

Ethical Reflections on Genetic Enhancement with the Aim of Enlarging Altruism

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Abstract When it comes to caring about and helping those in need, our imaginations tend to be weak and our motivation tends to be parochial. This is a major moral problem in view of how much unmet need there is in the world and how much material capacity there is to address that need. With this problem in mind, the present paper will focus on genetic means to the enhancement of a moral capacity—a disposition to altruism—and of a cognitive capacity that facilitates use of the moral capacity: the ability to grasp vividly the needs of individuals who are unknown and not present. I will address two questions, with more extensive attention to the first question. First, assuming we had excellent reason to believe that the enhancements were safe, effective, and available to all who desired them, would seeking these enhancements be *inherently morally acceptable*—that is, free of inherent wrongness? Second, would it be *wise* for a society to pursue these enhancements? I will defend an affirmative answer to the first question while leaving the second question open.

Keywords Altruism · Enhancement · Genetic enhancement · Moral enhancement · Embryo selection · Addressing human need

A robust literature has emerged in recent decades on the use of biomedical technologies for the purpose of enhancing human traits.¹ Some of the traits that have received attention in this discussion have been *physical* capacities such as endurance

¹ For high-quality samples, see [1, 3, 23, 27, 30, 31].

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or muscularity, *cognitive* capacities such as memory and the ability to remain focused on a task, and *psychological* capacities such as dispositions to positive moods and to emotional stability. More recently, a literature has emerged on the enhancement—through biomedical means—of *moral* capacities such as dispositions to fairness and to altruism as well as the abilities to avoid irrational prejudices and to think reliably about what is right even under conditions of stress (e.g., [4, 8, 11, 18, 24]). As for modes of biomedical enhancement, there has been much discussion of cosmetic surgery, the use of psychiatric medications for purposes “beyond therapy,” and the prospect of genetic enhancement.

This paper will focus on the enlargement of a moral capacity and of a cognitive capacity that facilitates use of the moral capacity, as well as genetic means to these enhancements. I will consider two questions, the first at considerably greater length. First, assuming we had excellent reason to believe that the enhancements in question were safe, effective, and available to all who desired them, would seeking these enhancements through genetic means be inherently morally acceptable—that is, free of inherent wrongness? Second, would it be wise for a society to pursue these genetic moral enhancements? I will answer the first question affirmatively while leaving the second question open.

Preliminaries

What is enhancement in the relevant sense? Traditionally, enhancement has been contrasted with *treatment* or *therapy*, provoking concerns about whether enhancement lies beyond the proper boundaries of medicine [27]. The idea is that treatment endeavors to restore health or normal functioning, in keeping with the traditional objectives of medicine, whereas enhancement aims to take an individual beyond what is needed for health or normal functioning. In part because I doubt this distinction has any fundamental importance, I prefer a different way of conceptualizing enhancement. As I will use the term, *an enhancement is any deliberate intervention that aims to improve an existing capacity, select for a desired capacity, or create a new capacity in a human being*.² This covers such non-biomedical enhancements as education and athletic training. Meanwhile, the biomedical interventions that meet the definition include not only medical enhancements as usually understood (e.g., steroids for extraordinary muscularity) but also medical *therapies* that aim to improve capacities (e.g., physical therapy following surgery).³ It is further noteworthy that my definition includes embryo selection (“select for a

² Cf. [3], p. 23 although Buchanan makes no reference to selection for desired capacities.

³ One might wonder whether any medical therapies do *not* aim to improve capacities. For example, doesn't resetting a broken leg eventually improve one's capacity to walk? Doesn't treating the symptoms of a common cold improve one's capacity to get out of bed and go about one's business? Yes, where successful, these treatments are likely to have these results, and they may be motivated by the aims of achieving them. But my point is really about the main proximate aim of an intervention. The main proximate aim of resetting a broken leg is to repair a broken leg and the main proximate aim of cold medicine is to eliminate cold symptoms. By contrast, the main proximate aim of physical therapy following rotator cuff surgery is to improve one's capacity to move one's shoulder freely and effectively.

desired capacity”), not just interventions on a given individual. The idea of enhancement here applies not to the embryos selected, since they are not changed, but to broader populations that can change as a result of such choices.⁴ Who decides whether a particular change would count as an *improvement*, marking the intervention as an enhancement? As I use the term, enhancement is in the eye of the agent authorizing the intervention. Thus, if I take Ritalin in order to augment my powers of concentration and consider this augmentation a good thing, then my taking Ritalin qualifies as an enhancement even though some people think it preferable to let our minds wander as they will.

In order to focus the discussion, I will address two possible kinds of genetic moral enhancement and consider, for each, three modes, or means, of seeking it.

Starting with the kinds of enhancement, let us consider (1) a gene coding for a greater disposition to altruism (roughly, the motivation to help others for their benefit)⁵ and (2) a gene coding for a greater ability to grasp vividly the needs or suffering of individuals who are unknown to one and not present—a cognitive capacity that can help to activate the disposition to altruism. I speak of *a* gene coding for each of these capacities while understanding that in reality multiple genes may play a role; because the aforementioned questions assume that the enhancements are known to be safe and effective, we can bracket practical issues that may arise in the context of gene interactions. Further, and importantly, I have in mind genes that are already part of the human gene pool. Some people already have the relevant capacities even if most of us do not.

For each of these two types of genetic enhancement, let us consider three modes of intervention: (a) embryo selection (“ES” for short), that is, selecting one of several available embryos, after genetic testing, on the basis of its having the desired gene or genes; (b) genetic modification of gametes prior to in vitro fertilization or of embryos following in vitro fertilization (call this “early GM”); and (c) genetic modification—if such a thing could possibly be effective—of an adult who gives voluntary, informed consent to the intervention (call this “late GM”). With two types of genetic enhancement and three modes of attempting an enhancement, we have six possibilities to evaluate. But I will lump them together except where their differences seem potentially relevant to their evaluation.

Motivation: The Familiar Problem of Limited Altruism

Most of this paper will be devoted to articulating and responding to objections to genetic enhancement and sometimes, more specifically, to moral enhancement by genetic means. But, first, some motivation is in order. Why think that genetic enhancements of the two types envisioned here might be a good idea? The answer is that they might respond in a helpful way to the familiar problem that human beings,

⁴ If this extension of the concept of enhancement to include embryo selection seems inconsistent with the ordinary meaning of the term, my definition may be regarded as stipulative for the purposes of this paper.

⁵ See [28] for some evidence that a gene involved in dopamine production is implicated in the disposition to altruism.

generally speaking, are characterized by very limited altruism. In view of how people spend their discretionary financial resources, time, and energy, it seems fair to say that most people—not all, certainly, but most—tend not to be especially generous or helpful, beyond their circle of close associates—except in unusual circumstances such as disasters that are portrayed in attention-getting ways (for example, with visual images and dramatic narratives) or warfare, circumstances that provoke exceptionally strong levels of fellow feeling. And even such feelings are often limited, as in warfare, insofar as we tend to think of our fellows as a more exclusive group than humanity such as compatriots. For the most part, we are relatively unresponsive to the needs and suffering of strangers to whom we feel no special connection, especially if their plight is merely described to us matter-of-factly rather than depicted visually and dramatically.⁶

As I understand the matter, the problem is partly motivational and partly cognitive. Accordingly, we might view the problem as involving one or both of two more specific deficits: (1) insufficient motivation to help those in need even if their need is psychologically “real” to us (vividly grasped by us), unless we regard them as near and dear; and/or (2) insufficient ability to make the plight of those in great need psychologically “real” to ourselves even when sufficient information to convey such need is provided. When it comes to caring about and helping those in need, our imaginations tend to be weak and our motivation tends to be parochial. I assume that this is a major moral problem in view of how much unmet need there is in the world, how much material capacity there is to address that need, and how much capacity to help we demonstrate in response to the perceived needs of those we hold near and dear. Insofar as those who are not in close relation to us have the same moral status as those who are near and dear, it seems entirely reasonable to think we should try to do much better in the way of helping the needy, regardless of our relations to them.⁷ Note that I am not asserting that we should be as helpful to perfect strangers as we are to loved ones, as if equal moral status were all that mattered and no partiality in the moral life were appropriate. Rather, I am asserting that human beings ought to do much more than they currently typically do to help those who are in great need.

Of course, enhancements of moral motivation and of the sorts of cognitive abilities that facilitate moral action need not be biomedical enhancements, much less genetic ones. We already have at our disposal such traditional means of moral

⁶ The human tendency toward limited, highly selective altruism is reflected in the content of common morality, which places much greater emphasis on not harming others than on taking positive steps to assist or benefit others (for an insightful discussion, see [24], chap. 1). My remarks about limited altruism are not meant to diminish the works of those who contribute generously to charitable causes, a group that includes not only financial donors (who enjoy some discretionary wealth) but also those who contribute time and energy in the form of service. But my overwhelming impression is that even people who are regarded as relatively generous typically devote much more resources—whether money, time, or energy—on non-necessities for themselves and loved ones than on charitable causes. Analogously, nations that are in a position to contribute substantially to destitute countries tend to contribute very modestly. The United States, for example, devotes about one tenth of one percent of its GDP to foreign assistance, and much of this miniscule sum goes to countries that are not especially needy but have political interests aligned with the US’s [26].

⁷ For a set of informative essays that support this sentiment, see [25]. See also [19, 21].

enhancement as religion-based ethical instruction, secular ethical education, role-modeling, consciousness-raising campaigns, and the like. But even if we have made some progress in helping the needy in recent decades—as suggested, for example, by lower global rates of abject poverty than existed in the 1970s—it seems undeniable, considering how much dire need persists today, that it constitutes a terrible problem. And it's a problem that wealthy nations and individuals are doing relatively little to solve. Hence the motivation for at least seriously considering the possibility of genetic enhancement with the aim of fostering altruistic behavior.

But many objections have been voiced against the prospect of genetic enhancement, whether for moral or other purposes. I will consider several commonly voiced objections while setting aside those concerned with safety, efficacy, and distributive justice.

Objections and Replies

Disrespecting Autonomy (or Imposing Substantial Risk of Harm Without Consent)

One possible challenge to using genetic means to enlarge altruism focuses on only some of the proposed means: In contrast to late GM, which would require the informed consent of adult recipients, ES and early GM would make consent impossible. These modes of enhancement would therefore fail to respect the autonomy of the affected individuals.

In response to this objection, note first that the principle of respect for autonomy does not apply to beings incapable of autonomous decision-making, including embryos. While many people believe that embryos have moral status, it would be implausible to believe this of gametes, which are not even full-fledged organisms. As for embryos, if they have moral status, then they should not be needlessly harmed. But genetically modifying an embryo with the aim of moral enhancement is not a form of harm, assuming again that the procedure is safe. Moreover, selecting an embryo for implantation is even less plausibly regarded as harmful to the embryo since its only alternative was not to grow into a person at all.

However, a critic might emphasize that a selected or modified embryo might be harmed *after growing into a person*. One might argue in particular that a high degree of altruism is likely to make the person especially susceptible to suffering from the knowledge that so many people in the world are languishing, especially if the individual in question can do little about it.⁸ Although a mature person could give informed consent to take the risk of such emotional harm, this risk is imposed through ES or early GM on an individual who cannot consent. Such imposition of risk without consent is wrong, the objection concludes.

In response, consider first the case of an embryo selected for a greater disposition to altruism. This embryo is not changed and is therefore not made *worse off* than it would have been, as the ordinary concept of harm requires. Then again, we might

⁸ Thanks to an anonymous reviewer for suggesting this challenge.

set aside the ordinary concept of harm and consider an alternative conception according to which one is harmed if put into an intrinsically bad state [17]. Then we could judge that ES features risk of harm by making the embryo-cum-person more likely to suffer the intrinsically bad state of emotional distress. But this line of argument is not convincing, as we can see if we back up and consider the big-picture possibilities open to the embryo that is selected. There are just two possibilities: growing into a person with a relatively strong disposition for altruism or not growing into a person at all. It borders on inconceivable that the former is a worse prospect than the latter. Any person who came into being as a result of such embryo selection should be grateful for the good of human life, which in her case was inseparable from the disposition to altruism.

Our imagined critic might press on, as follows: Even though the altruistic person brought into being through ES presumably has a life worth living, she faces a substantial risk of emotional distress—an intrinsically bad condition and therefore a harm—as a result of heightened sensitivity. So substantial risk of harm is imposed on the embryo-cum-person, after all. In reply, such emphasis on “local” harm, assuming for the sake of argument that this really is a type of harm, does not convincingly support a claim that the individual has been wronged.⁹ Again, she has every reason to be glad for her existence, which was inseparable from her disposition to altruism. Moreover, her disposition might generate not just local harm but also local benefit in the form of greater sources of moral satisfaction, for example, at having helped people genuinely in need. And even if the agent in question has little in the way of spare material resources to devote to assist the needy, she can—unless extremely incapacitated—help in other ways, such as donating time and energy to good causes. Remember, further, that we are not talking about super-human altruism here, just the quality that characterizes some of the most altruistic people we know. One would be hard-pressed to show that such people (who might plausibly be thought to include Mother Teresa, Bono, Bill Gates, and Peter Singer) are harmed, on balance, by their sensitivity and willingness to contribute. I conclude that there is no cogent basis for a charge of wrongful imposition of the risk of harm, without consent, in the case of ES.

What about the charge in relation to early GM? Whereas nonexistence is the only relevant alternative for an embryo that is selected, being a person who is less disposed to altruism is a relevant alternative for an embryo that is modified along the lines considered here. This individual would have existed anyway. So the modified embryo is harmed if and only if acquiring a greater disposition to altruism is worse for one than not acquiring such a disposition. For reasons presented in the previous paragraph, I find this very doubtful. Furthermore, in consideration of the likely advantages to humanity of more people being significantly inclined to altruism, it seems reasonable to place a burden of proof of harm (or undue risk of harm) on the critic to substantiate her charge.¹⁰

⁹ In case the metaphor is unclear, “local” harm is contrasted with the “global” benefit or harm of a life that is, overall, worth living or not worth living, respectively.

¹⁰ One might rebut this claim by invoking a precautionary principle to the effect that we should not deploy new technologies unless we can be reasonably sure that they will not prove significantly harmful. But, insofar as the status quo features harm to humanity resulting from great unmet need and low levels of

Failing to Appreciate Moral Pluralism

A second challenge to using genetic means to enlarge altruism asserts that doing so reflects a failure to appreciate moral pluralism.¹¹ The argument proceeds as follows. There is major disagreement—among members of different political parties, the various religions, different cultures, ethical theorists, and people in general—regarding which moral values are worthy of acceptance. The fact of moral pluralism, moreover, is not merely the sociological fact of differences in value; it includes the fact that there is no authoritative method for adjudicating differences of moral conviction. In this sense, such differences of conviction are *reasonable* and should be respected in our policies and practices. Whereas every reasonable person can see that conditions that are unambiguously disease states are bad and worth addressing in medicine, the enhancement of human traits is different: people reasonably disagree on which traits would *count* as enhancements and, in the context of moral enhancement, which traits would count as virtues. ES and early GM with the aim of moral improvement would run afoul of such pluralism and would presumptuously endorse a particular vision of ethics.

In considering this important objection, we should remember that parents are (rightly) accorded significant discretion in inculcating values in their children. Parents may inculcate certain competing political and moral values at the expense of others, so long as they do not brainwash their children—that is, make them psychologically incapable of entertaining other possibilities—and leave them a reasonably open future in which they can find their own paths in adulthood [10]. To choose a genetic moral enhancement for one's offspring is somewhat analogous, as far as pluralism is concerned, to choosing which values to inculcate.

Perhaps more importantly, the present discussion has focused on a trait whose status as a moral virtue seems to me not genuinely debatable: altruism, the disposition to help those in need for their benefit. Even those, such as classical libertarians (e.g., [22]), who deny that the needy have positive rights to the assistance of others—and, correspondingly, deny that the wealthy have justice-based obligations to assist the needy—are likely to agree that altruism is a virtue, a morally desirable trait. Moreover, the *cognitive* enhancement under consideration, the ability to represent vividly the needs of others, seems neutral with respect to reasonable disagreements about value. The appeal to moral pluralism, it seems, gains no traction with respect to the enhancements under consideration.

Footnote 10 continued

altruism, I think appeals to the precautionary principle—the critic's, concerning possible harm to the embryo-cum-person, and mine, concerning continuing harm to humanity—cancel out and therefore do not support the critic's case.

¹¹ Jonathan Haidt, who—not irrelevantly—is the author of the *The Righteous Mind* [16], pressed me on the issue of pluralism at a 2011 workshop on moral enhancement sponsored by the Carnegie Council of New York.

Threatening Human Nature

A third objection, unlike the first two, pertains to genetic enhancements in general and not only those targeting moral capacities. The charge is that genetic enhancements threaten human nature and are, for this reason, unacceptably dangerous [2, 12, 15].

In reply (see also [5], 78–90), the multiple ideas animating this objection need to be distinguished and considered. First, the objection assumes there is such a thing as human nature. Presumably, this nature is something common to human beings and also distinctive of human beings. That idea seems fine, so long as we do not interpret “common to human beings” as meaning *universal*, tolerating no exceptions. This way, for example, a capacity to learn complex languages could count as a feature of human nature, notwithstanding the fact that some members of our species lack the capacity due to extreme disability.

Equipped with this understanding of human nature, we may now ask what it *means* to say that genetic enhancement might threaten human nature. Here it will be helpful to distinguish between *surpassing* and *altering* human nature. Suppose Michael Phelps un-retired and set yet another world record in swimming. Today the range of excellence in human swimming (or at least racing in pools) is bounded by various world records. Tomorrow Phelps sets a new record. Does that surpass human nature? No, because such a feat would be similar in kind to other instances of human swimming. To surpass human nature would involve something really extraordinary—such as acquiring the ability to breathe underwater and swim for long periods of time underwater. If someone, due to a remarkable mutation or to genetic enhancement, acquired that ability, we might judge that she has, as far as swimming goes, surpassed human nature. She might, in this way, seem super-human, adding some of the capacities of a marine mammal to those that constitute human nature.

But even the surpassing of human nature by one or a few individuals would not amount to *altering* human nature. For human nature to be altered, the change would have to occur in most members of our species or perhaps of an isolated subpopulation of our species. If it makes sense to talk of threatening human nature, that would be in connection with altering it rather than a few people surpassing it. And, again, the change would have to be drastic rather than simply an improvement that is similar in kind to what characterizes human beings today. But improving some people’s disposition to altruism and their capacity to represent vividly the needs of others would in no way constitute an alteration of human nature. Nor would these enhancements even count as surpassing human nature. As stated earlier, the changes would simply bring the enhanced individuals to a level currently represented in the human population. More people would become like those among us who today count as exceptionally good at representing the needs of faceless others and exceptionally disposed to respond to those needs.

For the sake of further discussion, though, let’s suppose to the contrary that the enhancements threatened to surpass human nature and were used by so many people that they threatened to alter human nature. It is worth asking whether this would be bad. What would be wrong with altering human nature? There seem to be two sorts

of answers to this question: that doing so is inherently wrong and that doing so is excessively dangerous to humanity.

The claim that altering human nature is inherently wrong seems most intelligible against the background of the belief that species, including our species, have eternal, immutable essences. This image is at home in Aristotelean biology and is sometimes implicitly invoked by contemporary natural law thinkers.¹² But evolutionary biology erases this image from relevance. Species evolve gradually and are constantly changing. I suppose one could grant this point yet still claim that altering human nature—or the nature of any species—is inherently wrong. But it is of dubious coherence to recognize that species boundaries are constantly moving while asserting that they are sacred.

There remains the other assertion, that altering human nature would be unacceptably dangerous to humanity. There are various ways of developing this assertion and I have discussed them elsewhere ([5], 86–90). Here I will reply, summarily, by saying that enhancing people’s capacity to act altruistically does not seem very dangerous. Indeed, in a very real sense humanity presently faces the danger of its own highly limited altruism [24]. The human status quo—we might even say human nature in its present form—may be more dangerous than the prospect of enhancing altruism through genetic means.

Expressing Hubris

Even if altering human nature is not dangerous in terms of its expected consequences, a critic might contend, it is dangerous in the figurative, virtue-related sense of exceeding the appropriate limits of human activity. Altering human nature is hubristic or arrogant [29]. Human beings should not try to dominate and control Mother Nature, or at least that part of Mother Nature that consists of the human genome (cf. [20]). This objection, of course, applies to all genetic enhancements.

Yet all of our activities include interactions with nature and involve changing it. Is our genome so special that it should be held outside the realm of deliberate intervention? If so, then genetic *therapy* would also be off limits. But genetic therapy is of a piece with the whole of medicine and differs from other medical techniques only in working directly on genes rather than on organs, muscles, or other parts of our bodies. There seems to be no good reason to think that genetic therapy is inherently wrong or problematic for being directed at someone’s genes, so I deny that genetic *enhancement* is objectionably hubristic.

Now, one might reply that the difference between genetic therapy and genetic enhancement is that while therapy addresses an existing problem, enhancement strives toward perfection in the absence of a problem. Such perfectionism, according to this reply, betrays a hyperbolic sense of control over nature and us.

But the enhancements I have in mind do reply to a problem—a problem for humanity at large and for those individuals who most stand to benefit from greater altruism. One could even think of these enhancements as a sort of therapy insofar as

¹² For an introduction to contemporary natural law thinking as it relates to ethics, see [14].

they address a common moral shortcoming. As for any claim that such striving betrays an exaggerated sense of control, I must simply report that I am unmoved by appeals of this kind. Trying to make the world a better place is an appropriate goal, and genetic enhancement with the aim of enlarging altruism may prove to an important means of achieving this goal. How much confidence the adoption of such means might evince about the ability to control things does not seem very important.

Commodifying Children

According to an objection that has been eloquently advanced by Michael Sandel [29, chap. 5], efforts to enhance children treat them more as commodities than as gifts. Children should instead be regarded as gifts, something to rejoice over, not something to evaluate in terms of their merits and demerits. This concern applies to ES and early GM.

While I share the conviction that children should not be regarded or treated as commodities, I do not think either ES or early GM in pursuit of the enhancements under consideration treats children as commodities. Rather, these interventions reflect the belief that it would be good for the children-to-be to have the relevant traits. A similar belief animates efforts to educate children about right and wrong, provide good role models for them, and inspire them in various ways to take the suffering of others as something to care about and try to alleviate. These traditional means of morally enhancing children are clearly not instances of objectionably commodifying children, even though these means—like genetic means—are intended to affect the way children turn out. If the difference between the means in question—mainstream social influences versus genetic interventions—matters morally, the theme of commodification does not get at the relevant difference.

Threatening the Identity of Recipients of Genetic Enhancement

Several authors have argued that by altering an essential characteristic of the individual who undergoes enhancement—that is, by altering *her* (as distinct from human) nature—genetic enhancement threatens the individual's identity ([9]; cf. [13]).

In response to this charge, as I have argued at some length elsewhere ([6], chaps. 6, 7; [7]), it is important to distinguish two senses of “identity.” We must also distinguish the three modes of enhancement considered here. Note, first and most simply, that this objection cannot apply to ES, because ES merely selects an embryo rather than changing anything in a particular individual. Matters are less simple with respect to early and late GM.

Early GM, which involves alterations to gametes or to an embryo, seems better described as *establishing* (one aspect of) the individual's nature, not as *altering* it. In the case of gametes, changes to genetic material will affect the genome of the human organism that will later originate. Prior to the origination, or emergence, of a human organism, there is no relevant being with a nature that can be changed. Even in the case of an already formed embryo, with a full complement of 46 chromosomes, we may reasonably judge that making some genetic changes is

establishing rather than *altering* the individual's nature. Why? Because, prior to formation of the primitive streak at about 2 weeks after fertilization, the embryo can spontaneously divide into two embryos; until the developing life form is sufficiently integrated so that this is impossible, we arguably do not have a *uniquely individuated* human organism. Furthermore, if we are to perform GM on an embryo, I assume it would be better to do so early on, before cells begin to differentiate, so as to simplify the needed intervention. If I am right that early GM would only help to establish—rather than change—the individual's nature, there can be no cogent objection based on the assumption of changing it. (If there are any worries about *establishing* a being's nature, they are probably of the “We shouldn't play God” variety, a type of worry that is out of place in public discourse in a religiously pluralistic society.)

Let us turn to late GM. Clearly an adult human being has an already established nature or identity that might, in principle, be threatened by sufficiently drastic change. But what sort of identity are we talking about? And would genetic enhancement really affect it?

For the sake of clarity, we need to distinguish *numerical identity* and *narrative identity*, two concepts that are often confusingly conflated in discussions of enhancement. Numerical identity is the relation a thing has to itself in being one and the same thing over time, despite qualitative change. A piece of paper, for example, can survive being written on or painted, but it can't survive being burned up; burning it up means that ashes have replaced the original piece of paper, which no longer exists. Another example: I can survive growth, the accumulation of experiences and skills, and even changes in my character or outlook. But I cannot (at least in my view) survive death in the form of ashes or a corpse; my remains would not be me. So, if we have *numerical* identity in mind, it would indeed be a big deal if genetic enhancement threatened my identity because that would mean that it threatened to put me out of existence. But something that would make me more mindful of other people's needs and more inclined to act altruistically would in no way pose such an existential threat.

By the way, to revisit an issue discussed earlier, even if I am wrong that GM on an embryo would likely occur before a uniquely individuated human being has originated—that is, even if early GM changed (rather than helped to establish) the genome and nature of the relevant human individual—the present point would apply. The genetic enhancements under consideration would not affect the numerical identity of an embryo, destroying one embryo and creating a new one in its spatiotemporal wake. Rather, it would introduce a change in an embryo that would survive the change. Numerical identity would be unaffected.

Turning now to *narrative* identity, this is an individual's self-conception, the story she tells herself about her own life and what is most important in it. It is radically subjective in the sense of being determined by the individual whose life it is, whereas numerical identity presumably features the same criteria for any given type of object (e.g., a piece of paper, a human being). So, would late GM affect a person's narrative identity? It probably would, because he is likely to regard the enhancements as very important to him. Otherwise, why seek them? While late GM

is likely to affect the recipient's narrative identity, the question remains: So what? Why think this morally problematic?

Human beings often seek changes that they consider important enough to affect their sense of self and life-story. At different times in my life, I have decided to become more athletic, more serious about academics, and more of a musician. The pursuit and attainment of each of these goals significantly affected my sense of myself. But, as these unexceptional examples should make clear, there's nothing wrong or unnerving about seeking and achieving narrative-identity-affecting changes. Perhaps the most common basis for thinking changes in one's sense of self or identity is a big deal is conflation of this narrative sense of identity with numerical identity. Again, affecting the latter is momentous because it means putting someone out of existence. But, once we are clear on the distinction between the two senses of identity, we see that late GM would only affect narrative identity.

In a recent article, Farah Focquaert and Maartje Schermer argue that *some* types of moral enhancement could raise serious ethical concerns in connection with narrative identity [11]. Among means to moral enhancement, they distinguish (1) direct interventions (e.g., deep brain stimulation), which directly affect the brain and thereby indirectly affect the agent's mind or way of thinking, and (2) indirect interventions (e.g., cognitive psychotherapy), which directly affect the agent's mind or way of thinking and thereby indirectly affect her brain.¹³ The direct/indirect means distinction is important, they suggest, insofar as it tracks a distinction between active and passive roles of the agent involved in the intervention. For example, someone who participates in talk therapy is active in processing ideas and changing her ways of thinking whereas someone receiving deep brain stimulation assumes a much more passive role. One risk of direct means and a correspondingly passive role for the recipient is that such means may induce radical, abrupt psychological changes with little connection to the individual's life story, threatening the coherence of his narrative identity. Another risk of such means, according to the authors, is the greater possibility of major changes in personality that go unnoticed by the changed individual, resulting in a kind of self-blindness and inauthenticity.

Narrative identity is only possible for an individual with a developed sense of self, so the concerns articulated by Focquaert and Schermer do not apply to moral enhancement via ES or early GM. They do apply to late GM. In response to these concerns, we may acknowledge the possibility that late GM would in some cases lead to a disrupted narrative identity or inauthentic self-blindness. However, the same authors propose what I think is exactly the right response to the possibility of such outcomes [11]. Where direct interventions aimed at enhancement are involved (as they would be with late GM), the individuals in question should undergo a very substantial informed consent process that explores the possibilities of concern; and during the intervention (if it is undertaken in stages and communication between stages is feasible) and afterwards, the individuals should receive counseling that serves to minimize the possibilities of disrupted narrative identity or self-blindness.

¹³ They recognize that some interventions, such as neurofeedback, are intermediate between direct and indirect interventions as just characterized.

Robbing Agents of Freedom

Another objection applies to genetic interventions aimed at moral enhancement rather than genetic enhancement across the board. A major source of value in moral behavior, according to the objection, is the freedom with which an agent chooses how to act. If someone “chooses” well only because she had to do so, this action is not really chosen at all and so lacks the value associated with freedom. Moral enhancement by genetic means might deprive the agent of the possibility of choosing *against* altruism, thereby removing much of what’s valuable in (genuinely valuable) moral behavior [18].

In reply (see also [4]), while it is reasonable to ascribe value to freedom as a component of moral behavior, the objection seems unable to gain traction given the sorts of enhancements we are considering. We have in mind genes that some human beings already possess, conferring on them a relatively strong capacity to represent the needs of faceless strangers and a relatively strong disposition to respond to such needs with helpful actions. This is crucial because those who have this capacity and disposition are surely moral agents with as much ability to choose freely as any other moral agent. Indeed, the cognitive capacity and therefore an enhancement that confers it aren’t even *candidates* for factors that could deprive one of freedom; understanding things better never makes one less free.

To be sure, some conceivable enhancements would deprive agents of much or all of their freedom in action. For example, if a sadist underwent a computer chip implant that caused him to lose his desire to torture anyone immediately after experiencing this desire, he would presumably no longer be free with respect to choices regarding whether or not to torture. In my view, this wouldn’t be much of a loss, notwithstanding the value freedom normally has. In any case, the enhancements under consideration in the present discussion have no comparable freedom-robbing effects.

But Would it be Wise?

I have argued that genetic enhancements of the sort envisioned here would be morally permissible in the sense that there would be nothing inherently wrong with them. The argument has proceeded against the background assumption that the two enhancements are safe for those immediately affected, effective, and available to all who desired them. This idealized assumption, of course, neutralizes several other possible concerns about genetic enhancements. But these are not the only possible concerns. Others may bear on the *wisdom* of pursuing the genetic enhancements under consideration, initially through research, later through clinical access to them, and possibly also government encouragement of their use.

At this stage in my reflection on these issues, I honestly do not know whether I think it would be wise to pursue genetic enhancements with the aim of enlarging altruism. On the other hand, I do firmly believe that we should be open to these possibilities and not dismiss them outright or on the basis of perceived inherent

wrongness. Following are some factors that should be taken into account in further reflections on the possibilities in question.

One major concern is whether pursuing these enhancements—at least through the initial research phase—would reflect appropriate societal priorities. The availability of private funding for such research seems likely to be insufficient, in which case public funding would be needed. It is important to acknowledge here that I view the issue of priorities as a representative of a nation that is still very far from achieving a just system of health care coverage. The Patient Protection and Affordable Care Act, also known as Obamacare, will not achieve universal health care coverage even under the best circumstances, yet I assume that in a developed country nothing less is required by the demands of social justice. So, from the standpoint of the United States, I suggest that investment in genetic enhancement of the sorts envisioned here should have lower priority than securing decent health insurance for all citizens and (at least) legal noncitizen residents.

A second major concern regarding genetic enhancement of moral traits and cognitive traits that serve them is the very live possibility that genetic means are unnecessary for the desired end of moral improvement. The problem of highly limited altruism is serious. So far, traditional means of moral enhancement—moral instruction, consciousness-raising efforts, and so on—have been far from adequate to the task of addressing the problem. But perhaps with inspired leadership and some creativity, the problem could be adequately addressed without resorting to genetic enhancement.¹⁴ Nothing I have argued precludes this possibility. And, if we return to the real world and drop my idealized assumption—an assumption motivated by an interest in focusing on whether genetic enhancement would be *inherently* morally problematic—the case against pursuing genetic moral enhancement becomes more substantial. After all, we are far from understanding how we could achieve the desired genetic modifications safely and effectively, much less (at least in the United States) how we would make them available to all who wanted them; nor do we even have a clear idea of which genes would be implicated. Achieving the requisite understanding would entail substantial costs over quite a few years, and one might reasonably expect that such a large-scale investment would be better directed to traditional means of moral enhancement. Few legislators, as far as I know, even regard the phenomenon of limited altruism as a serious problem. If enough of them might be convinced, perhaps much of the practical upshot of limited altruism could be adequately addressed with government-sponsored initiatives involving various forms of traditional moral enhancement.

To make one final point, the two challenges I have posed to the wisdom of pursuing the genetic enhancements discussed here—the issue of priorities and the question of whether genetic means are necessary—have much greater force against early and late GM than against ES. Embryo selection requires much less of an advance in genetics than any kind of GM would require. We already practice ES

¹⁴ Another possibility, not explored in this paper, is that biomedical enhancements other than genetic ones—for example, the use of certain pharmaceuticals or deep-brain stimulation—would represent a preferable option.

following genetic testing, and the list of gene-based traits and dispositions for which we can test is rapidly growing. This means that the investment required for learning how to identify embryos with a genetic endowment favoring altruism is likely to be relatively modest. And, in general, the process involving testing, embryo selection, and implantation is quite safe and seems to be effective with respect to its specific aims at a given time. If and when altruism-favoring ES can be made clinically available (on a voluntary basis) to prospective parents, it is likely to be inexpensive in comparison with genetic modifications, improving the prospect for distributing access to this type of ES in a just manner. In conclusion, once again, we should be open to this and other possibilities discussed here.

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