Imposing genetic diversity

Professor Robert Sparrow
Australian Research Council Future Fellow
Philosophy Program, School of Philosophical, Historical and International Studies
and, Adjunct Professor, Monash Bioethics Centre
Monash University
Victoria 3800
Australia

ABSTRACT: The idea that a world in which everyone was born "perfect" would be a world in which something valuable was missing often comes up in debates about the ethics of technologies of prenatal testing and Pre-implantation Genetic Diagnosis (PGD). This thought plays an important role in the "disability critique" of prenatal testing. However, the idea that human genetic variation is an important good with significant benefits for society at large is also embraced by a wide range of figures writing in the bioethics literature, including some who are notoriously hostile to the idea that we should not select against disability. By developing a number of thought experiments wherein we are to contemplate increasing genetic diversity from a lower baseline in order to secure this value I argue that this powerful intuition is more problematic than is generally recognised, especially where the price of diversity is the well-being of particular individuals.

IMPOSING GENETIC DIVERSITY

INTRODUCTION

The idea that a world in which everyone was born "perfect" would be a world in which something valuable — a certain richness that flows from diversity – was missing often comes up in debates about the ethics of technologies of prenatal testing and Preimplantation Genetic Diagnosis (PGD). Our imperfections and our deviations from the norm are, it is commonly held, part of what makes life interesting. This thought plays an important role in the "disability critique" of prenatal testing (Wendell 1996, 82-83).[1] However, the idea that human genetic variation is an important good with significant benefits for society at large is also embraced by a wide range of figures writing in the bioethics literature, including some who are notoriously hostile to the idea that we should not select against disability.

In this article I will argue that this powerful intuition is more problematic than is generally recognised, especially where the price of diversity is the well-being of particular individuals. The paper makes use of an argumentative strategy advocated by Nick Bostrom and Toby Ord (2006), which they call the "reversal test". In order to detect and compensate for the human tendency towards "status quo bias", these authors suggest that whenever we are inclined to evaluate negatively a possible change to our circumstances we should try to imagine how we would feel if the situation were the reverse: that is, if we were contemplating a change from the imagined future to our current circumstances. Thus, so as to become clearer about the value of genetic

---

[1] The "disability critique" of prenatal testing contains a number of different argumentative strands (Parens & Asch 1999) and the claim I discuss here is only one – and perhaps not even the most compelling – of these. In particular, the argument of the current manuscript leaves untouched the matter of whether or not the use of technologies of prenatal testing and/or pre-implantation genetic diagnosis "sends a message" that the lives of disabled individuals are of less value than those of healthy individuals (see, for instance: Asch 1989 and 2000; Saxton 1997; Kaplan 1993): I have discussed this question elsewhere (Sparrow 2008). Note also that respect for the reproductive liberty of parents — the importance of which disability advocates have rightly emphasised — *may* mitigate any threat to diversity posed by regimes of prenatal testing and/or preimplantation genetic diagnosis, if sufficient numbers of parents are willing to resist the social pressures to have "perfect" children: my concern here is with a particular philosophical defence of the value of diversity in the face of these pressures.

diversity and how we should feel about the prospect of a loss of diversity as a result of the use of technologies of genetic selection, I propose a number of thought experiments wherein we are to contemplate increasing genetic diversity from a lower baseline in order to secure this value. After discussing the implications of these thought experiments and surveying possible responses to them, I conclude that, although the idea that there is a value in genetic diversity is compelling, precisely how much value there is and what we should be prepared to sacrifice to achieve it remains mysterious.

THE VALUE OF GENETIC DIVERSITY

GARLAND-THOMSON AND THE CASE FOR CONSERVING DISABILITY

In a fascinating and important paper entitled *The Case for Conserving Disability*, Rosemarie Garland-Thomson (2012) responds to contemporary bioethical enthusiasm for technologies of genetic selection with a passionate defence of the value of what would be lost were these technologies to become widely adopted. Instead of understanding disability merely as a tragedy to be overcome or eliminated, Garland-Thomson suggests, we should recognise it as a valuable resource to be conserved. According to Garland-Thomson, disability is a *narrative* resource in so far as the encounter with "freakish" bodies teaches the nondisabled how to be more human and the experience of disability facilitates and underpins narratives which unite the human community (2012, 344-5). Disability is an *epistemic* resource because the experiences of "variant bodies" produce distinctive "ways of knowing" and makes possible new forms of aesthetic expression and evaluation (2012, 346-7).[2] Finally, disability is an *ethical* resource because the existence of disability requires us to be open to "the unbidden" and to be creative and flexible in our relation to the world; it also reminds and prepares us for the "inevitable growing into disability inherent in the human condition" (2012, 348-349).

There is a lot going on in Garland-Thomson's paper and I am unable to do justice to all of her arguments here. Garland-Thomson is also working with an expansive definition of disability, as "the transformation of flesh as it encounters world. ... Disability occurs

---

[2] See also Scully (2008) and Wendell (1996), pp. 68-76.

when the shape and function of bodies come into conflict with the shape and stuff of the world" (2012, 340) and so her argument is presumably intended to have implications for therapeutic practice more generally and not just for the ethics of genetic selection. However, Garland-Thomson explicitly develops her argument against what she describes as "eugenic logic" (Garland-Thomson 2012, 340. See also Mitchell and Snyder 2003) and situates it in relation to contemporary debates about genetic testing and selective abortion. Moreover, the case she makes for disability as a resource relies crucially on the idea that disabled bodies are *different* bodies: it is because, and to the extent that, disabled bodies vary from (imagined) "normal" bodies that disability generates new narratives, ways of knowing, and ethical insights. Thus, while Garland-Thomson may be willing to endorse more expansive claims, at the very least she holds that *genetic* variation, including variations that produce impairment, should be seen as a resource to be conserved.

SAVULESCU AND THE VALUE OF INDIVIDUAL VARIATION

I originally conceived of this paper solely as a response to Garland-Thomson. However, as I was writing it, I became increasingly conscious that the value of genetic diversity is recognised much more widely and that appeals to the value of this diversity pop up in the most surprising places in debates about the ethics of genetic selection.[3]

Julian Savulescu is a conscious and enthusiastic advocate of what Garland-Thomson describes as "eugenic logic". Indeed, Savulescu is notorious for defending the existence of a generalised obligation of "procreative beneficence" (Savulescu 2001; Savulescu and Kahane 2009). According to Savulescu, not only are intending parents morally obligated to make use of preimplantation genetic diagnosis in order to prevent the birth of children with disabilities, but they have an obligation to use technologies of genetic selection to have the "best child possible".

---

[3] One important version of this claim argues that genetic diversity should be preserved for the benefit of the species. Thus, John Harris (2011) and Paula Casal (2012) have argued [in response to Sparrow (2010a, 2010b, & 2011b)] that we should be prepared to sacrifice the welfare of our children in order to reduce the risk that a decline in sexual diversity will threaten the capacity of human beings to reproduce, while Chris Gyngell (2012) has argued that it might be necessary to restrict access to genetic enhancement technologies in order to maximise the chance that descendants of some human beings at least will flourish under as larger range of selective pressures as possible [see also Powell (2012)]. However, the appeal to the welfare of the species in this argument — rather than the individuals of which it is composed — is problematic for reasons that would take me to too far from my interests in the current paper to discuss, so I will not consider it here [But see Sparrow (2011c)]. Note, however, that the argument I develop below would also seem to apply to this version of the claim.

In a number of critical responses to Savulescu's work, I have argued that an obligation to have the best child possible would require all parents in a given environment to reproduce using clones of the same embryo, selected to possess the best genome for that environment (Sparrow 2007; Sparrow 2011a; Sparrow 2014a). While there may be reasonable disagreement amongst parents as to what counts as the "best" genome in a given environment, any plausible "obligation" of procreative beneficence must require parents to do what actually *is best* for the child rather than merely to do what they think to be best (Sparrow 2007). Moreover, because "best" is a maximising notion, parental choices should converge on whichever genome will provide a child with the highest possible expected welfare in the environment they are expected to grow up in.[4]

Savulescu has resisted this attempted *reductio* at a number of levels — and I have not space available here to assess the adequacy of each response (Savulescu & Sparrow 2013; Savulescu 2014; Sparrow 2014b). However, one of Savulescu's arguments has been an appeal to the value of diversity: a world full of clones would, he suggests, be "boring" (Savulescu & Sparrow 2013, 53). Even this most enthusiastic advocate of reshaping the human genome to maximise well-being is moved to embrace the value of diversity when confronted by the logical conclusion of his arguments — which is a world of striking uniformity.[5]

---

[4] The emphasis on maximization in the key papers on procreative beneficence and the references to "the best" in the text of these papers — and occasionally in their titles (Savulescu 2001; Savulescu and Kahane 2009) — encourages readers to understand procreative beneficence as extremely demanding and as requiring parents to select the single "best" embryo of the embryos available to them. However, in a recent exchange with the author (Sparrow 2014a; Savulescu 2014; Sparrow 2014b), Savulescu has clarified his position to acknowledge that in many circumstances there may be a number of embryos with "equally good" genomes (Savulescu 2014) (even in this paper, however, Savulescu's opening sentence affirms "that couples have a moral obligation to use genetic selection to have *the* best child, of the possible children they could have"! [my emphasis]). Where this is the case, procreative beneficence requires parents only to choose a child from amongst the set of children with an expected welfare not worse than that of any of the others available to them. Acknowledging this possibility renders the principle of procreative beneficence both much more plausible and much less controversial; moreover, one wonders how much this concession is compatible with any case for "human enhancement" given that (one presumes that) most normal individuals would have genomes that are equally good as each other — and as good as those of putatively enhanced individuals. To the extent that *some* genetic diversity is compatible with individuals having equal expected welfare, Savulescu's arguments will only imply a *reduction* in the extent of genetic diversity rather than the complete collapse thereof. However, it is also clearly possible that one embryo might have a genome that was clearly superior over all others in a given environment — in which case his arguments will have the implication I explore here.

[5] Interestingly, in a paper that I only became aware of after having finished a draft of this manuscript, Savulescu's former Ph.D. supervisor, Peter Singer, also refers to the possibility that the aggregate impact of parents' decisions in relation to genetic selection might result in a loss of diversity as a reason to objecting to the "genetic supermarket" (Singer 2003). Like Savulescu, Singer is usually associated with the

AN OBSERVATION

Note that while Garland-Thomson and Savulescu both argue that some diversity is justified, they need not — and probably do not — agree on the precise nature of the benefits that genetic diversity provides. As a committed consequentialist, Savulescu would presumably argue that the existence of the sorts of diversity he endorses increases both total and (if the population size does not change) average welfare over what it would have been in its absence. Garland-Thomson suggests that disability is a resource, which "generates circuits of meaning making in the world" (2012, 344). Other defenders of diversity have claimed that it "is necessary for creating a vibrant and sustainable society" (Hurst 2008) or is a good simply in itself (Murphy 1994; Parens 1995) without, explicitly at least, committing themselves to the further claim that these qualities result in improvements in the well-being of any individuals.[6]

Interestingly, though, both Garland-Thomson's and Savulescu's arguments have the character of theodicies, of the sort so ably satirised by Voltaire in *Candide* (Voltaire 2005). Although they disagree about precisely how much genetic diversity we should celebrate, Savulescu and Garland-Thomson agree that, with regards to some forms of genetic variation at least, this world is the best of all possible worlds: were these forms of genetic variation to be eliminated, the world would be a poorer place.[7]

APPLYING THE REVERSAL TEST

I now want to set out two hypothetical scenarios which suggest that the appeal to the value of diversity in the arguments discussed above is much more problematic than generally recognised. What follows, then, is a philosopher's thought experiment — or rather series of thought experiments — with all the dangers of oversimplification,

---

idea that we should strive to eliminate disability through genetic selection rather than conserve it. My thanks to Robert Ranisch for drawing this paper to my attention.

[6] As well as insisting that "the diversity of human forms" is a good in itself (p.149), Parens (1995) also suggests that diversity is necessary for our "experience of some forms of the beautiful" (p.145) and "the good that is some relationships of care" (p. 149): these latter two things are more obviously benefits that accrue to individuals.

[7] Strictly speaking, it is open to Garland-Thomson to hold that a world with even *more* genetic diversity would be still better — and in this sense our world is not the best of all possible worlds. Nevertheless, in so far as she presents her argument as a case for *conservation* rather than *promotion* of disability, I take it that she would be reluctant to claim this.

misrepresentation, and distortion of our judgements that involves.[8] Moreover, in order to draw out the intuitions that interest me—and which are, I believe, central to the plausibility of the argument about the value of diversity—the scenarios I describe are necessarily rather far-fetched. Nevertheless, I believe that they accurately represent the structure of the argument involved when each of the authors I have discussed appeals to the value of diversity. I would therefore ask the reader to bear with me in considering what we should think about these admittedly very artificial cases before we return to the larger question of the significance and value of genetic diversity when it comes to policy around, for instance, PGD, genetic screening, and genetic testing.

The scenarios are intended to facilitate the "reversal test" advocated by Bostrom and Ord to detect and remedy the effects of "status quo bias" in human reasoning (Bostrom and Ord 2006). Human beings are subject to a number of well-documented cognitive biases, which distort our judgements and decision-making (Tversky & Kahneman 1974; Kahneman & Tversky 2000). One of these is "status quo bias", which is the tendency to over value – and consequently rationalise - the state of affairs that currently exists and with which we are most familiar (Samuelson & Zeckhauser 1988). The mere fact that things "are this way" makes us more likely to believe that they *should* be this way. Bostrom and Ord suggest that status quo bias plays a major role in motivating popular — and sometimes philosophical — resistance to the use of science and technology to transform our current circumstances. In order to test whether this is the case or not, they suggest that we should compare our intuitions about moving from our current circumstances to some future possible state of affairs with what we would find it plausible to say about a case wherein we were contemplating a move from the possible future state of affairs to our current circumstances. If it would be implausible not to regret the change from the possible future state of affairs to our current circumstances, Bostrom and Ord argue, then resistance to moving from our current circumstances to the possible future state of affairs should be understood as the result of status quo bias.

In order to become clearer on the value of genetic diversity, then, the following scenarios encourage the reader to consider how they would feel if the choice were not about *conserving* genetic diversity but rather *imposing* it.

---

[8] For a useful reminder of the dangers involved in these sorts of thought experiments see Scully (2008), pp.172-174.

SCENARIO I: IMPOSING DISABILITY

Imagine that…

> On April 7, 2050, a mysterious seismic upheaval was recorded occurring deep
> within the Earth's core and was later recognised to be correlated with dramatic
> and perplexing consequences for human health: since that date the rate of a wide
> range of congenital impairments due to genetic factors has declined to the point
> where it is now effectively zero. Scientists are still arguing about the precise
> mechanism whereby this change has had such a profound influence on human
> genetic variation, with the leading theory involving a hitherto unrecognised role
> played by trace amounts of radio nucleotides diffusing into the water supply
> from the earth's mantle. Nevertheless, its effects are undeniable. Children are no
> longer being born with Down syndrome, cystic fibrosis, congenital adrenal
> hyperplasia, many forms of cleft palate, *et cetera*. Of course, despite ongoing
> advances in medical care, people are still injured in accidents and suffer the
> effects of ageing. Moreover, unfortunately, whatever process or processes have
> led to the decline in these conditions have not lead to similar decline in the rates
> of more debilitating genetic illnesses, such as Lesch–Nyhan syndrome—
> conditions where one might well think that it would have been better for the
> affected individual if they had never been born at all.[9] Nevertheless, while the
> world is not entirely bereft of people with disabilities, the number of people with
> disabilities has been drastically and — it would appear — permanently
> reduced…

Garland-Thomson and others swayed by her arguments arguably should hold that this
is a change for the worse. If we have reason to conserve disability then we have reason
to regret this change. Thus we might imagine…

---

[9] This feature of the scenario is intended to facilitate restriction of the discussion of the value of diversity
to cases where the imposition of diversity would not be "person affecting" (Parfit 1984, 351-379), where I
believe it is most plausible, for reasons that will become clear below. In fact, Garland-Thomson's paper
contains an extended discussion of the value of even very severe disability, including consideration of the
lessons which might be drawn from the life of Emily Rapp's son, Ronan, who was born with Tay-Sachs
syndrome (Rapp 2013), in which she emphasises that we are often too quick to make the judgement that
the lives of others are "not worth living" (Feinberg 1986). Nevertheless, it is striking that Emily Rapp
herself admits — as Garland-Thomson acknowledges — that had her son's condition been diagnosed in
pregnancy she would have chosen to terminate the pregnancy.

A group of public-spirited bioethicists have come up with the idea of introducing a mutagen into the water supply, with the intention of restoring the rate of genetic variation — and congenital impairment — to what it was before the recent precipitous decline and thus ensuring a more diverse world. They are confident that this policy would not directly harm anyone: rather, it would bring it about that different people (with disabilities rather than without disabilities) will be born (the mutagen works by making it easier for sperm carrying genetic disorders to fuse with ova, rather than by damaging genes in existing embryos: it does not affect the rate of birth of persons with the most severe genetic conditions).

SCENARIO II: IMPOSING VARIATION

Now, imagine, instead, that…

The year is 2131. In the second and third decades of the 21st century, the Oxford-Uehiro Centre for Practical Ethics went from strength to strength: its publications became eagerly awaited by policymakers and the public alike; its members were treated like rock stars, with their every utterance dissected and discussed all over the world. The idea that parents should have "the best child possible" passed into folk wisdom. Consequently, in 2030 a powerful popular movement arose, which demanded that national governments identify those traits that would provide children with the highest expected welfare and/or openness of future and make cloned embryos, with the genetics most associated with those traits, available to intending parents. For the last 100 years, all children born have had this cloned genome and lived in unsullied health, with a cheery disposition, an IQ of 160 (relative to today's baseline), and with the same blue eyes, chiselled cheekbones, and perfect teeth.[10] Genetic diversity has been entirely eliminated from this society.

---

[10] For an argument that this would be the end point of the pursuit of the "best child possible" given social pressures in many societies today, see Sparrow (2011a). However, because, as I stated above, the "best genome" will always be relative to an environment, it is in fact unlikely that clones of one embryo would be the best child possible everywhere in the world. Nevertheless, the basic point that in any given environment Savulescu's arguments should motivate parents to choose the same set of genes for their children at the expense of diversity remains valid and I hope I will be forgiven the rhetorical exaggeration here for the sake of simplicity and the larger argument.

Savulescu's published remarks suggest that the lack of diversity in this world is something to be regretted. However, we might also imagine that…

> A renegade group of scholars remain convinced that these circumstances have established a dystopia and are plotting a daring raid on the government clone banks, with the aim of substituting a diverse population of embryos for the official clone. While all of these embryos have been chosen so that the child can expect a long, healthy and happy life, only one of these embryos is "the best" — the rest are suboptimal in one way or the other, if not dramatically so. Some individuals will be less good-looking than others, some more inclined to musicality but also to moodiness, some will have blond or red hair and be more prone to sunburn than others, *et cetera*.

DISCUSSION

Although these two hypotheticals are fanciful, it is relatively easy to imagine real-world analogues to at least the first of them. Instead of manipulating the water supply after a mysterious seismic event, we might consider, for instance, outlawing the use of PGD and of prenatal testing and selective abortion from a society in which these technologies had become a matter of routine in the course of reproduction. The dilemma in the second scenario merely tests our intuitions about how much we should try to "perfect" our children through whatever technologies are available to us.

In any case, the two scenarios need not map directly onto real-world cases for the intuitions they evoke to be relevant to real world problems. It is therefore, I suggest, worth thinking about should we feel about the policy of imposing diversity in these hypotheticals. The answer to this question is not straightforward and for that reason I will begin by setting out what might be said for and then against imposing diversity in these cases. Note that the structure of the two scenarios, as I have described them, is the same. In both cases, we are confronted with the choice as to whether or not to impose diversity and thus realise its value by bringing it about that some people are born with (what looks to be) lower expected welfare than others and with lower welfare than other people that might have been born in their place; the choice to impose diversity would not directly harm or benefit any individuals but would rather alter who came

into the world. The fact that the cases have the same structure strongly suggests that — unless we can find a convincing way of drawing a line between them — we should treat them alike.

THE CASE AGAINST IMPOSING DIVERSITY

One possible — and not implausible — response to these scenarios is to deny that the proposed change would be justified in either of the hypothetical cases. There are, I think, three reasons why one might have this intuition.

First, one might simply deny that diversity in-and-of-itself has any value at all: why should mere variation be something that we care about? The value of diversity is so often lauded that we may lose sight of the fact that it is not self-evident. Note, however, that while Garland-Thomson and/or some other disability advocates may do so, neither of the authors I've discussed *need* hold that diversity is an intrinsic good. Savulescu, for instance, seems to hold that its value is instrumental: we enjoy diversity and thus its presence contributes to our welfare. The claim that diversity makes the world more interesting, or existence richer, may also interpreted as a claim that diversity is an instrumental good.

Second, even if we are willing to allow that diversity is intrinsically valuable or is instrumentally valuable in achieving some other good, we may be reluctant to act so as to secure such diversity at the cost of some individuals having lower expected welfare than others at birth and having lower expected welfare than other individuals that might have been born in their place. One version of this objection would concede that we might be justified in principle in imposing diversity in some cases but deny that it would be justified in either or both of those that I have outlined here: the obvious question to ask, then, is what grounds we have for making this discrimination? A stronger version of the objection would deny that we are ever justified in sacrificing the welfare of some individuals in this fashion in order to generate benefits for others: I will explore this latter intuition further below.

Obviously, genetic diversity is not the only kind of diversity. A third option, then, is to argue that because diversity will still exist in both of these scenarios as a result of various contingencies across the course of the human lifespan there is no need to

impose it. Garland-Thomson argues, quite correctly, that "disability is inherent in the human condition" and that "we will all become disabled if we live long enough" (2012, 339).[11] If diversity is ineliminable, though, then arguments about its value are inapposite. A concern for the value of diversity gives us no reason to try to impose *or* conserve it, as this value will be realised regardless.

THE CASE FOR IMPOSING DIVERSITY

On the other hand, nor is it entirely implausible, I think, to bite the bullet and support the imposing of diversity in each case. Many people might support the actions of the rogue bioethicists in Scenario II, for instance, in order to avoid the uneasiness associated with a world of clones and because the difference in the welfare of the worst off citizens afterwards remains relatively minor. Where people may recoil, however, is at the idea of imposing disability, in Scenario I. We typically think of disability as something to be avoided — as something that is bad for the people who suffer it. Thus the idea that we should *impose* it in order to make the world a better place seems troubling.

Of course if, as disability advocates have sometimes seemed to suggest, disability need have no implications for individuals' expected welfare (see, for instance, Swain and French 2000) then perhaps we should not flinch at imposing even genetic diversity that leads to disability. Yet because we are typically *not* indifferent to changes in our children's capacities as a result of environmental influences (Harris 2007, 1–2), I suspect that it is implausible to hold that differences in capacities as a result of genetic factors have no implications for well-being over the course of an individual's life. If I am confident that my infant daughter's life would go worse were she to lose both her legs, then it seems I should also believe that it would have been worse if she had been born without legs rather than with legs.[12] Our attitudes towards changes in our own circumstances also imply that we are willing to extrapolate from capacities to expected welfare. Thus, as Tom Shakespeare has observed, even those disability advocates who

---

[11] See also Asch (1999) and Davis (1995), 8-9.
[12] Again, this is not to deny that, as disability activists have argued, many of the implications of not having legs for the welfare of individuals are a product of the social environment and could be addressed through social and institutional reforms (Oliver 1996).

deny that impairments need correlate with any reduction in well-being are typically reluctant to allow their own capabilities to diminish further (Shakespeare 2006).

Moreover, it is difficult to see how genetic diversity could generate the goods that Garland-Thomson lists without it also having implications for well-being. Disability (and genetic diversity) is a narrative resource precisely because and in so far as it shapes the experiences of those who encounter it both in themselves and in others. Similarly, disability is an epistemic resource to the extent that it generates differences in the way we experience the world. The different experiences produced by being disabled are ones that one might reasonably desire to seek out or avoid. More importantly, as suggested above, they are experiences that one might reasonably evaluate when it comes to the decision about whether one should seek them out or avoid them on behalf of one's children. Indeed, Garland-Thomson (2012, 349-351) is explicit the disability that generates these goods may also involve extensive suffering. Suffering — or, at the very least, a reduction in welfare — would also appear to be necessary in order for disability to serve as an ethical resource by providing the opportunity to "build solidarity with others… [*and*] …..cultivate human sympathies" (Garland-Thomson 2012, 348). Even when it comes to the diversity Savulescu endorses in the service of making the world less "boring", it would be surprising if genetic differences which did not matter at all to the welfare of individuals were sufficient to do much by way of achieving this goal. Again, it's precisely because small differences like hair colour also make a (small) difference to individual's experiences over the course of their life that they are of interest to us: diversity in *absolutely* trivial things does not do much, if anything, to enrich our experience of the world.[13]

However, the fact that no one is harmed by imposing diversity makes the counter-intuitive choice more palatable than might first appear even in Scenario II.[14] Those people with disabilities who do come into existence as a result of the presence of the mutagen in the water will have good lives, which they would not have had otherwise,

---

[13] Savulescu's main philosophical ally in the argument for human enhancement, John Harris, is very clear that small differences in capacities may have implications for welfare (Harris 2007, 93).

[14] Where imposing diversity involves harming existing persons (for instance, by injuring them so they become disabled) in order to make the world a more diverse place then it is, I think, obviously indefensible. For this reason, I suspect that any larger claim that we should conserve disability, by for instance, not curing injury and illness in existing persons where we can, which Garland-Thomson may intend, is likely to be implausible.

and will therefore be happy for the fact. Given that the world is made better (more diverse) and no one is harmed by the policy, imposing even genetic disability is arguably the right thing to do.

KANTIAN CONCERNS

Note that for a sufficiently committed consequentialist, the decision to impose diversity in each case will be straightforward: if the more diverse world contains a greater amount of whatever we value, we should impose diversity.[15] However, as is often the case, this clear statement of a consequentialist argument also draws our attention to a competing and compelling intuition which seems Kantian in nature: achieving diversity in this way seems to require us to sacrifice the welfare of some individuals for the sake of a social good and thus to "use" them in a manner that seems problematic. The force of this thought may be clarified by considering one final thought experiment.

SCENARIO III: THE "GENETIC SCAPEGOAT"

Imagine that…

> The world of "cosmetic" diversity advocated by Savulescu has come about, as the result of universal adoption of PGD and prenatal testing (and selective abortion) to prevent the birth of children with less than perfect health. However, a group of empirically minded bioethicists, inspired by disability advocates, have conducted a careful study and established that levels of both total *and average* well-being are actually significantly less now than they were when the same number of people existed but there were just a few very severely disabled people present in the community. They hypothesise that this is because the presence of some people with severe disabilities produced benefits for the other members of the community, who were able to cultivate and display various virtues in their relations with these people and to lead richer and happier lives because of it. More problematically, the recognition amongst the majority of the community that they were (much) better off than the people with disabilities may also have

---

[15] Utilitarians will typically be concerned with *total* or *average* welfare. As noted above, if Savulescu is right, these may both be higher after the imposition of diversity in Scenario II; nor is it implausible to believe that, if Garland-Thomson is right, these are both higher after the imposition of diversity in Scenario I (although Garland-Thomson does not herself make this argument).

enhanced their welfare in so far as having a higher welfare than others may itself be a (status) good.

Thus…

> These bioethicists propose that the government should deliberately bring into existence a small number of people with very severe disabilities, who will have lives that are only barely worth living, instead of the same number of healthy individuals. The contribution of the presence of these individuals to the welfare of others will greatly increase total and average well-being.

I am inclined to believe that imposing diversity in this case would be repugnant. To deliberately create persons with very severe disabilities to increase aggregate and average social welfare in this way would be to sacrifice the welfare of these persons in order to serve the interests of others.[16] Of course, to talk of the welfare of particular individuals being sacrificed is not strictly-speaking accurate, as these individuals will be no better off if the government decides not to bring them into existence. Nevertheless, there is a clear sense in which the existence of the disabled persons and the nature of their circumstances would be a function of their contribution to the social good rather than a concern for their welfare: they would be "genetic scapegoats". This is not true of other citizens, whose perfect genetic health *is* a product of a concern for their welfare. The genetic scapegoats would be a means to a utopian (dystopian?) social end.

Importantly, any willingness to endorse the creation of the genetic scapegoats would also appear to licence other types of genetic social engineering which are equally if not more horrific. Thus, for instance, we might imagine selecting individuals for their capacity to perform menial labour and to be happy while doing it, on the grounds that it is better for everyone that those people who perform these tasks are happy while doing so (Huxley 1970). Alternatively, we might bring individuals into existence who were genetically predisposed to die at 13 to serve as sources of organs for other citizens. Like the creation of genetic scapegoats, these initiatives would provide great social benefits without harming anyone. Yet such initiatives are paradigmatic instances of the sorts of

---

[16] Notice that in this case the lower welfare of the person with the genetic disorder is necessary to the production of the goods associated with "diversity". Those who wish to deny that differences in capacities correlate with differences in well-being will presumably need to deny the very possibility of this scenario.

policies that people decry when they worry that the development and application of technologies of genetic selection will usher in a "Brave New World" (Appleyard 1998, 62-64).

However, if we reject imposing diversity in the "genetic scapegoat" scenario, this strongly suggests that we should also reject imposing it in the other scenarios, as the structure of the choice involved is the same in each case. That is, arguably in *all* of the scenarios above the cost of achieving diversity is to bring about the existence of some individuals who have lower welfare than others and also lower welfare than other individuals who might have been born in their place.[17] Moreover, the lower welfare of these individuals is a consequence of their having been brought into existence as a means of producing a social good, which is enjoyed primarily by other persons.

The case of the genetic scapegoat — and the Kantian intervention it motivates — therefore suggests to me that the imposition of diversity for the sake of its benefits should be profoundly controversial. This implies in turn that the argument for the conservation of diversity is equally problematic.

CONSERVATION VERSUS IMPOSITION

An important line of thought in response to the larger argument I have made here is to deny the relevance of the intuitions summoned by the reversal test. Garland-Thomson (2012, 341) explicitly describes her own argument as an argument for *conservation*, rather than, for instance, *protection* and situates it alongside the case for conservation of biodiversity and historical architecture, noting that

> "These conservation initiatives are based on the concept of valuing a historically sedimented environment as it has materialised over time and in response to both random and intentional influences that shape that environment. The principle of honouring the "is" rather than the "ought," the contingent rather than the intentional nature of an environment, is what I wish to capture with the word conservation."

---

[17] The example of the "genetic scapegoat" is therefore a key test case in evaluating the plausibility of recent arguments that parents have an obligation to consider the welfare of parties other than the child themselves when making decisions about reproduction. See, for instance, Douglas & Devolder (2013) and Elster (2011).

Thus, it might be argued that diversity that we have imposed would be different to the diversity that we find in the world as it is — and therefore that we should not conclude from a reluctance to impose diversity that we have no reason to conserve it. I have a good deal of sympathy for this line of thought, which resonates interestingly with recent arguments about the virtues of "species relativism" developed by Nicholas Agar (2010). However, arguably this strategy works — if it works — by, in effect, embracing status quo bias. One might well question why the mere fact that people happen to have been born with some particular range and set of disabilities means that we should cherish the situation. Insisting on the value of the existing extent of diversity at birth seems especially tendentious given how much this distribution is itself already a product of the history of improvements in public health, midwifery and obstetrics, diet, and medical technologies. Moreover, were this principle to be applied more broadly, it would argue against *any* change in the human condition. Absent a further, satisfying, account as to the moral significance of particular contingencies, I regret that I cannot see that this line of argument succeeds in establishing why we should conserve what we would be unwilling to impose.[18]

CONCLUSION: WHAT PRICE DIVERSITY?

The intuition that something important would be lost should everyone come to be born "perfect" as a result of the use of technologies of genetic selection is a compelling one. Diversity clearly makes the world a more interesting place and the idea that we should conserve genetic diversity is therefore tempting. Yet when we imagine imposing genetic diversity to secure this same good, its value is revealed as elusive, especially if we concede that it must be achieved at the cost of the well-being of some individuals whose existence has been used to produce a benefit enjoyed mainly by others. If we would be unwilling to impose diversity in order to realise its value this also suggests that, despite Garland-Thomson's provocative exposition of the case for conservation of disability, we have little reason to conserve genetic diversity by restricting the use of technologies of

---

[18] One obvious way of defending the conservation of diversity where we would not be willing to impose it is to insist on the moral significance of the distinction between acts and omissions. Yet, again, it is hard to see how this differs from simply asserting the moral significance of the status quo; moreover, the significance of the acts/omissions distinction is itself controversial.

genetic selection.[19] Thus, perhaps the most interesting implication of my own investigation, then, is that, in so far as the value of diversity offers little ground for resisting the "eugenic logic" that Garland-Thomson deplores, the logical outcome of such eugenic logic — a world of striking uniformity — would appear both more likely and more disturbing.[20]

REFERENCES

Agar, N. 2010. *Humanity's End: Why We Should Reject Radical Enhancement*. Cambridge, Mass: MIT Press.

Appleyard, B. 1998. *Brave New Worlds: Staying Human in the Genetic Future*. New York: Viking.

Asch, A. 1989. Reproductive technology and disability. In S. Cohen, and N. Taub (eds.) *Reproductive Laws for the 1990s*. Clifton N.J.: Humana Press, 69-124.

Asch, A. 1999. Prenatal Diagnosis and Selective Abortion: A Challenge to Practice and Policy. *American Journal of Public Health* 89(11): 1649-1657.

Asch, A. 2000. Why I haven't changed my mind about prenatal diagnosis: Reflections and refinements. In E. Parens, and A. Asch (eds.) *Prenatal Testing and Disability Rights*. Washington, D.C.: Georgetown University Press, 234-258.

Bostrom, N. and T. Ord 2006. The Reversal Test: Eliminating Status Quo Bias in Applied Ethics. *Ethics* 116(4): 656-679.

Casal, P. 2012. Sexual Dimorphism and Human Enhancement. *Journal of Medical Ethics*. Published Online First: 8 Sept 2012. DOI: 10.1136/medethics-2011-100422,

Davis, L. J. 1995. *Enforcing Normalcy: Disability, Deafness, and the Body*. London and New York: Verso.

Douglas, T., & Devolder, K. 2013. Procreative Altruism: Beyond Individualism in Reproductive Selection. *Journal of Medicine and Philosophy* 38(4): 400-419.

Elster, J. 2011. Procreative Beneficence – Cui Bono? *Bioethics* 25(9): 482–488. DOI: 10.1111/j.1467-8519.2009.01794.x.

Feinberg, J. 1986. Wrongful Life and the Counterfactual Element in Harming. *Social Philosophy and Policy* 4(1): 145-178.

Garland-Thomson, R. 2012. The Case for Conserving Disability. *Journal of Bioethical Inquiry* 9(3): 339-355

Gyngell, C. 2012. Enhancing the Species: Genetic Engineering Technologies and Human Persistence. *Philosophy & Technology* 25(4): 495-512.

Harris, J. 2011. Sparrows, Hedgehogs and Castrati: Reflections on Gender and Enhancement. *Journal of Medical Ethics* 37(5): 262-266.

Harris, J. 2007. *Enhancing evolution: The ethical case for making better people*. Princeton, NJ: Princeton University Press.

Hurst, R. 2009. Are Disabled People Human? In P. Healey & S. Rayner (Eds.), *Unnatural Selection: The Challenges of Engineering Tomorrow's People* (pp. 60-66). London and Sterling, VA: Earthscan.

Huxley, A. 1970. *Brave New World*. London: Chatto & Windus.

Kahneman, D., & Tversky, A., eds. 2000. *Choices, Values, and Frames.* Cambridge: Cambridge University Press.

Kaplan, D. 1993. Prenatal screening and its impact on persons with disabilities. *Clinical Obstetrics and Gynecology* 36 (3):605-612.

Mitchell, D. and S. Snyder. 2003. The Eugenic Atlantic: race, disability, and the making of an international Eugenic science, 1800-1945. *Disability and Society* 18 (7): 843-864.

Murphy, T. F. 1994. The Genome Project and the Meaning of Difference. In T. F. Murphy & M. A. Lappé (Eds.), *Justice and the Human Genome Project* (pp. 1-13). Berkeley: University of California Press.

Oliver, M. 1996. *Understanding Disability: from Theory to Practice*. Basingstoke: Macmillan.

Parfit, Derek. 1984. *Reasons and Persons*. Oxford: Clarendon Press.

Parens, E., & Asch, A. 1999. The disability rights critique of prenatal genetic testing: reflections and recommendations. *Hastings Center Report* (Special Supplement), S1-S22.

Powell, R. 2012. The Evolutionary Biological Implications of Human Genetic Engineering. *Journal of Medicine and Philosophy* 37(3): 204-225.

Rapp, E. 2013. *The Still Point of the Turning World*. New York: Penguin.

Samuelson, W., & Zeckhauser, R. 1988. Status Quo Bias in Decision Making. *Journal of Risk and Uncertainty* 1(1): 7-59.

Savulescu, J. 2001. Procreative Beneficence: Why We Should Select The Best Children. *Bioethics* 15(5): 413-426.

Savulescu, J. 2014. The Nature of the Moral Obligation to Select the Best Children. In Akira Akayabashi (ed) *The Future of Bioethics: International Dialogues.* Oxford: Oxford University Press, 170-182.

Savulescu, J. and G. Kahane 2009. The Moral Obligation to Create Children with the Best Chance of the Best Life. *Bioethics* 23(5): 274-290.

Savulescu, J. and Sparrow, R. 2013. Making Better Babies: Pros and Cons. *Monash Bioethics Review* 31(1): 36-59.

Saxton, M. 1997. Disability Rights and Selective Abortion. In R. Solinger (ed.) *Abortion Wars: A Half Century of Struggle.*. Berkeley and Los Angeles: University of California Press, 374-395.

Scully, Jackie Leach. 2008. *Disability Bioethics: Moral Bodies, Moral Difference*. Lanham: Rowman & Littlefield Publishers.

Shakespeare, T. 2006. *Disability Rights and Wrongs*. New York: Routledge.

Singer, P. 2003. Shopping at the Genetic Supermarket. In S. Y. Song, Y. M. Khoo, & R. J. Macer (Eds.), *Asian Bioethics in the 21st Century* (pp. 143 - 156). Christchurch, New Zealand: Eubios Ethics Institute.

Sparrow, R. 2007. Procreative Beneficence, Obligation, and Eugenics. *Genomics, Society and Policy* 3(3): 43-59.

Sparrow, R. 2008. Genes, identity, and the expressivist critique. In Loane Skene and Janna Thompson (eds), *The Sorting Society*. Cambridge: Cambridge University Press, 111-132.

Sparrow, R. 2010a. Better than Men? Sex and the Therapy/Enhancement Distinction. *Kennedy Institute of Ethics Journal* 20(2): 115-144.

Sparrow, R. 2010b. Should Human Beings Have Sex? Sexual Dimorphism and Human Enhancement. *American Journal of Bioethics* 10(7): 3-12. DOI: 10.1080/15265161.2010.489409.

Sparrow, R. 2011a. A Not-So-New Eugenics: Harris and Savulescu on Human Enhancement. *Hastings Center Report* 41(1): 32-42.

Sparrow, R. 2011b. Harris, Harmed States, and Sexed Bodies. *Journal of Medical Ethics* 37(5): 276-279. DOI: 10.1136/jme.2010.039982.

Sparrow, R. 2011c. Fear of a Female Planet: How John Harris Came to Endorse Eugenic Social Engineering. *Journal of Medical Ethics* 38: 4-7. DOI: 10.1136/jme.2011.045021.

Sparrow, R. 2014a. Ethics, eugenics, and politics. In Akira Akayabashi (ed) *The Future of Bioethics: International Dialogues.* Oxford: Oxford University Press, 139-153.

Sparrow, R. 2014b. The real force of "procreative beneficence". In Akira Akayabashi (ed) *The Future of Bioethics: International Dialogues.* Oxford: Oxford University Press, 183-192.

Swain, J. and S. French. 2000. Towards an Affirmation Model of Disability. *Disability and Society* 15(4): 569-582.

Tversky, A. and D. Kahneman. 1974. Judgment Under Uncertainty: Heuristics and Biases. *Science* 185(4157): 1124-1131.

Voltaire. 2005. *Candide, or Optimism*, trans Theo Cuffe. New York, Penguin Books.

Wendell, S. 1996. *The Rejected Body*. New York: Routledge.