlskog does not say it, he must be referring to everyone collectively choosing between the wide or narrow sense. This must be true because his second claim relies on it. For the wide sense to suffer, it must be true that our collective pro-social motivations are directed toward the narrow sense or vice versa. Again, this must be true because his solution is to decrease self-interest in order to allow people to be motivated by their pre-existing moral sentiments. He seems committed to the view that people are already diversified between both the wide and narrow sense. It, therefore, seems strange to also hold the view that those diverse moral motivations cannot be enhanced without causing harm to either the wide or narrow sense. If half the population have the moral insight that far-reaching utilitarianism is morally desirable,

while the other half believes that they ought to help their own community first, then broadly increasing moral motivations should result in benefits for both the wide and narrow sense.

After considering the conceptions of enhancement from earlier in this section and the definitions of moral bioenhancement given later, I am now ready to formulate my own definition of moral bioenhancement. A moral bioenhancement is any intervention that improves a person's pre-existing motivations or creates new motivations for them to bring about pro-social outcomes. This definition focuses only on moral motivations. This is because moral behaviour relies on insight, too, which is something that cannot be gained through moral bioenhancement. Moral motivations may cause a person to seek out improved insight, but moral bioenhancement itself is only the new or increased moral motivation to bring about pro-social outcomes.

Moral Disagreement

The last objection I wish to discuss is that any definition of moral bioenhancement requires a consensus on what comprises a morally right action. Consider how individuals with different moral beliefs would act in the famous thought experiment of the fat man on the bridge. The thought experiment postulates that a train is heading towards a group of people walking down the rail. Overhead on the bridge, there is a fat man whose size is sufficient to stop the oncoming train if pushed onto the track below. A bystander who pushes the man onto the tracks will surely kill him but will save the lives of the group on the track. Doing nothing will spare the fat man but the people below will die. Depending on your moral beliefs, you will have different positions as to what is the morally correct action to take here (Rampton, 2017). The consequentialist might defend the view that it is morally right to push the fat man off the bridge, whereas the deontologist would defend the view that it is morally wrong. Therefore, a pill that made it increasingly likely that you pushed the fat man would only be a moral bioenhancement if

you already held consequentialist moral beliefs (Rampton, 2017). Chan and Harris (2011) have a similar worry when presenting the case of Jasper Schuringa. They say that "Schuringa was the hero of Flight 253 who on 26 December 2009 attacked and subdued a would-be hijacker, harming him but potentially saving the lives of everybody else on the plane…it might well have been that a serotonin-induced aversion to inflicting direct harm would be paralysed Schuringa into inaction, with potentially disastrous consequences for Flight 253's other passengers". The case of the fat man shows that a pill is only a moral bioenhancer if there is a consensus that the resulting actions would be morally desirable. The case of Schuringa shows that even if a consensus on what a pro-social action is could be reached, then the desirability of that action remains context-dependent. However, a pill that determines what action a person will take in a given situation is not a moral bioenhancer, at least not according to the view I favour. Recall that I define a moral bioenhancement as an intervention that increases the moral motivations to bring about pro-social outcomes. Your belief on what action will best bring about pro-social consequences will be formed by whichever moral theory you align yourself with. Thus, the consequentialist might believe it is pro-social to push the fat man and the deontologist might believe it pro-social to respect universal laws such as never taking an innocent life. The view on moral bioenhancement I favour does not determine what sort of action a person will take, such as acting less aggressively all the time. Rather, it merely increases the likelihood of a person being motivated to act pro-socially while still affording them the opportunity to consider the relevant context in which they choose their behaviour.

Another criticism of moral bioenhancement is that I am presupposing what ought to count as a moral action. People often condemn the beliefs and actions of racists, bigots and terrorists as immoral furthermore, the goal of moral bioenhancement might be to "improve"

these possibly immoral beliefs. The critic might respond by asking, “immoral according to who?” and wonder if I am presupposing that my own moral beliefs are more justifiable than the racist or terrorist. However, this is not the right question to ask. I am not arguing that the racist necessarily holds moral principles or accepts moral rules that are inferior to my own, but rather that they apply their moral rules to empirically mistaken assumptions. For example, consider Nazi Germany. The Nazis believed that Jews were inferior to the true German race. They purported to believe that the Jews were inherently evil, plotted against the German populace, had unclean blood and were sub-human. The Nazis concluded that because of these “facts”, the genocide of Jews would not be killing innocent people; in their twisted world view Jews were neither innocent nor people, and therefore killing them would be pro-social. Of course, the Nazis’ factual beliefs were catastrophically mistaken. This is not to say that catastrophic harms such as genocide are only caused by mistaken factual beliefs, but that, if the Nazis did not truly believe that Jews were sub-human and evil, then their genocidal actions were hypocritical. This is the type of mistake I refer to when I claim that racists, bigots and terrorists are often mistaken. Another example of this reasoning is the southern United States during times of slavery. If southern slave owners were asked to justify the institution of slavery morally, they would likely appeal to the same moral principles as the opponents of slavery. They would argue, for example, that slavery promotes the happiness of all people. The moral underlying moral standards that the southerners held were not different from the moral beliefs that we hold today. We both desire to treat people as equal, act in the welfare of others and so on. The difference is who we consider people and thus deserving of our equal treatment and improved welfare. The southerners believed that Africans were empirically different from and inferior to them. They appealed to characteristics such as skull shape, behaviour, and skin colour and claimed that Africans were

actually sub-humans and therefore moral rules protecting all human beings did not apply to them. Of course, this description vastly oversimplifies the complexity of slavery, but the point I am trying to make is that immoral actions are mistaken because either they are applied to assumptions which are empirically mistaken or that their actions are hypocritical to the moral underlying moral standards of those who hold them. Thus, to produce morally justifiable behaviour, a moral bioenhancement program would require an adequate education program to provide morally enhanced individuals with relevant and correct empirical beliefs.

In this section, I began by discussing the conceptual differences between a treatment and an enhancement. I went on to explain two different versions of moral bioenhancement and argued that moral motivations are important, but improved insight is also important for improved moral behaviour. Furthermore, I defended the view that moral bioenhancement ought to improve pro-social motivations from the criticism that it actually ought to reduce self-interest. I then presented my own definition of moral bioenhancement and discussed two objections to a conception of moral bioenhancement which focuses on improving moral motivations to increase the likelihood of someone bringing about pro-social outcomes. These objections argued that any plausible moral bioenhancement definition requires a consensus on what comprises a morally right action. In the following section, I will discuss Persson and Savulescu's (2008) compulsory and universal moral bioenhancement project and argue for their claim that moral bioenhancement and traditional moral enhancement are indistinguishable in respect to free will.

Section 2

2.1 Persson and Savulescu's Universal and Compulsory Moral Bioenhancement Project

In "The Perils of Cognitive Enhancement and the Urgent Imperative to Enhance the Moral Character of Humanity*",* Persson and Savulescu (2008) argue that cognitive enhancement is accelerating humanity's ability to develop methods of inflicting catastrophic harm on ourselves, such as the deaths of millions of people. Persson and Savulescu (2008) state that "cognitive enhancement in human beings has taken the shape of education, or knowledge which has been transmitted from earlier generations to later ones". An example of ways catastrophic harm could be caused is the use of nuclear or biological weapons or climate change (Persson & Savulescu, 2008). Persson and Savulescu (2008) refer to cognitive bioenhancement as biointerventions that expand our cognitive abilities. Some of the current possibilities for cognitive bioenhancement are genetic memory enhancement, memory enhancing drugs, and other psychopharmaceuticals to improve cognitive performance, such as modafinil and Ritalin. Moreover, as current cognitive limits are surpassed, it becomes "increasingly possible for small groups of people, or even single individuals" to cause catastrophic harm. Therefore, they believe that moral bioenhancement is necessary to guide the cognitive progression of humanity and avoid causing catastrophic harm. Persson and Savulescu (2008) say that "martial arts have for centuries given people superior powers for fighting. But is has been an integral part of many of the oriental martial arts to *morally* educate the combatant in the deployment of this power". They go on to say that "in the same way, moral enhancement should accompany cognitive enhancement, since the latter is a means that could be put to both good and bad uses" (Persson & Savulescu, 2008). Their last claim is that moral bioenhancement "should be obligatory, like

education or fluoride in the water"; they argue that "safe, effective moral enhancement would be compulsory" (Persson & Savulescu, 2008). They believe all it would take is a single individual or group to cause catastrophic harm, so, to eliminate the threat altogether, moral bioenhancement would have to be universal and compulsory.

A summary of Persson and Savulesu's (2008) argument is as follows:

1) Current cognitive bioenhancement techniques are accelerating humanity's ability to develop methods of causing catastrophic harm.
2) As cognitive abilities are increased by cognitive bioenhancement, methods of causing catastrophic harm become more powerful and more accessible.
3) More accessible methods of causing catastrophic harm mean that it is increasingly likely that small groups or individuals, as well as nation states, would have access to methods of inflicting catastrophic harm.
4) Current moral capabilities and traditional moral enhancement are unfit to manage the threat posed by cognitive bioenhancement.
5) Therefore, moral bioenhancement is necessary to guide humanity's new cognitive abilities for good rather than ill.
6) Furthermore, because there is always a risk for a single individual to cause catastrophic harm, moral bioenhancement must be universal and therefore compulsory.

In the following section, I first examine these claims. Secondly, I present and defend Persson and Savulescu's argument from a possible criticism that argues there is likely not an urgent threat to humanity and therefore the necessity of their moral bioenhancement project is questionable. Furthermore, I criticize Persson and Savulescu by arguing that their universal and compulsory moral bioenhancement project unacceptably limits individual freedoms. Secondly, I

present Persson and Savulescu's argument that there is no important difference between moral bioenhancement and traditional moral enhancement with respect to free will. I defend them from the critic who challenges this lack of important difference.

Persson and Savulescu (2008) state that traditional cognitive enhancement is the compounding of knowledge over time through education and the general passing down of information. Cognitive bioenhancements are interventions which improve our abilities to use that knowledge, such as genetic memory enhancement or drugs that increase focus such as Ritalin. They argue that 1) the addition of cognitive bioenhancement to traditional cognitive enhancement will cause methods of producing catastrophic harm to become more accessible and more damaging (Persson & Savulescu, 2008). Furthermore, they believe that 2) the increased accessibility of methods of causing catastrophic harm means that small groups of individuals will be able to cause catastrophic harm. I believe that both of these claims are true. Consider the traditional methods of inflicting catastrophic harm to people. Throughout history, methods of catastrophic harm often required large numbers of people in the form of vast militaries and orchestrated efforts by ruling parties. For example, the Crusades in the Medieval period caused the deaths of hundreds of thousands of people. This is a clear example of catastrophic harm but was brought on by hundreds of years of war and involved millions of soldiers. It took mass efforts to create catastrophic harm. As cognitive development continued, methods of causing catastrophic harm became more powerful and more accessible. Weapons developed to the point that a single government and a relatively small group of actors could destroy entire cities, such as the in the bombings of Hiroshima and Nagasaki during the Second World War. Once destructive technologies exist, it would only take a few individuals, or perhaps just one, to cause catastrophic harm. Currently, there are nuclear and biological weapons that could leave entire regions

uninhabitable for generations and all it would take is a single terrorist or small group to carry out these potentially devastating actions.

Another form of creating catastrophic harm is environmental disaster and climate change. Humanity has witnessed the aftermath of nuclear disasters such as in Chernobyl and Fukushima or the Deepwater Horizon oil spill in 2010. Furthermore, oil production and coal burning are causing rampant destruction to the environment. These methods of creating catastrophic harm are only possible due to technologies that were developed by using traditional cognitive enhancement. In the past, causing such far-reaching harms would take coordinated efforts by all of humanity, or likely could not have been possible. However, now a single profit-driven energy company CEO can cause catastrophic environmental harm by adopting practices to dump toxic waste into the ocean or poison the air. The worry is that the power and accessibility to cause catastrophic harm will accelerate if cognitive bioenhancement becomes commonplace.

An objection to this argument claims that small groups of people have always had the ability to cause catastrophic harm to others easily. Examples include explorers bringing diseases to the New World and decimating indigenous populations, or humans living in unsanitary conditions leading to global epidemics such as the Black Death and Spanish Flu. However, these forms of catastrophic harm were generally due to a lack of knowledge, rather than because of it. There is always a risk of our actions causing catastrophic harm due to our general lack of knowledge. For example, previously unknown ‘super bugs’ caused by an overuse of antibiotics pose a serious risk to humanity today. Persson and Savulescu’s claim is that as our cognitive abilities increase the power of technologies, the risk of them causing catastrophic harm also increases. It is not a lack of knowledge that causes coal plants to continue to cause harm, but rather the necessity for energy requirements, reckless pursuit of profits or denial of the impact of climate change.

Persson and Savulescu's (2008) area of concern is the technologies that are knowingly capable of causing harm or where there is knowledge of substantial risk. Therefore, their claims that cognitive enhancement allows for more destructive and accessible methods of causing catastrophic harm and that the increased accessibility to those methods allow for single individuals to cause catastrophic harm appear plausible.

Persson and Savulescu's (2008) argument for moral bioenhancement so far looks promising. There is good reason to believe that cognitive enhancement will lead to an increased risk of individuals acquiring access to methods of causing catastrophic harm. Persson and Savulescu's next claims are that 1) current moral capabilities and traditional methods of moral enhancement are unfit to manage the threat posed by cognitive bioenhancement and, therefore, 2) moral bioenhancement is necessary to guide humanity's new cognitive abilities for good rather than producing harm. In the following paragraph, I will address a potential criticism which questions the legitimacy of their claim that current moral capabilities and traditional methods of moral enhancement are insufficient. The critic might suggest that a statistical trend towards an overall reduction in global violence suggests that our current moral capabilities are sufficient for avoiding existential threats such as nuclear annihilation. However, I respond to the critic by arguing that a trend towards reduced violence does not negate the threat of catastrophic harm. Therefore, Persson and Savulescu might actually be correct to argue that moral bioenhancement is necessary to avoid catastrophic harm.

Persson and Savulescu's (2008) first claim is built upon the idea that insufficient moral capabilities are evolutionarily hardwired into us. They offer the example of racism as immoral behaviour and state that "people encode the race of each individual they encounter, and do so via computational processes that appear to be both automatic and mandatory". They argue that

humanity's hardwired dispositions are "a by-product of cognitive machinery that evolved to detect coalitional alliances" (Persson & Savulescu, 2008). For instance, people might naturally tend towards helping members of their own race before helping those of a different race. The tendency toward racial preference may have been useful for determining outgroup members when humans lived in small hunter-gatherer societies, but it is problematic in modern society (Persson & Savulescu, 2008). Persson and Savulescu fear that these hardwired dispositions are problematic, as our evolutionary character is to be suspicious or even hostile towards others and take actions towards the preservation of ourselves or immediate in-group. Therefore, Persson and Savulescu believe that our current moral motivations are strongly affected by these evolutionary dispositions are therefore unfit for the future of cognitive enhancement because they may guide us towards unnecessary and potentially harmful hostility towards others.

Persson and Savulescu (2008) admit that although we do have non-biomedical forms of enhancement such as "becoming morally better by training and educating ourselves", traditional forms of moral enhancement are insufficient for guiding cognitive enhancement, as they "require that we are already to a significant extent morally motivated, so it is likely to be ineffective in the case of those who are wholly morally depraved or corrupt" and traditional moral enhancements "often operate comparatively slowly if their effectiveness can be measured by how little moral progress there has been in the last 2,500 years". In essence, they argue that traditional moral enhancement requires pre-existing moral motivations. Moreover, even if traditional moral enhancements were effective at eventually providing proper moral guidance, the imminent threats of catastrophic harm due to misused cognitive enhancement are so urgent that humanity does not have time to wait for the results of traditional moral enhancement. Therefore, they

conclude in their second claim that moral bioenhancement is necessary to avoid catastrophic harm.

A critic of Persson and Savulescu might argue methods of causing catastrophic harms are becoming more destructive and accessible. However, current moral capabilities are fit to manage the threat posed by cognitive enhancement. The critic might suggest that if our moral capabilities were unfit, rates of harms would increase as cognitive capabilities increased. For example, as weapons become more powerful and more accessible, it should become increasingly easy and therefore likely for a state, group or even individual to cause catastrophic harm. The critic might challenge Persson and Savulescu by pointing out that the world is currently the safest it has ever been. Statistically, rates of interpersonal violence and conflict are steadily decreasing (Roser, 2019). Similarly, renewable energy use is steadily growing globally (Ritchie & Roser, 2019). This is the opposite of what we should expect to see if our moral capabilities and traditional moral enhancement techniques are insufficient for guiding our cognitive enhancement. Humanity already has the means to cause catastrophic harm and methods of causing such harm are already reasonably accessible. Terrorist groups and hostile nations have access to weapons of mass destruction and environmentally damaging sources of energy already exist. However, the global trend is towards increased safety and environmentally friendly energy production. Therefore, the critic might conclude, it seems that either our current moral motivations are able to guide cognitive enhancement morally or they are being sufficiently improved to do so.

The likely response from Persson and Savulescu would be the following: the fact that the world is becoming statistically safer and more environmentally conscious does not negate the present existential threat of catastrophic harm. Even if humanity is trending in the right moral direction, it is not doing so quickly enough. As they have already argued, traditional moral

enhancement is a slow process and urgent change is required. Climate change is threatening humanity and a change in moral behaviour must happen now. Support for total reliance on renewable energy in 50 years is not going to prevent the irreversible damage that the unregulated energy sector is doing to the environment today. Moreover, even if the likelihood of advanced weapons causing catastrophic harm is decreasing, it will never reach zero. If nuclear and biological weapons become exponentially more powerful than they are currently, then even an infinitesimal chance of total annihilation justifies universal and compulsory moral bioenhancement.

I find Persson and Savulescu's urgency a reasonably defensible response to the current state of the world. However, there is still a potential problem with their universal and compulsory moral bioehancement project: although their response to the urgency is reasonable, it would be very difficult or even impossible to implement. Moreover, a critic may argue that compulsory and universal moral bioenhancement might be unacceptable as it unjustifiably limits freedom. I will argue that potential losses of freedom could be justifiable given the existential threats, however, if their project were possible to implement their conception of moral bioenhancement is insufficient for the work they want it to do. Therefore, I will conclude that the loss of freedom from compulsory and universal moral bioenhancement is unacceptable. Lastly, Persson and Savulescu argue that there is no important difference between moral bioenhancement and traditional moral enhancement with respect to free will. I will defend their view from criticisms that argue that moral bioenhancement does limit free will more than traditional moral enhancement. Lastly, critics argue that moral bioenhancement is not analogous to traditional moral enhancement as it bypasses the "space of reasons" (Bublitz & Paulo, 2017) and therefore

bypasses the valuable opportunity for moral development. I will defend moral bioenhancement from this criticism.

Persson and Savulescu (2008) argue that, since there is always the possibility of a single morally corrupt individual carrying out acts of catastrophic harm, moral bioenhancement must be universal and mandatory. Furthermore, Persson and Savulescu's project is not just a thought experiment or conceptual exercise. They are proposing what they believe to be a realistic solution to what they have identified as perhaps the most urgent peril facing humanity. Therefore, I believe it justifiable to examine the potential practical complications of adopting their proposals closely. A possible problem for traditional moral enhancement is identified by Persson and Savulescu (2008) when they say that traditional moral enhancement "requires that we are already to a significant extent morally motivated, so it is likely to be ineffective in the case of those who are morally depraved or corrupt" and that "biomedical and genetic means may be much more effective". However, the requirement of moral motivations does not seem like a problem that is unique to traditional moral enhancement and is likely a problem for moral bioenhancement too. If a person wants to improve their moral behaviours, they need to have a pre-existing motivation to do so. For example, suppose Eric was raised in an environment where misogynistic actions were commonplace and develops his own misogynistic behaviours. Later in his life, he sees that his beliefs about women are wrong and behaviour is morally troublesome and desires to change his ways. He knows that just changing his behaviour will be challenging as his immoral views are ingrained in his psychology so he decides to undergo a form of moral enhancement. It does not matter whether he takes a class on feminism at his local college or takes oxytocin therapy to change his brain chemistry, he would still have to be motivated in the right ways to desire to undergo the enhancement at all.

In the case of Eric, he comes to realize that his beliefs are wrong and therefore he should undergo moral enhancement to change them. There does not seem to be a motivational problem that is unique to moral bioenhancement in this example. Perhaps, instead, when Persson and Savulescu (2008) say, "we are already to a significant extent morally motivated", they are imagining a case such as if Eric's beliefs about women never change. Suppose Eric never comes to the realization that his beliefs about women are wrong and his troublesome behaviour continues. This is to say, Eric lacks any motivations to desire moral enhancement. Persson and Savulescu's response to this could be that compulsory and universal moral bioenhancement eliminates the requirement of having the proper motivations altogether. Persson and Savulescu (2008) state that moral bioenhancement would have to be administered like "fluoride in the water". They do not give any further explanation as to how moral bioenhancement would be distributed, but I will assume that a state will either mandate it or force it upon its citizens. Now Eric has no choice in the matter; the state will attempt to morally bioenhance him. There are two problems with this response. Firstly, it is very doubtful that the moral bioenhancement intervention will be sufficient for the desired behavioural changes (I will discuss this further later). A second problem is that, although it is clear in the case of Eric that the attempt to improve his moral character is due to a state desiring for him to be more moral, it is less clear what would force a state itself to desire to be more moral. If the state does not already have moral motivations to see its citizens morally improved, it is unclear why it would develop them. In essence, if a state does not value the importance of moral behaviour already, why would it start valuing it?

One reason might be that there are more motivations for moral behaviour than valuing morality itself. For example, a state might discover that more moral citizens produce a larger

GDP and therefore the state can increase its global influence. Or perhaps external motivators cause a state to morally bioenhance its citizens. One example of this might be countries that are motivated by moral reasons put pressure on states that are not morally motivated, perhaps by methods like trade sanctions. If a self-interested state can be shown why moral bioenhancement is prudentially good, then it might agree to such a project. However, for every possible motivator, there could be a state that is unmotivated by it. For instance, North Korea might not be motivated by trade sanctions, as they are virtually isolated from the rest of the world. Furthermore, a state that is motivated by factually mistaken assumptions would likely have to be shown that moral bioenhancement is a prudential good. An example might be a fascist state that believes in racial hierarchies and that the perfect state is comprised solely of the racial majority would, therefore, be carrying out ethnic cleansing to a minority group. The fascist state would believe that the moral bioenhancement of its citizens can somehow improve its ability to commit genocide. However, a state would likely not want to increase the altruism, empathy of its citizens, as they might risk them supporting the oppressed minority. Overall, I believe that it is very challenging or perhaps impossible to motivate every state to morally bioenhance every person Furthermore, morally bioenhancing states with morals justified by factual inaccuracies could increase the likelihood of catastrophic harms. Therefore, Persson and Savulescu's moral bioenhancement project seems insufficient for universally preventing the potential harms of cognitive enhancement.

Turning now to an argument against the universal and compulsory characteristics favoured by Persson and Savulescu which comes not from a concern of sufficient motivations, but from public opinion and hostility to such a project. When people are invited to consider the prospect of moral bioenhancement, they become anxious. This might be because they think moral

bioenhancements would be less safe and effective than traditional moral enhancements or that a government which imposes moral bioenhancement is unacceptably infringing on their freedom. Therefore, the public may not support such a project, even if their worries about safety, efficacy and free will turn out to be unjustified. This nervousness towards bioenhancement was quantified in Specker, Schermer and Reiner's 2017 study "Public Attitudes Towards Moral Enhancement. Evidence that Means Matter Morally". In the study, participants were given the scenario of a 13-year old child who bullied other kids in the school. The child was presented with two different options of an empathy-enhancing program. He could either take a single pill once to enhance his empathy or play a video game every day for four weeks to enhance empathy. The participants were tasked to decide to which program they would rather see the child subjected. Participants were also asked a series of morally challenging questions such as if the bully should be required to undergo either program, if all children should have to undergo one of the programs, and if society would be better if the general population were required to undergo either program. For each question, the participants were also asked whether the traditional or biomedical moral enhancement program would be preferable.

The study found that for each question, participants said that the video game would be preferable to the pill. Specker, Schermer and Reiner (2017) concluded that "means matter morally. For when it comes to moral enhancement, members of the public generally eschew pharmacological morally bioenhancement yet are open to non-biomedical means to attain moral enhancement". The researchers argue that these findings are consistent with other studies and show that there is "a considerable bias against or mistrust of pills in general". Furthermore, the study showed that participants "were often sceptical about the program's safety and effectiveness, even though the program was described as safe and effective". Public support is

important for any democratic state that desires to implement a compulsory and universal moral bioenhancement project. If the public does not support the plan, they will vote the governing party out of power. Specker, Schermer and Reiner (2017) state that "except under the auspices of a totalitarian state, the prospect of widely disseminating moral bioenhancement depends entirely upon the accession of the public. Our data demonstrate quite clearly that support for such a project is absent, even though advancing the moral skills of the populace enjoys widespread support." The researchers concluded that the public was generally accepting of widespread traditional moral enhancement, but not moral bioenhancement. Furthermore, they suggest that since a democratic country relies on public support for implementing new policies, it is unlikely that attempting to implement a compulsory and universal moral bioenhancement project would be successful.

What this study shows is that even if the population agrees that moral enhancement is a good idea, and even if they are explicitly told that moral bioenhancement is equally safe and effective as traditional moral enhancement, they are unlikely to support a moral bioenhancement project. It takes a lot of confidence in the government for the public to support any large social changes. Something that is perceived as threatening freedom, or has the ability to be misused, is likely not to be supported. An ideal government might have the best interest of its people in mind, but many governments have their own interests in mind. For example, a government might discover that people who are more altruistic work harder and therefore contribute more to the GDP. Such a government might institute compulsory and universal moral bioenhancement under the guise of improving the society, but instead use that increased GDP to expand its political power to advance its own interests, perhaps interests running contrary to what the public would support. It

would be difficult for any democratic government to institute such a project, regardless of their reasons, if the public does not support the project.

Secondly, let's assume that Persson and Savulescu's moral bioenhancement project is somehow implemented. By some miracle of globalization, all countries and people agree to the universal and mandatory usage of moral bioenhancement and therefore all people on Earth are compulsorily and universally morally bioenhanced. All people now have stronger pro-social motivations and therefore will act in the appropriate ways in the right circumstances to support the right kind of policies to avoid catastrophic harms from nuclear weapons and environmental destruction. A critic might now fear that humanity has lost two things of importance – its overall freedom and individual free will. I believe that this worry is rather common among people generally. Our society stresses the importance of individual freedoms. For example, preserving autonomy rather than acting paternalistically or coercively is a priority in medicine. Moreover, free will is often seen as intrinsically connected to moral agency and responsibility. The critic might argue that the loss of freedom from universal and compulsory moral bioenhancement and the loss of free will from moral bioenhancement generally are both unjustifiable harms themselves. Persson and Savulescu could respond to this criticism in the following two ways. Firstly, they could argue that we require stronger moral motivations for pro-social outcomes than we currently have to avoid catastrophic harms. Although traditional moral enhancement might eventually give the required moral motivations, it will be too slow to avoid catastrophic harm. Therefore, moral bioenhancement limits to freedom might be justifiable as there is an imminent threat of catastrophic harm to humanity. Secondly, they could argue that moral bioenhancement does not reduce free will any more than traditional moral enhancement does already. They could point to the role of socialization, brain chemistry and other factors that influence moral

motivations. They would argue that our moral motivations and therefore behaviour are already influenced by these traditional moral enhancers and that moral bioenhancement does not threaten to influence it any further. In the following paragraphs, I will refute their first claim that the reduction in freedom is justifiable by arguing that regardless of the urgency of avoiding existential threats, an overly coercive moral bioenhancement project can only be justifiable if it is sufficient in actually avoiding them. However, I will defend their second claim that moral bioenhancement does not threaten free will any more than traditional moral enhancement. Lastly, I will defend moral bioenhancement from the criticism that it bypasses the "space of reasons" and is therefore importantly different from traditional moral enhancement as moral bioenhancement bypasses the valuable opportunity for moral development.

Persson and Savulescu argue that catastrophic harm threatens humanity. They worry that our current moral capabilities are unfit to avoid this harm. To eliminate the threat of climate change or nuclear annihilation, our moral capabilities need to be improved. For example, suppose due to evolution our moral capabilities are at a level 2. Our traditional moral enhancement techniques such as moral education, conditioning, and socialization generally improve our moral capabilities to a level 4. However, to sufficiently mitigate these existential threats, our moral capabilities must be a level 8. One way of increasing moral capabilities might be through improving traditional means. Governments improve the school curricula, public awareness campaigns might strongly stress environmental responsibility and over time our moral capabilities reach the required level. An alternative approach is to place a chemical in the water that achieves the same result in a tenth of the time. The urgency that Persson and Savulescu justifiably identify might require that we use the latter technique, as, even though traditional means may work, they are too

slow. If it is true that traditional means are too slow, the universal and compulsory moral bioenhancement project may be necessary.

One critic to compulsory, universal moral bioenhancement is Rakić (2014) who argues that if moral bioenhancement becomes compulsory, "our freedom would obviously be restricted". He goes on to state that "that making moral bioenhancement obligatory would deprive us, to some extent, of an important part of our human existence. If we fail to do that, we will dispossess ourselves of something that is vital for our human status and will have already embarked upon the path of inflicting serious (if not ultimate) harm upon ourselves" (Rakić, 2014). Rakić voices the shared concern of, I believe, many when he states that compulsory and universal moral bioenhancement would deprive humanity of its freedom by allowing the state to coerce individuals to undergo moral bioenhancement. The criticism of compulsory moral bioenhancement is, as Pacholczyk (2011) describes, that "states could use novel technological means" to force citizens to behave in ways deemed morally desirable and "those that deal with the ethics of enhancement are always reminded of 'Brave New World' scenarios". The significant, if not total, loss of freedom from such a compulsory moral bioenhancement program would be unjustifiably harmful.

A response to this criticism comes from Persson and Savulescu in their 2012 paper "Moral Enhancement, Freedom and the God Machine". They argue that we already limit freedom in many, seemingly acceptable ways. They state that "we are not free to commit serious crimes now – the law prohibits it on pain of punishment". Punishments are a limit to freedom. For example, if someone commits an immoral act such as killing, they are sent to prison and all of their freedoms are taken away. Furthermore, the risk of punishment is often enough to encourage moral behaviour. For example, the risk of losing your driver's license is often the reason for

people not excessively speeding. Therefore, the risk of losing freedom is itself, a way of limiting freedom. Persson and Savulescu (2012) believe that we are already generally accepting of these methods of limiting freedom. Moral bioenhancement is just another form of something we already find acceptable. Persson and Savulescu's response that society already limits freedom in some acceptable ways is shared by Pacholcyzk (2011). She warns that "we should we wary of a knee-jerk response against the mandatory use of moral enhancement. It is generally accepted that we relinquish some aspects of our freedom in exchange for security or other benefits of living in a society. It could – in some circumstances – be justified for the government to impose or strongly encourage morally enhancing interventions". Pacholcyzk agrees that society already is accepting and reliant on certain limits to freedom to preserve safety and that fearing losses of freedom, full stop, is naïve. Moreover, if the risks of total annihilation are urgent enough, larger losses of freedom may be justifiable.

The significant loss of freedom that Persson and Savulescu are suggesting may be justifiable if the existential threat of catastrophic harm is urgent. As they have argued, we are often okay with smaller losses of freedom in exchange for increased security and safety. Therefore, as the threat to safety increases, what we believe to be an acceptable loss in freedom might also increase. However, a moral bioenhancement project which significantly limits freedom would only be justifiable if it would be sufficient to accomplish the goals for which it is intended. The problem for Persson and Savulescu is that even if it was implemented, moral bioenhancement as they define it is insufficient for the goals they wish to accomplish. As I have discussed previously, the goals of universal and compulsory moral bioenhancement are to avoid catastrophic harms to humanity.

To better understand why Persson and Savulescu's version of a moral bioenhancement project would be insufficient for achieving its goals, we need to understand their conception of moral bioenhancement. They, as do Douglas, DeGrazia and I, provide a definition of moral bioenhancement that relies on dispositions or moral motivations. Persson and Savulescu (2008) believe that people ought to be motivated by "altruism, to sympathize with other beings, to want their lives to go well rather than badly for their own sakes." Secondly, they state that "there is a set of dispositions from which the sense of justice or fairness originates. The most basic of these dispositions are, we believe, the ones that have been called 'tit-for-tat'" (Persson & Savulescu, 2008). To understand this disposition, "suppose that someone does another party a favour out of altruism. Then according to tit-for-tat, the latter should respond with gratitude, and a desire to return the favour with a proportionate favour" (Persson & Savulescu, 2008). They also list responses such as anger, remorse, feelings of guilt, shame, pride, admiration, contempt and forgiveness. The problem with relying on moral motivational improvement alone is that producing desirable moral behaviour from a person is contingent on that person sharing the same factual assumptions as you. For example, suppose Reid believes strongly that racial minorities are lesser and his society would be better if they were to be eliminated. If we only enhance Reid's sense of moral motivations, the outcome will be that the behaviour which Reid believes to be moral will be amplified. This is because Reid is not acting from a sense of indifference to morality or a desire to do wrong; Reid is acting because he truly believes that society would be better off without racial minorities. That is to say, for Reid, given his mistaken empirical beliefs, bringing about pro-social outcomes is to act in ways we would find immoral.

A similar criticism comes from Michael Hauskeller (2015). Persson and Savulescu (2008) fear that a morally misguided minority (such as terrorists or extremists) acting on moral motives

will inflict catastrophic harm on humanity. Their solution then is to enhance altruism and tit-for-tat reactions to avoid this harm by giving these morally corrupt minorities the right moral motivations, which are the motivations to act in the interest of others. However, the sort of morally corrupt groups that Persson and Savulescu mention regularly believe that they are acting for the overall benefit of others (Hauskeller, 2015). They truly believe that society would benefit if certain people were killed, and it is just to punish those who do not share their religious beliefs, cultural identity or social values. Or, like Reid, they believe that they are superior to others and an ideal society would exclude anyone who is different from them. They believe that the world would truly be better off if either everyone was like them, or those who oppose their values were destroyed. In essence, bigots, racists and terrorists are not necessarily acting purely due to a lack of morality or underdeveloped morals but because they have a different idea of what the best society is. As Hauskeller (2015) argues, a moral bioenhancement project with the goals outlined by Persson and Savulescu would likely amplify the problem by accentuating their likelihood to act on factually mistaken assumptions. Ironically, it would likely be better for humanity generally if they acted on self-interest rather than morality.

This is a problem for Persson and Savulescu, as they advocate for universal moral bioenhancement. Even though some people would, if enhanced, likely act in morally desirable ways, the problems caused by those who do not act in morally desirable ways would likely only be magnified. Furthermore, Persson and Savulescu specifically identify that small minority as the group most likely to cause catastrophic harm. Terrorist groups obtaining biological weapons or rogue nations developing nuclear capabilities are the most likely threats to humanity argue Persson and Savulescu. However, their moral bioenhancement project would likely do nothing to change their views and would likely only increase their moral motivations and therefore cause

increased harm. Consider DeGrazia (2014) when he says that the required means of creating improved moral behaviour are improved moral motivations and improved insight. Insight is about knowing the right actions to take and moral motivation is about having the motivations to actually do them. Persson and Savulescu are calling for the moral motivations to be improved without improving the insight. Moral motivations are insufficient for desirable moral behaviour if the beliefs they are motivating one to act on are themselves mistaken. A terrorist would have to be shown that their extreme beliefs are actually empirically wrong and that they should adopt new insight. Once this is done, moral bioenhancement could work, although, as I argued before, moral motivational improvement and insight improvement are neither necessary nor sufficient for moral behavioural improvement. Therefore, Persson and Savulescu's moral bioenhancement project, as is, would be ineffective to prevent catastrophic harms by the morally mistaken.

2.2 The Indiscernibility of Moral Bioenhancement and Traditional Moral Enhancement

Persson and Savulescu (2012) argue that compulsory moral bioenhancement does not limit free will any more than traditional methods of moral enhancement which are already acceptable. They ask us to "consider fostering the trait of willingness to consider the suffering of others and respond sympathetically to it in a child. It might be objected that engineering this trait biologically restricts the child's options in the future, their so-called 'open future'" (Persson & Savulescu, 2012). They go on to argue that "we do this all the time through education, stories, literature and punishment. Why should it make a difference if we do this using knowledge from cognitive science? It is precisely because we want to foster the development of this disposition that we employ these techniques" (Persson & Savulescu, 2012). It is important to note that although education and socialization are ways of traditionally morally enhancing children, influencing moral motivations through traditional means is not necessarily limited to children.

Adults' moral motivations are also influenced by socialization and education. For example, an adult can acquire stronger moral motivations by socializing with like-minded people or improving their insight through education. The goal of moral bioenhancement is no different than traditional enhancement: it aims to increase the likelihood of pro-social behaviour.

To help show that moral bioenhancement does not limit free will more than traditional moral enhancement, consider the story of Mary who is morally bioenhanced under Persson and Savulescu's definition. Suppose Mary goes to the grocery store. She is walking in the front door and notices someone holding the door for her. She responds to this action with gratitude and has a newly formed moral motivation to hold the door for the next person she sees. Now Mary is in the store and goes to take the last shopping cart. As she is walking up to the cart, another customer rushes in and steals from her. Mary feels anger and responds by yelling at the customer and telling him that he should be ashamed of himself. Mary now picks up a shopping basket from the pile and continues into the store. However, realizing her actions, although warranted, may have ruined the man's day, Mary feels remorse. She decides the best thing to do is to apologize to the man and offer forgiveness. She thinks, "the entrance to the store was very busy and perhaps he did not see that I was taking the cart" and goes to find the man. After apologizing, the man feels admiration for Mary's actions. He decides to act more like Mary from now on. Mary, now proud of the positive change she had on the man, finishes her shopping and goes home. From this first story, we can see that many of Mary's behaviours in her day are influenced by moral bioenhancement. Her improved moral motivations increase the likelihood of her acting pro-socially.

Once again, consider Mary. This time, Mary is not morally bioenhanced but is instead raised in a home which values bringing about the betterment of others and reinforces behaviours which

support this value. Now, grown up, Mary goes to the grocery store. All of the interactions from the first story play out, but not because Mary was morally bioenhanced but because her moral motivations were enhanced through traditional means. Would a critic be right to say that Mary is free in this case but not the previous one? In either case of Mary, she did not initially choose how her moral motivations and therefore behaviours would be influenced. They were formed by forces outside of her control – socialization and moral reinforcement in the latter case, moral bioenhancement in the former. Suppose Mary had been raised in a home which valued personal success and winning at the expense of others. Now Mary rushes to take shopping carts and pushes her way to the front of the line. Is this self-interested version of Mary freer than the version which valued pro-social outcomes? Again, the social environment that Mary was raised in was not her choice. A critic would need to show that there is something about moral bioenhancement specifically which limits free will in a way that a traditional morally enhanced person would otherwise have.

Critics might deny the equivalence of traditional moral enhancement and moral bioenhancement with respect to free will, saying that traditional moral enhancement respects free will in a way that moral bioenhancement does not. They might claim the conclusion is questionable, arguing that just because someone is taught certain moral ideals does not mean that they will follow them and that we must constantly choose to follow our moral code. For example, suppose Louis is raised to act pro-socially: his parents reinforce pro-social behaviours like sharing his toys and punish anti-social behaviour like hurting other children. In later stages of development, Louis is also given moral reasons about how he should behave. His parents and teachers might tell him to always respect others because all people are worthy of equal treatment, never harm innocent people as it causes unjust harms and so on. Owing to his upbringing and

moral teachings, Louis always considers how he can bring about the most good possible and usually chooses the option he believes will best accomplish this moral goal. The objection to my argument is that traditional morally enhanced Louis is only influenced by his moral motivations and he must constantly choose to follow the moral rules which were taught to him by his parents and teachers. The critic would argue that at no point are Louis' actions determined because of the moral motivations and moral beliefs developed by traditional moral enhancement. However, there is no reason to think that a morally bioenhanced Louis' actions would be determined either. A morally bioenhanced Louis must also choose to act on his moral motivations and beliefs. The improvement or creation of moral motivations, either through traditional or biomedical means, merely increases the likelihood of Louis acting pro-socially. However, the critic admits that he can always choose to act contrarily to his moral motivations. Moral bioenhancement is no different. The goal of moral bioenhancement is only to increase the likelihood of a person acting pro-socially by increasing the influence of moral motivations. This is the same goal as traditional moral enhancement. Neither form of enhancement guarantees that a person will act in a certain way. A morally bioenhanced Louis can still reject his moral motivations but will be less likely to do so than a Louis who was not enhanced at all. Moral bioenhancement is merely a biomedical way of instilling the same moral motivations that traditional moral enhancement provides. Regardless of how Louis was morally enhanced, his pro-social behaviour is influenced by moral motivations, but he always maintains the ability to reject his moral motivations.

I would like to consider a final objection to the claim that there is no important difference between traditional moral enhancement and moral bioenhancement from Bublitz and Paulo in their 2017 article "How (not) to Argue for Moral Enhancement: Reflections on a Decade of Debate". They note that "proponents of moral bioenhancement commonly try to defuse worries

about legitimacy by drawing analogies with traditional moral education" but argue that "there are a number of important disanalogies". They argue that "the central difference between biomedical and traditional means is that the latter are set in the "space of reasons", whereas biomedical means bypass it. Children are taught to play by the rules of reasons and, as soon as they are cognitively able to do so, moral education is primarily an exchange of reasons and reflection, of arguments and counterarguments". Moreover, the authors argue that "at some point, usually in the post-conventional stages of moral development, children might even successfully convince their parents or teachers of a moral rule they did not endorse". They argue that the space of reasons is valuable as it encourages moral development. If children are reasoned with, they can learn to challenge moral principles and eventually contribute to an overall greater moral knowledge. There is value to knowing why certain actions are morally desirable rather than just behaving in morally desirable ways. The fear is that moral bioenhancement bypasses the space of reasons by imprinting prescribed moral behaviours into their psychology, thus denying children the opportunity to come to understand moral reasons. However, they are making the same mistake the critic did in the last objection. There is a difference between choosing to adopt a moral rule and acting from a moral motivation. Children are not taught to behave pro-socially primarily by way of "reason and reflection, arguments and counterarguments". Although methods vary, young children are usually influenced by their parents and teachers to have pro-social motivations. Bublitz and Paulo recognize this when they say an "infant is less likely to respond to carefully presented arguments. In the pre-conventional stages of moral development, the child is more likely to learn through sanctioning, obedience and, later, self-interested cooperation". Moral motivations to be pro-social are not something that is taught to young children through arguments and reasons. When I was young, my parents did not engage in a

discourse of reasons and arguments with me to teach that I should care about others' welfare. However, they may have used reasons when they taught me their views on how best to promote others' welfare. Moreover, one would hope that my advanced knowledge of moral theories would mean that I could teach them the validity of a moral rule they did not endorse. All of this is consistent with my argument that moral bioenhancement is analogous to traditional moral enhancement.

In this section, I have outlined the overall argument given by Persson and Savulescu. I argue that there likely are potential dangers of cognitive bioenhancement which threaten humanity with catastrophic harm. I argue that even if humanity is trending in the right moral direction, this does not negate the threat of these harms. However, Persson and Savulescu's project also does little to prevent these potential harms. This is because of the practical complications of their project and the overall insufficiencies of their definition of moral bioenhancement. A critic may also respond by arguing that universal, compulsory moral bioenhancement threatens freedom to the extent that the project itself is an unjustifiable harm. However, I argue on behalf of Persson and Savulescu that these worries are unfounded. In the following section, I will provide more defensible versions of the moral bioenhancement project.

Section 3

In the previous section, I presented Persson and Savulescu's (2008) version of the moral bioenhancement project. They argue that cognitive bioenhancement is threatening humanity with catastrophic harms. Specifically, they are worried that, due to cognitive bioenhancement, increasingly accessible and powerful weapons could fall into the wrong hands. Furthermore, it would only take a small group of people to cause catastrophic harms. Therefore, compulsory and universal moral bioenhancement is necessary to prevent humanity's otherwise inevitable destruction. Although Persson and Savulescu focus mainly on violent threats to humanity, I also added environmental catastrophe to their thesis as I believe that it is equally, if not more, likely to cause catastrophic harm to humanity than nuclear annihilation. I went on to argue that there are two main problems with Persson and Savulescu's project. Firstly, there is a problem of motivations and universalization. It seems very implausible that all countries could be properly motivated to morally bioenhance their entire populations. Secondly, there is the problem that moral bioenhancement threatens freedom. Although moral bioenhancement could be justified by appealing to the existential threats of catastrophic harms, the loss of freedom is unacceptable as moral bioenhancement is likely to be insufficient to bring about the goals that Persson and Savulescu believe are required to protect humanity from harm. In this section, I will present a more defensible and plausible version of the moral bioenhancement project: one which is voluntary and partial. I will first outline the goals of the project generally, and then discuss voluntary moral bioenhancement in detail.

3.1 Goals of a Defensible Moral Bioenhancement Project

To understand the moral bioenhancement project, it is important to understand what moral bioenhancement is intended to do. Although there are many different conceptions of moral bioenhancement, such as those presented in Persson and Savulescu, Douglas, DeGrazia and this thesis, the ultimate goal for any account of moral bioenhancement is to improve moral behaviour. Moral bioenhancement is not useful if it does not result in an increase in morally desirable behaviours. Recall my definition of moral bioenhancement from section one. I stated that a moral bioenhancement is any intervention that improves a person's pre-existing pro-social motivations or creates new motivations for them to bring about pro-social outcomes. The key target, then, is the bringing about of pro-social outcomes which are applied to empirically proven assumptions. The sought-for improvements to moral motivations are only desired instrumentally, that is: they must bring about behavioural improvement. For Persson and Savulescu, moral motivational improvement is instrumental to avoid existential threats to humanity. In essence, Persson and Savulescu have identified a specific problem (catastrophic harm due to cognitive enhancement) and the goal of moral bioenhancement is proposed as the means to avoid that problem.

I believe the existential threats that Persson and Savulescu identified in the previous section are a worthy target of moral bioenhancement. However, arguably, some acts of violence are decreasing globally such as armed conflict and homicides (Roser, 2019). Furthermore, there may be a trend toward improving global safety measure such as decreasing nuclear weapon inventories (Roser & Nagdy, 2019). These possible trends do little to calm the worries of those already fearing catastrophic harms to humanity at the hands of rogue dictators or terrorists, though. Even if the world is trending towards diminished violence, this trend is nevertheless

irrelevant if cognitive bioenhancement allows individuals to develop exponentially more powerful weapons. Our current abilities to destroy ourselves may be exacerbated by cognitive bioenhancement and it may just be a matter of time before a single individual obtains such a weapon and causes catastrophic harm. Similarly, the fact that countries are switching to renewable and environmentally friendly forms of energy does nothing to reverse the damage that has already be done and the damage that will continue to be done until the switch from fossil fuels to renewable energy is sufficient to lessen the nature of climate-change-induced disaster. A 2018 report from the World Bank estimates that by 2050, 143 million people may become climate-change migrants due to crop failures, water scarcities and rising sea levels. This number is likely to increase if progress towards reducing climate change is not accelerated. The world has already started to see these effects first hand in the 2017-2018 South African water crisis. Residents of Cape Town, South Africa, were running out of water, in part due to severe drought brought on by climate change. Although water reservoirs have started to recover in the region, this is a warning that catastrophic environmental harms are nearing faster than the majority of us may realize. Persson and Savulescu would likely argue that even without the acceleration of cognitive capabilities it seems as if humanity is already on its way to inflicting catastrophic harm to itself through environmental destruction and climate change. Therefore, Persson and Savulescu make a plausible case when they argue that a defensible moral bioenhancement project ought to primarily target sources of catastrophic harm by improving moral motivations in order to increase the likelihood that the public will support the right sorts of policies and political reforms to lessen the threat of catastrophic harms.

There are, however, many different areas that a moral bioenhancement project could target in addition to the reduction of existential threats to humanity. For example, a moral

bioenhancement project could target the enormous harms caused by societal problems such as poverty, racism, inadequate public health systems, poor access to education and growing inequality. The opioid epidemic in many parts of North America is related to many broad societal forces such as an economic system promoting the pharmaceutical industry's focus on maximizing profits, a public health system which was and continues to be ineffective at handling this crisis, and widespread poverty and economic inequalities among many others. Lessening the effects of non-existential harms caused by societal moral failings is a goal that is shared by Melo-Martin and Salles (2014) when they argue that complex and harmful situations like "lack of access to medicines or poverty" are often caused by "structural – social, cultural, political, economic – forces". Although the harms caused by these social forces may not lead directly to the destruction of humanity entirely, they might nevertheless be thought worthy of addressing by means of a moral bioenhancement project.

Other important harms happen at a micro-social level. Every day, many people, perhaps the majority, act in their own self-interest, even when their self-interest comes often at the harm of others. I might choose to purchase unnecessary luxuries when I could be donating personal resources to reduce harm to my community. For example, I might choose to buy an expensive, new television when instead I could give that money to an addictions clinic who is serving those who desperately need help. Or perhaps I spend my time watching my favourite hockey team instead of volunteering at the local food bank or helping my elderly neighbour shovel her sidewalk. These sorts of self-interested behaviours permit the existence of harms that are perhaps individually less threatening than nuclear annihilation or rising sea levels, but happen frequently. A moral bioenhancement project that could sufficiently morally motivate people towards pro-

social outcomes would likely mitigate these sorts of harms caused by excessively self-interested behaviour as well.

I have now outlined three different areas that a moral bioenhancement project could potentially target for improvement – the existential threats to humanity as identified by Persson and Savulescu, the societal structural forces which Melo-Martin and Salles describe and the micro-social harms which I discuss above. There are likely many other ways that moral motivational and behavioural failings could be categorised but I believe that the overall objective remains the same: reducing sources of harm includes both those which do and those which do not immediately threaten humanity's continued existence. Critics such as Melo-Martin and Salles or Rakić might argue that there is a missing acknowledgement in Persson and Savulescu's moral bioenhancement project. The missing acknowledgement is that although the most urgent threat facing humanity comes from catastrophic harms, it is not the only grave threat. Persson and Savulescu do not mention that poverty and lack of access to health care are problems which might be reduced by moral bioenhancement, or that their reduction is valuable as a means to promote human welfare. For example, by using moral bioenhancement to increase public support for an improved public health system, the harms caused by an addiction crisis may be reduced. However, an improvement to public health might do little, if anything, to mitigate the threat of existential harm. Surely, if moral bioenhancement were safe and effective, it would be desirable to use it to help address the non-existential kinds of societal problems.

Persson and Savulescu's moral bioenhancement project focuses on preventing catastrophic harm by reducing existential threats to humanity. However, critics would argue that, although there is an urgent need to reduce existential threats, a moral bioenhancement project should have the goal of reducing all potential harms. A response to the critics could be that even

if Persson and Savulescu's project focuses on reducing existential threats, it may also have the secondary effect reducing harms generally. For example, suppose an entire country's population were morally bioenhanced with the goal of preventing environmental catastrophe. A secondary effect of everyone acting pro-socially for the preservation of humanity could be that people will also act pro-socially on a more individual level. It does not matter if the reason I was bioenhanced was to support the right kind of policies necessary to prevent catastrophic climate change. If I am bioenhanced to be pro-social, I will be more likely to behave pro-socially in all my interactions. In essence, the motivations for implementing a moral bioenhancement project should not matter if the observed effect is a widespread morally desirable behavioural improvement. Furthermore, if the best way to "sell" moral bioenhancement to a country or population is by stressing the urgent imperative to undergo it, then focusing on the existential threats as Persson and Savulescu do is likely desirable. However, the critics of Persson and Savulescu are likely correct when they insist that we should address harms beyond those which would be catastrophic. Moral bioenhancement could potentially be used to improve human welfare in many different ways. Therefore, I believe that the overall goal of the moral bioenhancement project should be to reduce moral motivational failings broadly. The goal should be to increase the likelihood that individuals will act in the interest of humanity generally.

This broad goal of an overall improvement to social welfare is also shared by those who employ traditional moral enhancement. We teach our children "through education, stories, literature and punishment" that they should "consider the suffering of others" and "respond sympathetically" (Persson & Savulescu, 2012). We do not try to give children the proper moral motivations for the exclusive reason of avoiding catastrophic harms. We do it because we believe it would be a good thing if children were motivated pro-socially. If the world were to

reduce existential threats drastically, we would not abandon our attempts to instill and promote the development of moral motivations to bring about pro-social outcomes. Moral bioenhancement is a shortcut to reaching some of the same goals that we already have as a society and "may make it easier and more likely" for our goals to be reached (Persson & Savulescu, 2012).

Furthermore, "moral bioenhancement will not produce by itself moral behaviour. It requires effort and learning" (Persson & Savulescu, 2012). What is important here is a point that refers back to what DeGrazia (2014) identified in the earlier section. DeGrazia argues that the goal of moral bioenhancement is to promote improvement in moral behaviour, and the two components which will likely lead to such a behavioural improvement are improved moral motivations and insight. Therefore, continuing to promote education which teaches the most effective way to act pro-socially is important. This is true of any sort of moral enhancement, biomedical or traditional. For example, suppose Randy believes that it is best for the poor and society as a whole to eliminate social assistance programs. He believes that eliminating social assistance will make the poor more self-reliant and society would benefit. If Randy were to be morally bioenhanced, he would be more motivated to oppose social assistance and might support politicians who pledge to reduce it. However, suppose that empirical evidence shows the best way to help society and its poorest members is actually by increasing social assistance. Morally bioenhancing Randy will not increase pro-social outcomes, as his belief on how to best increase social welfare is factually mistaken. Randy's improved moral motivations will not lead to pro-social behaviour unless he is also given the insight that the poor and society can actually be bettered through social assistance. However, when given that information, a morally motivated Randy would be more likely to change his political views as he is motivated to act pro-socially.

This example shows that moral bioenhancement, like traditional moral enhancement, will not automatically cause a person to behave in the most effective ways to bring about pro-social outcomes. However, moral bioenhancement might have the added benefit of increasing the likelihood that a person such as Randy would change his beliefs when presented with the proper insight. At least in this way, moral bioenhancement is not conceptually different than traditional moral enhancement; however, it could be more effective in reaching the same desired goals more quickly.

Now that the goal of the moral bioenhancement project is to reduce all harms as much as possible, the next step is to examine how such a project could be implemented. The first way that a moral bioenhancement project could be implemented is through compulsory, universal moral bioenhancement. This is the sort of project for which Persson and Savulescu argue. As I have argued previously, there are serious problems for a moral bioenhancement project that relies on compulsory and universal moral enhancement. One problem was the possibility of insufficient motivations for certain countries to morally bioenhance their populations. An example of this could be a government which is oppressing a minority group. Such a government would likely not want their citizens to have improved moral motivations as they might act to increase the welfare for all, including the oppressed. However, a version of a compulsory and universal moral bioenhancement project that is limited to countries that already find such a project desirable would not have this problem. For instance, Canada might recognize the existential threat of catastrophic harm and agree that there is an urgency to address it. Or, it may believe that moral bioenhancement could drastically reduce social harms. The existential threats or desire for increased welfare for all people may motivate Canada to implement a compulsory moral bioehancement project. Countries which do not share these prior motivations would not take

part. However, I argue in the previous section that even governments who desire compulsory and universal moral bioenhancement would struggle to implement it as there is a general nervousness to biomedical interventions. Although people agree that moral enhancement would be beneficial, they widely reject the use of biomedical means to influence. Therefore, a government would have to either convince or coerce its populace to undergo moral bioenhancement. I also argue in the previous section that the loss of freedom owing to government coercion to implement moral bioenhancement is unacceptable as universal and compulsory moral bioenhancement is insufficient for meeting the goals proponents such as Persson and Savulescu outline. Therefore, the most plausible and defensible moral bioenhancement project might be a voluntary one as it can reduce societal harms while avoiding unacceptable losses in individual freedom.

3.2 Voluntary Moral Bioenhancement

Rakić, in his 2014 article "Voluntary Moral Enhancement and the Survival-At-Any-Cost Bias" argues for the use of voluntary moral bioenhancement over Persson and Savulescu's compulsory and universal moral bioenhancement project. Rakić identifies at least one potential problem with voluntary moral bioenhancement when he says that "the last issue I would like to address here is whether we should expect a significant number of people to be sufficiently motivated to subject themselves to voluntary moral bioenhancement". He goes on to ask, "would many of us be really motivated to embark on that path of enhancement? Are we eager to use medication in order to enhance the morality of our deeds? If we were, why would we prefer to take drugs rather than decide to act more morally without them?". Rakić wonders if individuals have sufficient motivations to desire voluntary moral bioenhancement. He goes on to ask: if individuals do have sufficient motivations to desire voluntary moral bioenhancement, then why would those motivations not increase the likelihood of an individual acting pro-socially without

bioenhancement? Persson and Savulescu (2008) share this idea when they argue that traditional moral enhancement requires that we already are sufficiently morally motivated in the first place. However, what Rakić and Persson and Savulescu seem to be overlooking is that a person might be sufficiently motivated to undergo voluntary moral bioenhancement for self-interested reasons.

To help understand why a person might be sufficiently motivated to undergo voluntary moral bioenhancement, but not sufficiently motivated to act pro-socially in the first place, consider the following example. Suppose I was raised to be a pro-social person. I am motivated to bring about pro-social outcomes; however, I also have contrary self-interested motivations which often supersede my pro-social motivations. For example, I can see that the local homeless shelter needs volunteers and I have a desire to help, but I also really want to watch NHL hockey games at home. I know that volunteering to work at the homeless shelter would be a morally good action for me to take and I am motivated to do it but in virtue of my stronger self-interested motivations, my pro-social motivations are insufficient in making me act morally. Therefore, I decide to increase my pro-social moral motivations further through moral bioenhancement. After this moral bioenhancement takes place, my pro-social motivations will be stronger than my self-interested motivations and I will be more likely to volunteer my time. In this example, I recognized that my pro-social motivations were insufficient to bring about desirable behaviour, but, nevertheless, they were sufficient to motivate me to undergo voluntary moral bioenhancement. This was an example of having weak pro-social motivations. However, let's now consider another challenge for voluntary moral bioenhancement: What if I do not have pro-social motivations to begin with? In that case, I will not want to be more morally motivated. I will be comfortable with my self-interested behaviour. I might know that the homeless shelter needs volunteers but I just do not care and would rather sit at home watching hockey. Rakić

provides a possible solution here when he says, “it appears that we might be in need of external stimuli to undergo voluntary moral bioenhancement. The state ought not to be excluded here as an actor that can have a role in providing them. It should not compel moral enhancement, but it can use a variety of incentives in favour of morally enhanced citizens: tax reductions, schooling allowances for their children, retirement benefits and affirmative action policies that favour them. Such benefits would give morally enhanced individuals various social advantages”. Rakić suggests that the best way to motivate those without pro-social motivations to begin with is by providing incentives for undergoing voluntary moral enhancement.

A problem for Rakić’s position is that if a critic objects to compulsory and universal moral bioenhancement on the grounds that it unacceptably threatens freedom and autonomy, then it is questionable whether they would accept incentivizing voluntary moral enhancement. The critic might argue that incentivizing voluntary moral enhancement is unacceptably coercive and therefore threatens freedom and autonomy just as much as compulsory and universal moral bioenhancement does. For example, if someone offered me a large sum of money or a tax break to undergo voluntary moral bioenhancement, I might do it only because I need the money to survive and not because I genuinely wanted to undergo the moral bioenhancement intervention. If I am choosing between morally bioenhancing myself or starving, I will likely choose the former. A critic may argue that there are already forms of incentivization for behaviours that a person might not voluntarily choose otherwise, such as payment for participation in research studies (Carter, 2015). However, these forms of incentivization might also be viewed as coercive and problematic and do not justify further questionable practices of incentivization. Carter argues that “it seems reasonable to raise concerns of social justice: that people from socioeconomically disadvantaged backgrounds could be considered more at risk of being affected by undue

inducements". In essence, it is likely that many people who accept the incentivization to undergo voluntary moral bioenhancement would only be doing so out of economic necessity. Their agreement would not be voluntary to the requisite degree.

However, I argue that incentives may not actually be necessary to motivate a person sufficiently to undergo voluntary moral bioenhancement. A person may be sufficiently motivated to become more pro-social for prudential reasons. For example, Ian is a generally self-interested guy. He starts dating Jessica who comes from a very pro-social family. Jessica takes part in many pro-social activities such as donating her money to charities or spending her weekends volunteering. Ian really likes Jessica, but he gets bored quickly when volunteering with her and would rather spend his money on expensive luxuries. Jessica, realizing Ian's lack of consideration for others, starts to lose romantic interest. Ian determines that in order to have a continuing relationship with Jessica, he must start acting more pro-socially. However, he knows his self-interested motivations will make it very hard for him to act pro-socially. Therefore, Ian decides to undergo voluntary moral bioenhancement with the intention of keeping Jessica romantically attached. After the enhancement, he is more morally motivated and genuinely enjoys volunteering with Jessica. His relationship is saved. In this scenario, Ian is motivated not by morality, but rather his own self-interest. The overall idea is that by appealing to the self-interest of those without pro-social motivations, they might have sufficient reason to undergo voluntary moral bioenhancement for their own prudential good. Empirical research suggests that acting pro-socially will often turn out to be prudentially good for the agent. Furthermore, if this insight were made widely available, it might be possible to motivate sufficiently the excessively self-interested to undergo voluntary moral bioenhancement.

A 2017 study found that there are strong relationships between generous decisions and happiness (Park et al., 2017). Specifically, the researchers found that spending money or pledging to spend money on others boosted personal happiness relative to a control group who spent money on themselves. Another 2017 study found that people who tested higher for having a "purpose in life" also generally had better quality sleeps and were less prone to sleep conditions (Turner, Smith & Ong, 2017). Although "purpose in life" is vague and self-interested people could certainly believe that they have a purpose in life, the findings of this study may help motivate those who have pro-social beliefs but lack the sufficient motivations to act on them. Moreover, a 2016 study suggests that increased altruism is a signal of desirable qualities when it comes to mate selection. The researchers showed that people who were publicly willing to donate money to others were more successful finding and maintaining relationships (Piche, Albert, Ouellette & Barclay, 2016). Although this is merely a preliminary sample of current empirical research, there is at least some plausibility to the claim that acting pro-socially often turns out to be prudentially good. Moreover, if a state made the insight from these studies publicly available and promoted it, it seems equally plausible that self-interested motivations could be sufficient for some self-interested people to desire voluntary moral bioenhancement. Furthermore, suppose the empirical research was correct and pro-social behaviours did benefit the agent. As self-interested people observed the morally bioenhanced having better relationships, having better sleep, and being all-around happier, it might convince them to consider undergoing voluntary moral bioenhancement. The point of this discussion was not to show that pro-social motivations are prudentially good, but rather that it is at least plausible that the self-interested could sufficiently be motivated to undergo voluntary moral bioenhancement.

In this section, I began by outlining the different targets of a moral bioenhancement project. Although Persson and Savulescu are correct to identify an urgent imperative to implement moral bioenhancement, the potential benefits ought not to be limited to averting existential threats. The urgency of those threats may be required to convince governments or individuals to undergo or enforce moral bioenhancement, but the benefits could include reducing all levels of social harms. I argued that a more plausible and defensible alternative to universal and compulsory moral bioenhancement is voluntary moral bioenhancement. I went on to argue for the plausibility of sufficient motivations to undergo voluntary moral bioenhancement.

Conclusion

Recent debates on moral bioenhancement suggest a common goal of enhancing the moral character of humanity. The urgency to avoid existential threats and catastrophic harms to humanity as identified by Persson and Savulescu (2008) may give good reason to start seriously considering the conceptual and practical issues for moral bioenhancement. In just a short time, millions of people could be facing forced migration owing to climate change. Moreover, broad social harms such as inequality, poverty and racism exist and affect daily life for millions more. These harms, along with the existential threats, could be reduced with the help of moral bioenhancement.

I began by outlining a few dominant perspectives on what a moral bioenhancement could be. I argued that the most plausible and defensible conception of a moral bioenhancement is one which improves moral motivations to increase the likelihood of an individual bringing about pro-social outcomes. I went on to argue that this understanding of a moral bioenhancement does not reply on any presuppositions of what comprises a morally right action. However, I argued that the likelihood of improved moral behaviour can be increased by improving both moral motivations and insight.

The idea of improved insight is valuable to any moral bioenhancement project. As I argued, people often are motivated to act on factually mistaken assumptions. The subsequent behaviours are often not morally desirable. My definition of moral bioenhancement only looked to improve an individual's moral motivations, and would, therefore, require an accompanying program of insight improvement. This is one important conclusion to draw from this thesis.

Behavioural improvement to reduce harms is the goal of moral bioenhancement, but moral bioenhancement alone is likely insufficient to reach this goal.

I went on to describe Persson and Savulescu's (2008) universal and compulsory moral bioenhancement project. Although I agree that there is an urgency for moral bioenhancement in order to avoid catastrophic harms, their project would likely be unsuccessful to sufficiently reduce those harms. Moreover, this lack of success would make the inevitable loss of freedom from universal and compulsory moral bioenhancement unacceptable.

Persson and Savulescu (2012) argue that moral bioenhancement has no important differences to traditional moral enhancement with respect to free will. I defended this claim by arguing both forms of moral enhancement look to increase the influence of moral motivations, but both allow for an equal ability to exercise free will. This is another important conclusion. Moral bioenhancement generally is not problematic, in at least this way. Therefore, critics ought not to worry that moral bioenhancement is depriving humanity of moral responsibility or agency.

Lastly, I argue that although there is an urgency to avoid catastrophic harms, a desirable and defensible moral bioenhancement project would also look to reduce all forms of social harms. Moreover, I argued that defensible version of moral bioenhancement would aim to minimize coercion by making such a program voluntary. I argued that a voluntary program could plausibly produce sufficient motivations for individuals to desire moral bioenhancement by appealing to prudential goods.

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