

Moderate eugenics and human enhancement

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Abstract Though the reputation of eugenics has been tarnished by history, eugenics per se is not necessarily a bad thing. Many advocate a liberal new eugenics—where individuals are free to choose whether or not to employ genetic technologies for reproductive purposes. Though genetic interventions aimed at the prevention of severe genetic disorders may be morally and socially acceptable, reproductive liberty in the context of enhancement may conflict with equality. Enhancement could also have adverse effects on utility. The enhancement debate requires a shift in focus. What the equality and/or utility costs of enhancement will be is an empirical question. Rather than philosophical speculation, more social science research is needed to address it. Philosophers, meanwhile, should address head-on the question of how to strike a balance between liberty, equality, and utility in cases of conflict (in the context of genetics).

Keywords Ethics · Genetics · Eugenics · Enhancement · Liberty · Equality · Moderate · Pluralism

One of the main areas of debate surrounding the ethics of genetics concerns ways in which emerging genetic science and technology might be used in the context of human reproduction. In particular is the worry that genetic testing, genetic engineering, and human reproductive cloning, among other things, may be used for the selection and/or

design of future offspring. Many who are worried about the use of genetic science and technology for the selection and/or design of offspring say that such practices are wrong precisely because they involve eugenics.

‘Eugenics’ is a pejorative term. Eugenics is usually considered to be a bad thing. Many, or probably most, people believe that if some given practice would involve eugenics, then that would provide grounds for condemning the practice in question.

But what is eugenics and why is it considered to be a bad thing? Eugenics is basically about breeding better people. For the purposes of this paper I define ‘eugenics’ broadly as *a practice that aims to improve human lives by employing an understanding of heredity in the exertion of control over who gets born or who reproduces*.

History

The term ‘eugenics’ was originally coined in 1883 by Francis Galton, a cousin of Charles Darwin. In Greek it means “good in birth” or “noble in heredity” (Kevles 1985, p. ix). Having studied the family histories of eminent men and found that exceptional talent and genius appeared to run in their families, Galton (2006) concluded that exceptional ability must be a matter of nature rather than nurture. Society as a whole would benefit tremendously, he thought, if proportionally more highly-talented people were born each year; and this would occur, he argued, if gifted men and women were encouraged to match up and mate more.

Given that so much attention and effort routinely went into plant and animal husbandry—i.e. where farmers went to great lengths to ensure that plant and animal offspring resulted from the union of the finest specimens in their

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flocks and fields—Galton thought it tragic that so little attention was placed on human breeding, which was haphazard in comparison. He thus proposed a new “science” of eugenics that would aim “to bring as many influences as can be reasonably employed, to cause the useful classes in the community to contribute *more* than their proportion to the next generation” (Galton 2004, p. 38). Believing that “the improvement of our stock ... [is] one of the highest objects that we can reasonably attempt”, Galton (2006, pp. 42–43) explicitly advocated that eugenics be promoted as a new religion.

The general idea of eugenics took off internationally; and during the early part of the twentieth century the eugenics paradigm was widely accepted across political spectrums. Though there were differences in emphasis and favoured means (be they coercive or voluntary) for the promotion of eugenic aims, the general idea of eugenics was commonly embraced by conservatives, moderates, and liberals (Kevles 1985).

Eugenics was part of the enlightenment-inspired progressivist movement. A central idea of eugenics was that scientific knowledge could and should be brought to bear on social problems. It was hoped and believed by many that recent dramatic developments in biology—i.e., Darwinian evolutionary theory and Mendelian genetics in particular—would have important implications for social policy making.

Galton primarily emphasized what is called “positive eugenics”—i.e., the promotion of desirable traits in the population. Positive eugenics aimed at producing more high quality individuals by increasing reproduction of the most gifted members of society. He also usually favoured voluntary eugenics—where individuals would be encouraged, but not forced, to engage in eugenic breeding practices.

Others, in contrast, primarily emphasized the importance of “negative eugenics”. Just as desired traits were heritable, so (it was believed) were undesirable traits. Negative eugenics aimed at decreasing the frequency of undesirable traits in the population by decreasing the reproduction of defective individuals.

The implementation of coercive—and sometimes violent—policies and practices involving negative eugenics was one of the main things that eventually gave eugenics a bad name. Consider, for example, what went on in the United States during the first part of the twentieth century. Early American eugenicists believed that a majority of social problems could be attributed to biological heredity. The good of society was threatened, they believed, by “degenerate” persons who were genetically predisposed to lives of immorality, prostitution, promiscuity, criminality, alcoholism, idleness, poverty, dependency, shiftlessness, idiocy, insanity, epilepsy, and sickness generally (Kevles 1985). American eugenicists commonly believed:

1. that “degenerate” characteristics (such as those just listed) were genetically inherited—i.e., the products of nature rather than nurture,
2. that degenerate individuals were most commonly found among members of the lower classes and “inferior races”,
3. that biologically degenerate classes and races were reproducing at a far greater rate than the upper classes and “superior” races,
4. that the growing number of misfits imposed large financial burdens upon society,
5. that poverty relief and charity measures were at best ineffective or at worst counterproductive (by facilitating survival and reproduction of the unfit), and
6. that recent improvements in medicine and public health had the dysgenic effect of facilitating survival and reproduction of the unfit (Haller 1963; Kevles 1985; Reilly 1991; Carlson 2001; Black 2003; Rosen 2004).

Beliefs like these led early American eugenicists to conclude that curtailment of the reproduction of “undesirables” was a matter of biological and economical urgency.

American eugenicists were especially worried about the problem of the so-called “feeble-minded”. ‘Feeble-mindedness’ referred to a wide range of mental deficiencies thought to underlie the degenerate characteristics listed above—and socially deviant behavior generally. The prominent American psychologist Henry Goddard characterized the feeble-minded as

a form of undeveloped humanity: ‘a vigorous animal organism of low intellect but strong physique—the wild man of today’ ... The feeble-minded, Goddard argued, lacked ‘one or the other of the factors essential to a moral life—an understanding of right and wrong, and the power of control.’ They grew up to become criminals because they lacked the power to ‘do the right and flee the wrong’; paupers, because they found the burdens of making a living too heavy; and prostitutes because they were weak-minded and unintelligent ... [W]hatever the cause [of feeble-mindedness], of one thing he [was] virtually certain: it behaved like a Mendelian character. Feeble-mindedness [according to Goddard] was ‘a condition of the mind or brain which is transmitted as regularly and surely as color of hair or eyes’ (Kevles 1985, pp. 78–79).

Feeble-mindedness was thought to underlie an incredibly wide range of undesirable traits and conditions, and it was believed by many to be the product of just a single gene.

The early twentieth century American eugenics movement culminated in the implementation of coercive policies

that explicitly aimed to reduce feeble-mindedness—and thus the costs it imposed on society. US eugenic legislation included marriage restrictions, immigration restrictions, and laws calling for the segregation and forcible sterilization of feeble-minded persons.

Marriage restrictions were enacted or amended in 30 states by 1914. They voided the marriages of “idiots” and the insane and/or “restricted marriage among the unfit of various types, including the feeble-minded and persons afflicted with venereal disease.” The most famous was the Indiana law which

forbade the marriage of the mentally deficient, persons having a “transmissible disease,” and habitual drunkards; required a health certificate of all persons released from institutions; and declared void all marriages contracted in another state in an effort to avoid the Indiana law (Kevles 1985, pp. 99–100).

Because data supposedly provided scientific evidence that people from countries in Eastern and Southern Europe were genetically prone to crime and low intelligence, the discriminatory Immigration Act of 1924 placed severe restrictions on immigration from such countries (Kevles 1985).

Further measures included enactment of legislation requiring increased segregation/confinement of feeble-minded persons in state institutions (Haller 1963, pp. 125–129) and the compulsory sterilization of the feeble-minded. Sterilization laws were established in about two-thirds of the states, and they led to the compulsory sterilization of over 60,000 men and women (Reilly 1991). Some were not even told what was being done to them; when they tried to conceive after release from state institutions they discovered to their surprise that they were infertile.

Sterilization laws variously provided states with the power to compel the sterilization of habitual criminals, sexual offenders, drug addicts, “epileptics, the insane, and idiots in state institutions” (Kevles 1985, p.100). They were advocated by those who believed that the good of society outweighed individual rights and/or that the social consequences of reproduction were so severe that reproductive decisions could no longer be considered private matters. Dr. William J. Robinson argued that:

It is the acme of stupidity ... to talk in such cases of individual liberty, of the rights of the individual. Such individuals have no rights. They have no right in the first instance to be born, but having been born, they have no right to propagate their kind (Kevles 1985, pp. 93–94).

Eugenically motivated compulsory sterilization laws were made constitutional by the 1927 Supreme Court decision of

Buck vs. Bell where Justice Oliver Wendell Holmes famously concluded that:

We have seen more than once that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the State for these lesser sacrifices ... in order to prevent our being swamped with incompetence ... It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes ... Three generations of imbeciles are enough (Black 2003, p. 121).

Eugenic activities in the United States, and elsewhere in the world (such as Scandinavia), paled in comparison to what went on in Nazi Germany. The eugenically-motivated Nazi program of “Racial Hygiene” included a sterilization program that was initially inspired by, and modelled after, the California sterilization program. The Nazis, however, were more severe. The 1933 Law for Prevention of Defective Progeny called for compulsory sterilization of all those with “congenital mental defect [i.e., feeble-mindedness], schizophrenia, manic-depressive psychosis, hereditary epilepsy, hereditary chorea [i.e. Huntington’s Disease], hereditary blindness, hereditary deafness, severe physical deformity, and severe alcoholism” (Müller-Hill 1988, p. 30). It is estimated that, primarily between 1934 and 1937, the Nazis sterilized a total of 400,000 persons (Proctor 1988, p. 108). Nazi sterilization legislation often received praise in American eugenics literature (Black 2003, pp. 300–301); and American eugenicists who were impressed by the scale of the Nazi effort and wanted to expand sterilization practices in the United States, ironically complained that “[t]he Germans are beating us at our own game” (Kevles 1985, p. 116).¹

“Euthanasia” of defective children and institutionalized mental deficient was also added to the eugenic repertoire of the Nazis. Müller-Hill (1988, p. 70) estimates that by 1942 a total of 94,000 German mental patients had been killed (usually by gas but some were shot or killed by other methods); and that an additional 100,000 patients were later starved to death. The culmination of eugenics under the Nazis finally involved the holocaust—and the murder of five to six million Jews. The Nazis characterized their victims as “worthless eaters” or those with “lives unworthy of life”.

¹ Kevles’ quote of Dr. Joseph S. DeJarnette, who thought that his state—Virginia, the second ranking sterilization state in the US—was not sterilizing enough people.

This history largely explains why eugenics came to have a bad name. Eugenics was especially tarnished by its association with Nazi barbarity. Because eugenic thinking was an explicit basis of Nazi ideology and the holocaust, there was a strong impetus for both individuals and institutions (including the Carnegie foundation which had been a major supporter of eugenics (Black 2003)) to disassociate themselves from eugenics when the extent of Nazi atrocities was revealed at the end of World War II.

Eugenics also fell into disrepute when it became clear that the early eugenics movement was based on bad science (Kevles 1985). Though early eugenicists included some of the best scientists of their day, it was eventually realized that their methods were not up to snuff from a scientific perspective. Eugenic scientists drew premature and oversimplified conclusions about the genetic basis of human traits and conditions without properly considering polygenic interactions and/or the role played by environmental factors; and they sometimes grossly overestimated the population level effects that measures such as sterilization could have (even if their beliefs about genetic causation were assumed to be correct) (Carlson 2001). Eugenicists were also accused of using unsophisticated hereditary data gathering methods and for employing an unscientific (i.e., fuzzy) taxonomy of human traits and conditions (Kevles 1985). The intelligence testing that much of eugenic science was based upon, finally, appears to have been deeply flawed. Such tests perhaps revealed as much about the biases and prejudices of those who designed them as they revealed about the “innate intelligence” of those who were subjected to testing (Gould 1981; Kevles 1985).

Eugenics was finally rejected, then, because it came to be associated with both bad science and bad politics. In the latter case, eugenics is now often associated with coercive social policy at odds with the right to reproduction (and, in the case of the Nazis, the right to life). Not only the Nazi but also the American eugenic policies and practices are condemned from a human rights perspective in retrospect. In contemporary western democracies, the rights to reproductive liberty and bodily integrity are deeply cherished; and most of us find the idea of compulsory sterilization (not to mention eugenically motivated murder!) to be unacceptably draconian.

Though this brief history explains why ‘eugenics’ *is* usually used as a pejorative term, the question of whether or not it *should* be used this way remains. The fact that the previous practice of eugenics was bad does not imply that eugenics, *per se*, is necessarily an altogether bad thing or that a better future eugenics would not be possible (Kitcher 1996; Buchanan et al. 2000).

Neugenics

Moving to the present, many are worried about recent advances in genetics because they believe these will lead to

a resurgence of eugenics. Others (including a growing number of prominent philosophers and bioethicists), on the other hand, agree that genetics will lead to—or, actually, has already led to—a revival of eugenics, but they do not believe that eugenics *per se* is something we need to fear (Kitcher 1996; Buchanan et al. 2000; Agar 2004). The latter hold that an ethically acceptable “liberal” new eugenics can avoid the pitfalls of the past.

Consider, for example, the routine practice of prenatal diagnosis and selective abortion. Pregnant mothers at risk of giving birth to offspring with congenital diseases are routinely offered genetic testing of the fetus. When such tests reveal that the child-to-be would suffer from a severe genetic disorder, then abortion is often sought. For those not absolutely opposed to abortion for religious reasons, prenatal diagnosis and selective abortion is usually considered to be morally acceptable, at least when we are talking about prevention of the most severe genetic disorders, such as Tay Sachs and Lesch-Nyan disease (Kitcher 1996). Such diseases doom their victims to short miserable lives. They cause extreme mental and physical disability, excruciating pain, and death during infancy or early childhood. Those with Lesch-Nyhan disease are prone to self-mutilation. In the context of severe genetic disorders like these, the primary motivation behind prenatal diagnosis and selective abortion is the prevention of extreme suffering. Along with cases where pregnancy is due to rape or threatens the life of the mother, abortion aimed at prevention of severely disabled offspring is commonly cited as being among the clearest cases where termination of pregnancy should be considered morally acceptable (Dworkin 1994).

Such a practice, however, fits the definition of eugenics provided at the beginning of this paper. Insofar as the aim is to improve human lives by employing an understanding of heredity in the exertion of control over who gets born or who reproduces, prenatal diagnosis and selective abortion should be considered a form of eugenics. If prenatal diagnosis and selective abortion is ethically acceptable, then eugenics *per se* is not necessarily a bad thing (Kitcher 1996; Buchanan et al. 2000).

For those opposed to abortion for religious reasons, we can point to other examples of contemporary or future eugenic practices that do not involve termination of pregnancy. Preimplantation genetic diagnosis (PGD), for example, involves the testing of embryos produced during in vitro fertilisation therapy (IVF). Such testing enables screening against severe genetic disorders before embryos are implanted into the mother’s uterus. Like prenatal diagnosis and selective abortion, such a practice fits our definition of eugenics.

PGD involves embryo destruction or long-term freezing—because embryos that test positive for genetic disease

are discarded or frozen indefinitely. Those who attribute high moral status to embryos may thus object to PGD.

IVF, however, usually already leads to the destruction (or indefinite long-term freezing) of embryos—because it is common IVF practice to produce more embryos than actually get implanted into the mother’s uterus (Savulescu 2001). Spare embryos are routinely produced for possible implantation later in case pregnancy does not result from the first round of implantation. The availability of spare embryos in such circumstances (which occur frequently in the context of IVF) helps to avoid a situation where the mother would need to go through additional burdensome rounds of hormone treatment and egg harvesting. Most people accept that IVF (thus practiced) is morally acceptable despite the fact that it leads to the destruction (or indefinite long-term freezing) of spare embryos.

Those who consider IVF to be ethically acceptable should presumably consider PGD to be ethically acceptable too—at least when we are talking about screening against the most severe genetic disorders like those described above. If the destruction (or long-term freezing) of some embryos is ethically acceptable (during normal IVF) then it is hard to see why the possible destruction (or long-term freezing) of perhaps a few more embryos (i.e., those that test positive for genetic disease, in the case of PGD) would make a crucial difference. If embryos had much in the way of moral status, then IVF (as commonly practiced) would itself be problematic. If embryos do not have much in the way of moral status, on the other hand, then the possible destruction (or long-term freezing) of a few more of them should not matter, especially when the aim and outcome is the prevention of horrendous suffering.

Selective abortion, IVF, and the selection of embryos may all involve the termination of human lives; and controversy surrounds questions about the moral status of embryos and fetuses. Before moving on, I should point out that the idea that such practices are morally acceptable need not depend on a rejection of the claim that such beings possess important rights and value. My own view is that the moral status of such beings is uncertain (Selgelid 2001, 2012). Rather than asserting that embryos and fetuses do or do not possess significant rights and value, I argue that the possibility that they do possess such rights and value and the possibility that they do not possess such rights and value are both compatible with reason and the available evidence. If the separation of church and state is to be taken seriously, furthermore, then the view that the moral status of the fetus or embryo is uncertain is exactly the kind of position that should be taken from a policy-making perspective. To take an affirmative or negative stand on the question of the moral status of the fetus or

embryo for policy making purposes would be to align policy with what is ultimately a religious perspective.²

We take risks whenever we kill embryos and fetuses, because these beings just might embody significant rights and value. This does not imply that the killing of fetuses and embryos is always wrong, but it implies that such killing should be considered morally problematic. In exceptional circumstances—such as pregnancy due to rape, pregnancy which threatens the life of the mother, pregnancy when no baby is wanted, and pregnancy that would lead to a life full of suffering—such risk-taking might be justified. But it would be wrong, on my account, to kill fetuses or embryos for relatively trivial reasons.

This position on the moral status of early human life makes sense of ideas about abortion that are commonly (though, admittedly, not universally) accepted: i.e. that abortion may be acceptable when the aim is to prevent suffering, but abortion of a healthy fetus would be wrong if the aim is merely to go on a planned holiday (that pregnancy would make inconvenient). This article is not primarily about the moral status of human life, so I will not elaborate on this point at great length here. I should add, however, that it does have implications for the discussion of enhancement that follows. Prenatal diagnosis of a severe genetic disorder may count as an exceptional circumstance that justifies killing a being that might have moral status. Something terrible would happen if we did not take the risk involved—because a life full of suffering would result. The aim to enhance one’s offspring, on the other hand, would not so clearly justify the risk-taking in question. Suppose that one wanted to abort a normal healthy fetus with the hope of conceiving another with genes for greater height. Many think this would be wrong. The idea that the moral status of the fetus is uncertain provides one good reason for thinking so. There is no need to risk taking a life with moral status in this case—because the alternative (i.e., the birth of a normal healthy child) involves nothing terrible.

I have been arguing that those not absolutely opposed to abortion or the killing of embryos for religious reasons should not be absolutely opposed to the idea of eugenics. For those who *are* absolutely opposed to the killing of fetuses or embryos for religious reasons, there are other forms of eugenics that need not involve the killing of fetuses or embryos. Potential parents can themselves undergo genetic testing, for example, and forgo conception when tests reveal that (given their own genetic make-ups) they would be likely to conceive a fetus with a severe genetic disorder. If genetic engineering becomes safe and effective, furthermore, then

² Following Dworkin (1994) I am here using the expression ‘religious view’ broadly—i.e., to refer to comprehensive outlooks that require leap of faith about debatable matters of central importance (whether or not belief in the existence of God is involved).

this may enable correction of faulty genes in fetuses or embryos without killing fetuses or embryos. Such practices would both fit my definition of eugenics. I imagine that only very few people would object to the practice of genetically-informed conception avoidance in particular [It should be admitted, however, that at least some might object to birth control motivated by results of genetic testing of parents via appeal to (1) religious injunctions to “be fruitful and multiply” and/or (2) concerns about the effects such practices may have for disabled communities (Kaplan 1993)]. Genetic testing of gametes (Bourne et al. 2012) prior to fertilisation may provide yet another future technological means of eugenic selection that would not involve embryo or fetus destruction.

If at least some of the practices considered above are morally acceptable, then eugenics is sometimes morally acceptable. The crucial flaw of the old eugenics, according to many of those who accept the new eugenic practices I have described, was its use of coercion. A new eugenics where individuals freely make their own decisions about how to act on the information revealed by genetic tests and their own decisions about what genetic tests (or other genetic interventions) to employ should, they argue, be considered acceptable (Kitcher 1996). Rather than objecting to eugenics, per se, they say we should object to the use of state power in the pursuit of eugenic aims—what was wrong with the old eugenics was not the fact that it involved eugenics, but the fact that it interfered with reproductive liberty and other human rights (Agar 2004). The new eugenics, they argue, should be *laissez-faire*: individuals should be free to engage in prenatal diagnosis and selective abortion, PGD, genetic engineering, and so on, but they should not be forced to engage in such practices. Last but not least, defenders of a new eugenics often claim that, given the current political climate, we do not need to worry about a return to coercive state-sponsored eugenics programs like those of the past. At least in western democracies, they say, human rights protections are now too well entrenched for history to repeat itself (Paul 1998).

Enhancement

It is at this stage that the debate about eugenics intersects with debate about human enhancement. Many who believe that individuals should be free to employ the genetic interventions described above when the aim is to prevent the births of severely disabled offspring are uncomfortable with the prospect that the same sorts of interventions will be used for nontherapeutic or enhancement purposes. They thus reject the idea of a completely liberal—*laissez-faire*—eugenics.

With advanced understanding of the human genome and developments in genetic testing technology, it will become

technically possible to test fetuses or embryos for nucleotide sequences correlated with hundreds or even thousands of traits and conditions in the not too distant future. Imagine a case where parents want to determine whether or not their fetus carries their genes associated with exceptional height, beauty, and/or intelligence—and that their aim is to abort and conceive another if it does not. Would this be morally acceptable? And should it be permitted?

The same questions arise in the context of PGD (which, for numerous reasons, is more likely to be used for non-therapeutic, enhancement purposes than prenatal diagnosis and selective abortion). Imagine scenarios where numerous IVF embryos are produced and all are tested for a wide range of traits and conditions. Each embryo would receive a genetic report card, and then parents would chose to implant the embryo (or embryos) with the brightest prospects. Parents would not only *select against* diseased embryos; insofar as it becomes possible to test for such things they would also (if permitted) *select for* desired traits such as intelligence, beauty, athletic ability, charisma, sense of humour, longevity, and so on.³ If human reproductive cloning and genetic engineering become safe and effective, they too could be used for the same sorts of purposes.

If nontherapeutic, enhancement-oriented genetic interventions are wrong and/or should be illegal, then the reason why this is so may not be immediately obvious; and there would be difficult questions about where to draw the line between those genetic interventions that should be considered permissible and those that should not be. Some think that a clear bright line can be drawn via the treatment–enhancement distinction itself. The purpose of medicine, they argue, is to treat and prevent disease; and so medicine should not be used for other purposes.

Even if the primary purpose of medicine is to treat and prevent disease, however, it is not entirely clear why “medical” technologies should not be used for other worthwhile purposes as well. Why would it be wrong for some new field—call it “schmedicine” (Parens 1998)—to adopt, adapt, and apply the relevant genetic technologies to human enhancement?

More importantly, defenders of human enhancement (e.g., Harris 2007; Chan and Harris 2007; Savulescu 2007) often deny that the treatment–enhancement distinction is morally significant. Treatment is standardly defined as a corrective response to disease. And disease is standardly defined according to the biomedical model as abnormal (negative) deviation from species-typical functioning

³ I do not mean to here imply that such traits are genetically determined. It is plausible, however, that at least some genetic basis for traits like these will be discovered and/or that correlations between such traits and identifiable genetic sequences will be discovered.

(Boorse 1977). Normality is in this context ultimately a statistical notion. The distinction between disease and health and the distinction between treatment and enhancement are thus ultimately arbitrary. Because the line between treatment and enhancement is arbitrary, the argument goes, there can be no morally significant difference between the two.

Enhancement is, in any case, by definition a good thing. To enhance is to make better—so what could be wrong with that (Harris 1992)? Rather than distinguishing treatment from enhancement, Oxford bioethicist Julian Savulescu (in his presentation “What is an Enhancement and When Should We Enhance People? Enhancing Human Capacities: Ethics, Regulation, and European Policy”, Conference held in association with the 8th World Congress of the International Association of Bioethics, 5 August 2006, Beijing, China) argues that the former is really just a subset of the latter. We enhance, on his view, when we increase one’s well being and/or functioning. Treatment, according to Savulescu, is just a special case of increasing the well being and/or functioning of those with diminished amounts of such things.

There are, furthermore, both medical and nonmedical enhancements that we already accept as entirely unproblematic. Vaccination, for example, strengthens the natural immunity of ordinary healthy people (Harris 1992)—it is an enhancement if anything is; and almost everyone believes it to be a wonderful thing. There are also very many nonmedical enhancements we accept all the time. We send our children to special schools, sports camps, and music lessons, for example, precisely in order to enhance their abilities—and we want to enhance their abilities because this will enhance their well being.

Given that we routinely accept such practices, what could be so different about genetic enhancement, in particular, that would make it wrong while so many other forms of both medical and nonmedical enhancements are fine?

Not only is enhancement morally permissible, according to Julian Savulescu, but it is also morally required. He advocates a principle of “procreative beneficence” which holds that

couples (or single reproducers) should select the child, of the possible children they could have, who is expected to have the best life, or at least as good a life as the others, based on the relevant, available information (Savulescu 2001, p. 413).

For the same reason that we should choose healthy rather than diseased children, we should choose enhanced rather than unenhanced children—i.e., because we should want and do what is best for our children. Why should we ever decide to have children with lives less good than they could

have been? If we can choose between one child whose quality of life score would be expected to be 9 out of 10 and another whose score would be expected to be 7 out of 10 it might seem obvious that we should choose the former.

The demands of procreative beneficence, however, should be qualified. If we can choose between one child whose quality of life score would be 9 out of 10 and another whose score would be 7 out of 10 we should of course choose the former, *other things being equal*. Other things are not always equal, however, and this is the fatal flaw of the pro-enhancement arguments considered above. If enhancing my children would be costly or give them unfair advantages over others, for example, then this may provide reasons not to enhance my children. The possibility that enhanced individuals would have unfair advantages over others might, furthermore, provide grounds for the state to restrict my liberty to enhance my children.

The best arguments against arguments in favour of a liberal eugenics with respect to enhancement appeal to social consequences. Given that ordinary medical technology is not equally available to all, there is no reason to believe that enhancement oriented technologies would be either. To the contrary, there is good reason to believe they would not be. Because enhancement technologies would presumably often only be available to the financially fortunate, it is entirely plausible that their use would increase existing unjust inequalities between the haves and have-nots in well-known ways (Mehlman and Botkin 1998).

Liberty is important, and reproductive liberty is perhaps especially important (Robertson 1994; Dworkin 1994). But equality matters too. Presumably neither liberty in general nor reproductive liberty in particular should always be given absolute priority over equality from a policy making perspective. If enhancement’s threat to equality was sufficiently great, then this could provide grounds for restricting reproductive liberty in the context of enhancement. Only extreme libertarians would hold that liberty should be given priority over equality regardless of the extent to which the latter is threatened. Most philosophers, policy makers, and ordinary citizens (upon reflection anyway) reject libertarianism—and even Robert Nozick (1974, p. 30) hints that liberty restrictions might be justified when necessary to prevent disaster. The problem with the old eugenics was that it attached insufficient attention to individual liberty (Buchanan et al. 2000). The new eugenics could err in the opposite way if it places *too much weight on the importance of liberty* (and too little weight on equality).

Let’s return to the arguments above. The first rejected objections to enhancement on the grounds that the treatment–enhancement distinction is ultimately arbitrary. This style of argument, so common in debates about enhancement (Chan and Harris 2007; Harris 2011, p. 140) (such an

argument was also put forward by Julian Savulescu in his presentation “What is an Enhancement and When Should We Enhance People? Enhancing Human Capacities: Ethics, Regulation, and European Policy”, Conference held in association with the 8th World Congress of the International Association of Bioethics, 5 August 2006, Beijing, China) should be treated with suspicion. The fact that the treatment–enhancement distinction is hard to make does not mean that there are no important distinctions to be made. There is presumably no fine line that separates those who are bald from those who are not bald, but this does not mean that there are no important distinctions to be made with respect to baldness. Baldness involves a continuous spectrum ranging from those who have no hairs on their heads, at one end, to those who have full heads of hair, at the other. Though we cannot draw a nonarbitrary line between the bald and the not bald, we can talk in a useful and meaningful way about baldness. We can distinguish the opposite ends of the spectrum; we can talk about degrees of baldness; and we can point out prototypical cases of baldness and prototypical cases of people who are not bald. Among other things we can say important things like this: To the degree that a person is bald—i.e. has few(er) hairs on his head—the more important it is that he put sunscreen on his head.

Rather than dismissing the treatment-enhancement distinction we should recognize that, as in the case with baldness, we are here faced with a continuous spectrum, the opposite ends of which are different, and where it makes sense to speak in terms of degree and prototypical cases. A case is at the treatment end of the spectrum to the degree that a person has (or would have, if we are talking about future people) a low quality of life—and/or a low level of functioning—and an intervention is used to improve her quality of life and/or functioning. A case is at the enhancement end of the spectrum to the degree that the person has (or would have, if we are talking about future people) a high quality of life—and/or a high level of functioning—and an intervention is used to make her quality of life and/or functioning even better. Rather than talking about the ethics of treatment versus enhancement as though these were categorically different things (and rather than abandoning the treatment–enhancement distinction altogether) it is perhaps most useful to talk about particular interventions—and examine the ethics of these on a case-by-case basis. It is likewise fruitful to talk about prototypical examples of treatment and enhancement—i.e., those that clearly fall at one end of the spectrum or the other.

Those with legitimate concerns about enhancement need not think that enhancement is categorically different from treatment. To the contrary, they may have prototypical examples of enhancement-oriented interventions in mind, and be worried about what the social consequences would

be if interventions like these were available in a free market. Prototypical enhancements of things like intelligence, beauty, and longevity may significantly increase existing inequalities if the interventions in question are not equally available to all. This is a significant worry even if there is no fine line to be drawn between treatment and enhancement.

An additional point is that any enhancement oriented interventions that move individuals, who would otherwise have been at the mean level of functioning and/or well being, above the mean level of functioning and/or well being—or any enhancement oriented interventions that move individuals, who would otherwise already have been above the mean level of functioning and/or well being, even higher above the mean level of functioning and/or well being—would usually have the effect of increasing inequality. This is a fundamental difference between interventions at the enhancement end of the spectrum and those at the treatment end of the spectrum (at least when we are talking about enhancement of those whose well being would already—i.e., without enhancement—have been at or above the mean). Because the latter would generally involve moving an individual’s level of functioning and/or well being towards the mean, their effect would usually be equality promoting. Even if the distinction between treatment and enhancement is ultimately arbitrary (when we think about them in binary terms) prototypical enhancements and treatments will usually (though perhaps not always) have different effects with respect to equality. This is a real, if not conclusive, reason for being concerned about enhancement.

A second argument above held that we already accept a wide range of enhancements insofar as we allow parents to send their children to special schools, sports camps, music lessons and so on. We can now buttress the argument by pointing out that we accept enhancements such as these despite the fact that there is unequal access to such things and despite the fact that they have the effect of promoting inequality. The fact that they promote inequality by giving one’s children advantages over others, furthermore, may often be an explicit reason for parents to enhance their children in such ways. Unless there is an inherent difference between genetic enhancements and these other kinds of enhancements, the former should be unobjectionable too, or so the argument goes.

There are two things to be said in response. First, the fact that we *do* accept such inequality promoting practices does not mean that we actually *should* do so—especially in cases where the motivation is to give one’s child (what are ultimately unfair) competitive advantages over other children. Second, and more importantly, even if there is no inherent difference between genetic enhancements and these other kinds of enhancements, there may be important differences

in scale. The inequalities that result from the practices we already accept may be real and significant but not sufficiently great to justify restriction of liberty. *The extent of inequality is a key consideration.* Those concerned about genetic enhancements claim that their equality costs may be almost unprecedented. Genetic interventions may make enhancement easier (at least for those who can pay) and if they become all-pervasive (as many imagine), then they may allow for enhancement in very many more ways than are currently available. If the full range of imaginable genetic enhancements in fact come into being, then the equality impact could by far surpass what is possible at present. Some say that if enhancement oriented genetic technologies are not equally available to all, then those with access will evolve into an entirely separate species (Silver 1999). Because the enhanced rich will be likely to dominate and oppress the unenhanced poor (even if we are not talking about separate species), some say that genetic enhancement is the greatest threat to equality since slavery (Mehlman and Botkin 1998). Whether or not such claims are true is an empirical matter. Genetic enhancements need not be *inherently* different than other kinds of enhancement, however, for such claims to be true. A sufficiently great difference in scale could do the trick. Current practice regarding nongenetic enhancements, therefore, may not provide a good guide to social policy regarding genetic enhancement.

Conclusion

I conclude by arguing that the rapidly burgeoning enhancement debate requires a shift in focus. The key issue is that we are here quite plausibly confronted with conflicting values. The right to reproductive liberty can conflict with equality. There is no reason to think that one or the other of these two legitimate social goals should take absolute priority over the other, so we need a principled framework for deciding how to strike a balance between the two. Claims that there is a presumption in favour of one or the other (Harris 1992) should be rejected—at least by those of us that do not hold extreme/fundamentalist views about the importance of liberty vis-a-vis equality.

Though I have focused on the worry that enhancement technologies may threaten equality, it should also be noted that the development and use of enhancement technologies may also conflict with another legitimate social goal: i.e., the promotion of utility (Selgelid 2002). If the development and provision of enhancement oriented interventions turns out to be especially profitable, then limited research and clinical resources will be drained away from other purposes that are arguably more fruitful. This worry is not merely academic. The distribution of research resources already

involves what is known as the 10/90 divide: only 10 % of medical research resources focus on 90 % of the global burden of disease, and 90 % of medical research resources focus on 10 % of the global burden of disease. Industry often focuses on development of lifestyle drugs and so on wanted by the relatively wealthy rather than those most important from a public health perspective. It is entirely plausible that this kind of problem will be exacerbated by development of enhancement technologies. If it is safe to assume that treatment and prevention of serious disease would improve human well being to a greater extent than interventions aimed at things like greater than average height, then utility would be adversely affected in the process. A related worry applies to clinical care. If it becomes especially profitable to provide enhancement interventions, then more personnel will move into this line of work. Given that there is already a shortage of medical personnel worldwide, standard medical care may become less available and more expensive.

An additional threat to utility connects with concerns about equality. Those worried about the equality effects of enhancement, for example, often argue that a genetically stratified society would be politically unstable and that democracy itself may therefore be threatened (Mehlman 2003).

The enhancement debate has involved a great deal of philosophical speculation and just-so storytelling, by both enhancement enthusiasts and critics, about what the actual equality and utility effects of a liberal eugenics would be. Though such questions about the future will inevitably remain uncertain, we should try to address them as best as we can. Progress will here require more empirical study. In addition to science and history, other social science disciplines such as psychology, sociology, anthropology, politics and economics should play a much larger role. A better division of intellectual labour is needed. Philosophers should explicitly identify the empirical questions that the ethical questions turn on; and, rather than trying to answer such questions themselves, they should recommend more relevant research by scholars in other disciplines.

Given that it is entirely plausible that human enhancement would pose conflicts between liberty and equality and/or utility, philosophers should in the meanwhile address, head-on, the question of what would be a principled way to strike a balance or make trade-offs between these three legitimate social goals in cases of conflict (in the context of genetics). How great must the equality and/or utility threat be for liberty restriction to be justified? The elephant in the room that no one mentions is the lack of a well-developed framework for answering such questions in practice. This is where the real philosophical work needs to be done, and ethicists should be better skilled at this than making predictions about the future.

Such philosophical work would have value, of course, far beyond the context of the enhancement debate in

particular. Numerous hard questions in political philosophy ultimately boil down to conflict between liberty, equality, and utility (Selgelid 2009). At present there are three main approaches to political philosophy on the table. First, utilitarians argue that aggregate utility is the only thing that is ultimately valuable regarding the good of society and/or that the goal to promote utility (over the long run, all things considered) always outweighs the goal to promote liberty and/or equality. Egalitarians often likewise place extreme weight on the value of equality. Libertarians often likewise place extreme weight on the value of liberty. Each of these theoretical perspectives gets something right—because the values that they respectively emphasize each matter. But they each arguably get something wrong insofar as they tend to place extreme—often absolute or overriding—weight on the values they emphasize. In this latter respect they are out of line with common sense ethical thinking—and what is generally considered to be good policy making. What we need to resolve questions about genetic enhancement, and many other difficult issues in practical ethics, is a fourth approach to political philosophy that provides a principled approach to striking a balance—or making trade-offs—between liberty, equality, and utility in cases of conflict. Development of a “moderate pluralist” theory such as this would be needed to determine how great the equality and/or utility costs of enhancement would need to be in order for liberty infringement to be justified—and it would advance debate in innumerable other policy making contexts. Further discussion of the motivation behind such a framework—and initial suggestions about what such a framework might look like—are provided in Selgelid (2009).

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