

# Genetic enhancement, human extinction, and the best interests of posthumanity

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## Abstract

The cumulative impact of enhancement technologies may alter the human species in the very long-term future. In this article, I will start showing how radical genetic enhancements may accelerate the conversion into a novel species. I will also clarify the concepts of 'biological species', 'transhuman' and 'posthuman'. Then, I will summarize some ethical arguments for creating a transhuman or posthuman species with a substantially higher level of well-being than the human one. In particular, I will present what I shall call the Principle of the Best Interests of Posthumanity, which states that the enhancement of the human and transhuman species must be directed towards the creation of a posthuman existence that is substantially more valuable than its predecessors. I suggest that human extinction may be considered, within that principle, as one of the best interests of posthumanity. Finally, I will develop three objections that make that principle unattractive and that show that pursuing a full-blown programme of posthuman evolution is ethically flawed.

## KEYWORDS

genetic enhancement, human extinction, longtermism, posthumanity, transhumanism

## 1 | INTRODUCTION

If thinking about our own death already makes many people uncomfortable, reflecting on the extinction of our species is something that also causes some discomfort. A species is considered extinct when all its members cease to exist. In other words, when the last member of the species dies, the species is extinct. It is uncertain at what point in the future of humanity such a situation will occur, but we do know that *Homo sapiens* will probably become extinct sooner or later. This is due to an essential fact raised by the theory of evolution: species change, evolve and at some point disappear. As

Allen Buchanan said, '(t)he only reliable prediction about evolution we can make is that all species go extinct eventually'.<sup>1</sup>

Human extinction studies have proliferated during the last decades.<sup>2</sup> This is because humanity is menaced by a variety of existential risks, many of which have arisen because of our own actions. Anthropogenic extinction scenarios include climate change,

<sup>1</sup>Buchanan, A. (2011). *Better than human. The promises and perils of enhancing ourselves* (p. 49). OUP.

<sup>2</sup>See Bostrom, N. (2002). Existential risks: Analyzing human extinction scenarios and related hazards. *Journal of Evolution and Technology*, 9; Bostrom, N. (2019). The vulnerable world hypothesis. *Global Policy*, 10(4), 455–476. <https://doi.org/10.1111/1758-5899.12718>; Ord, T. (2020). *The precipice: Existential risk and the future of humanity*. Bloomsbury.

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ecological collapse, global nuclear holocaust, pandemics (including unintended ones and intended bioengineered ones) and super artificial intelligence or self-replicating nanobots. There are also nonanthropogenic scenarios such as asteroid impacts, large-scale supervolcanic eruptions, cosmic threats (e.g., gamma-ray burst, solar flares or a vacuum decay) and, if existent, an extraterrestrial invasion. These existential risks pose the open question of when *H. sapiens* could become extinct and whether it would leave any phylogenetically related descendants.

In this article, I will approach another human extinction scenario that is of particular interest for the bioethical debate. Human enhancement may fuel human extinction.<sup>3</sup> Paradoxically, the drive to improve *human* capabilities through biotechnologies may accelerate the transition into a different species and, accordingly, may give rise to a puzzling existential risk. In particular, I will show how genetic enhancement technologies have the potential to produce accumulative changes that may lead to a successor species of *H. sapiens*. This scenario has peculiarities that distinguish it from the existential risks mentioned above. The most important is the fact that human extinction may become actively pursued and materialized through enhancement technologies. Drawing on some arguments of transhumanist and pro-enhancement authors, I will present what I refer to as the *Principle of the Best Interests of Posthumanity* (PBIP), which states that human enhancement must be directed towards the evolution into a substantially more valuable posthuman existence. I argue that this principle could be paired with the desirability of human extinction. However, I will show that the PBIP also raises some relevant concerns, which may undermine its ethical appeal, all things considered.

The structure of my argument proceeds as follows: In Section 2, I will address the question of whether it is possible to create a posthuman species. I will offer some preliminary conceptual clarifications of the terms 'species', 'transhuman' and 'posthuman', and I will show how genetic enhancement technologies may accelerate the creation of a novel phylogenetically related descendant of the human species.<sup>4</sup> In Section 3, I will approach the question of whether we should create a posthuman species. Some moral reasons point in that direction and may underpin the PBIP. Then, in Section 4, I will consider if that principle entails a duty to self-extinction, namely, whether humanity should bring about its own extinction to leave a better successor species. Finally, in Section 5, I will present three objections to the PBIP that show that the intentional quest to create a posthuman species is likely to have relevant drawbacks. If these objections are not overcome, they would make ethically contentious any full-blown attempt to enhance radically the whole human species population to accelerate posthuman evolution.

<sup>3</sup>Here I must clarify that enhancement technologies could also help prevent human extinction. That is the basic argument for moral enhancement of Persson, I., & Savulescu, J. (2012). *Unfit for the future: The need for moral enhancement*. OUP.

<sup>4</sup>Although in this article I use 'human species' and '*Homo sapiens* species' as synonyms, it should be acknowledged that the former is also often used to encompass the previous species of the genus *Homo*.

## 2 | IS IT POSSIBLE TO CREATE A POSTHUMAN SPECIES?

*H. sapiens* is not invulnerable to the dynamics of biological evolution. More interestingly, our species is not only subject to evolutionary variation just like any other biological species, but we are also developing biotechnologies that allow us to influence deliberately our evolution. In this section, I will clarify the biological concept of 'species' and the terms 'transhuman' and 'posthuman' in the sense used by transhumanism—the movement that advocates the technological enhancement of humanity towards more developed forms of existence. Then, I will show how radical genetic enhancement can be a prominent way to accelerate evolution into a posthuman species.

Species taxonomy plays a fundamental role in the organization of biological entities.<sup>5</sup> The very concept of 'species', however, is not free of controversy in theoretical biology and philosophy of biology. However, beyond technical disputes, the 'species' category generally includes three commonalities: genealogy, the similarity of the genome and the potential for interbreeding.<sup>6</sup> First, the evolutionary lineage of anatomically modern humans is framed in taxonomic ranks that are deployed in an ancestry-based timeline. *H. sapiens* is the only extant species of the genus *Homo* (which commenced around 2.5 million years ago), belonging to the order of Primates (85–55 Ma), to the class of Mammalia (220 Ma) and to the kingdom Animalia (600 Ma). Second, humans also share a complete set of genetic material. The human genome is so considered a 'fundamental unity' of all members of our species.<sup>7</sup> Third, the species concept not only groups together individuals with the same genealogy and genetically based similarities but also includes members of a population that can be recognized as potential mates for reproductive purposes.<sup>8</sup>

Transhumanism is the movement that defends the use of enhancement technologies to evolve the human species for the better.<sup>9</sup> Transhumanists envision an evolutionary project starting from the human, continuing through the transhuman, all the way up to posthuman existence. 'Transhumans' can be considered as 'transitional humans' who are not far from the human species but who surpass us in cognitive, physical and emotional abilities, as well as in health and longevity status.<sup>10</sup> According to the Transhumanist FAQ 3.0 of the organization *Humanity+*, the term 'transhuman' refers

<sup>5</sup>de Queiroz, K. (2005). Ernst Mayr and the modern concept of species. *Proceedings of the National Academy of Sciences of the United States of America*, 102(Suppl. 1), 6600–6607. <https://doi.org/10.1073/pnas.0502030102>

<sup>6</sup>McMahan, J. (2002). *The ethics of killing: Problems at the margins of life* (p. 225). Oxford University Press.

<sup>7</sup>UNESCO. (1997, November 11). *Universal Declaration on the Human Genome and Human Rights*. Retrieved July 12, 2021, from [http://portal.unesco.org/en/ev.php-URL\\_ID=13177%26URL\\_DO=DO\\_TOPIC%26URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=13177%26URL_DO=DO_TOPIC%26URL_SECTION=201.html)

<sup>8</sup>This last characteristic is the most important in the *biological* concept of species, which especially stresses the property of reproductive isolation. For nonbiological accounts, there are other more important factors. The ecological concept, for example, emphasizes the occupation of a distinct niche or adaptive zones. See de Queiroz, op. cit. note 5.

<sup>9</sup>More, M. (2013). The philosophy of transhumanism. In M. More & N. Vita-More (Eds.), *The transhumanist reader. Classical and contemporary essays on the science, technology, and philosophy of the human future* (pp. 3–17). Wiley-Blackwell.

<sup>10</sup>More, M. (1993). Technological self-transformation. Expanding personal extropy. *Extropy*, 10(4:2); Porter, A. (2017). Bioethics and transhumanism. *Journal of Medicine and Philosophy*, 42, 237–260, p. 238.

to an intermediary transition from the human to the posthuman, namely, the earliest manifestation of a new evolutionary being resulting from enhancement technologies.<sup>11</sup>

However, transhumans are only the halfway evolutionary stage in the transhumanist agenda. The real goal is to use enhancement technologies until arriving at the posthuman stage. The term 'posthuman' is a murky concept. In contrast to the postmodern meaning given to this term by philosophical posthumanism, according to which 'we are already posthuman',<sup>12</sup> transhumanists use this concept to express their genuine evolutionary aspiration. For instance, Nick Bostrom depicted the 'posthuman' as a kind of existence that remarkably exceeds the human and transhuman one concerning healthspan, intellectual life and blissfulness, and that seems indifferent to ageing and most common human diseases.<sup>13</sup>

Transhumanism has proposed various sets of technologies that can trigger posthuman evolution, such as convergent NBIC (nanotechnology, biotechnology, information technology and cognitive science) technologies and the so-called 'uploading'.<sup>14</sup> To narrow my argument, here, I shall just focus on one of the most debated ones: genetic enhancement technologies—those that serve to improve genetically based traits and capabilities in normal and healthy individuals. Genes are considered to play an important role in evolution. The genetic mechanisms of evolutionary change not only include mutation and recombination but could also be open to modifications introduced via genetic engineering. Emerging genome editing technologies such as CRISPR-Cas9 permit the deletion and replacement of existing genetic materials and also allow the insertion of new genes in any living organism.<sup>15</sup> If these genetic changes are produced by germline (heritable) interventions, they can have a large-scale impact in the long run that will affect human evolution.<sup>16</sup> Similarly, radical modifications in the human genome may 'involve a

move away from our current species identity'.<sup>17</sup> Radical enhancement has been defined as improving 'significant human attributes and abilities to levels that greatly exceed what is currently possible for human beings', bringing posthuman existence closer.<sup>18</sup> For instance, 'transgenesis could be used to introduce genes coding for superior physical abilities from other animals' to 'radically enhance human beings'.<sup>19</sup> Radical genetic enhancement can therefore accelerate the creation of a posthuman species with a genome that differs considerably from the phylogenetically related human one.

Speciation refers to the formation of new species. In addition to considering genomic differences, another element that would lead to the emergence of posthuman speciation is the creation of reproductive barriers. The division between human and posthuman populations can be marked when members of each group become reproductively isolated from those of the other.<sup>20</sup> This is because the evolution of barriers to interbreeding is a key element in the formation of a new species.<sup>21</sup> Reproductive isolation refers to the (not merely geographical) separation between a pair of populations that constitute distinct reproductive communities. Of course, the creation of reproductive barriers would also be related to genetic incompatibility as long as the genomic differences would prevent the genetic exchange between these two populations. The impossibility of creating viable offspring between human–posthuman couples will therefore become a diverging moment between both groups.

To summarize, genetic enhancement technologies can introduce radical changes to the human genetic constitution. These modifications can lead to a very long-term evolutionary trajectory towards posthuman speciation, that is, to the creation of a posthuman species.

### 3 | SHOULD WE CREATE A POSTHUMAN SPECIES?

Creating a posthuman species seems, then, biologically possible, but would it be ethically desirable? According to some prominent authors, that could be the case. In this section, I will introduce some of the ethical arguments that (directly or indirectly) make the case for the enhancement of humanity into a better species, namely, into a form of existence of greater well-being. After that, I will present the PBIP and show what its ethical and philosophical underpinnings are. Then, I will introduce the moral paradox of the double effect of enhancement and apply the longtermism paradigm to this debate.

<sup>11</sup>Humanity+. (2021). *Transhumanist FAQ 3.0* [On-line]. Retrieved October 1, 2021, from <https://humanityplus.org/transhumanism/transhumanist-faq/>; originally, Bostrom, N. (2003a). The transhumanist FAQ. *Readings in the Philosophy of Technology*, 2, 355–360.

<sup>12</sup>Braidotti, R. (2013). *The posthuman*. Polity; Ferrando, F. (2013). Posthumanism, transhumanism, antihumanism, metahumanism, and new materialism: Differences and relations. *Existenz. An International Journal in Philosophy, Religion, Politics, and the Arts*, 8(2), 26–32; Rueda, J. (2020). De la libertad morfológica transhumanista a la corporalidad posthumana: convergencias y divergencias [From transhumanist morphological freedom to posthuman corporeality: convergences and divergences]. *Isegoría*, 63, 311–328.

<sup>13</sup>Bostrom, N. (2005). In defense of posthuman dignity. *Bioethics*, 19(3), 202–214; Bostrom, N. (2008a). Letter from Utopia. *Studies in Ethics, Law and Technology*, 2(1), 1–7; Bostrom, N. (2008b). Why I want to be a posthuman when I grow up. In B. Gordijn & R. Chadwick (Eds.), *Medical enhancement and posthumanity* (pp. 107–136). Springer.

<sup>14</sup>Simply put, 'uploading (sometimes called "downloading," "mind uploading," or "brain reconstruction") is the process of transferring an intellect from a biological brain to a computer'. Bostrom (2003a). op. cit. note 11.

<sup>15</sup>Jinek, M., Chylinski, K., Fonfara, I., Hauer, M., Doudna, J. A., & Charpentier, E. (2012). A programmable dual-RNA-guided DNA endonuclease in adaptive bacterial immunity. *Science*, 337(6096), 816–821. <https://doi.org/10.1126/science.1225829>; Liang, P., Xu, Y., Zhang, X., Ding, C., Huang, R., Zhang, Z., Lv, J., Xie, X., Chen, Y., Li, Y., Sun, Y., Bai, Y., Songyang, Z., Ma, W., Zhou, C., & Huang, J. (2015). CRISPR/Cas9-mediated gene editing in human triploid zygotes. *Protein & Cell*, 6(5), 363–372. <https://doi.org/10.1007/s13238-015-0153-5>; Cyranski D. (2016). CRISPR gene-editing tested in a person for the first time. *Nature*, 539(7630), 479. <https://doi.org/10.1038/nature.2016.20988>; Knott, G. J., & Doudna, J. A. (2018). CRISPR-Cas guides the future of genetic engineering. *Science*, 361(6405), 866–869. <https://doi.org/10.1126/science.aat5011>

<sup>16</sup>Almeida, M., & Diogo, R. (2019). Human enhancement: Genetic engineering and evolution. *Evolution, Medicine, and Public Health*, 2019(1), 183–189. <https://doi.org/10.1093/emph/eoz026>

<sup>17</sup>Harris, J. (2007). *Enhancing evolution* (p. 39). Princeton University Press.

<sup>18</sup>Agar, N. (2010). *Humanity's end: Why we should reject radical enhancement* (pp. 1–2). MIT Press.

<sup>19</sup>Savulescu, J. (2009). The human prejudice and the moral status of enhanced beings: What do we owe the gods? In J. Savulescu & N. Bostrom (Eds.), *Human enhancement* (pp. 211–247). Oxford University Press, pp. 212–213.

<sup>20</sup>Silver, L. M. (1997). *Remaking Eden: How genetic engineering and cloning will transform the American family*. Avon Books; Agar, N. (2010). op. cit. note 18; DeGrazia, D. (2012). *Creation ethics. Reproduction, genetics, and quality of life*. OUP; Sandberg, A. (2021). Posthumans. In D. Edmonds (Ed.), *Future morality* (pp. 243–251). OUP.

<sup>21</sup>Charlesworth, B. & Charlesworth, D. (2017). *Evolution: A very short introduction* (Revised impression, p. 10). OUP.

A common position to advocate for enhancements is to focus on the benefits that they can provide. For example, John Harris defined 'enhancement' as anything that makes a change for the better, and thus it is something that is good for people as long as it makes us better.<sup>22</sup> Similarly, Julian Savulescu, Anders Sandberg and Guy Kahane proposed a welfarist definition of enhancement, according to which an enhancement is an intervention that increases the well-being of the intervened individual.<sup>23</sup> In both accounts, at least at the descriptive level, an enhancement *generally* seems to benefit the enhanced individual. But could it be said, at the normative level, that there is a relationship between enhancement and the duty to benefit others? What does beneficence consist of on a moral level? Let us consider the latter question to respond and then the former.

Beneficence seeks to promote the good of others. When it is presented from the language of principles, 'beneficence refers to a normative statement of a moral obligation to act for the others' benefit, helping them to further their important and legitimate interests, often by preventing or removing possible harms'.<sup>24</sup> After this clarification, what is the normative relationship between enhancement and beneficence? It seems to me that, insofar as genetic enhancements can improve people's lives, these interventions are in line with the moral pursuit of beneficence. Human genetic enhancement could (in principle) make enhanced people smarter, living longer, healthier and happier lives. Of course, this does not mean that there may be dissonant cases where enhancements do not directly benefit the improved individual. Genetic moral enhancement could be a case, for instance, in which genetic selection or modification would benefit not necessarily the enhanced individual but rather others and (hopefully) society.<sup>25</sup> However, the morally enhanced individual might benefit indirectly from being part of a society with morally more capable individuals for the good of others. Thus, the normative relationship between enhancement and beneficence is neither always direct nor perfect, although it is quite apparent in many cases. That said, as long as we are concerned about the long-term welfare of future (human or posthuman) generations, it is interesting to apply the principle of beneficence. Should we aspire to far-reaching beneficence that leads to posthuman existence?

<sup>22</sup>Harris, op. cit. note 17, pp. 2, 9, 36.

<sup>23</sup>Savulescu, J., Sandberg, A., & Kahane, G. (2011). Enhancement and well-being. In J. Savulescu, R. ter Meulen, & G. Kahane (Eds.), *Enhancing human capacities* (pp. 3–18). Wiley-Blackwell.

<sup>24</sup>Beauchamp, T. (2019). The principle of beneficence in applied ethics. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy*. Retrieved July 15, 2021, from <https://plato.stanford.edu/archives/spr2019/entries/principle-beneficence/>

<sup>25</sup>Douglas, T. (2008). Moral enhancement. *Journal of Applied Philosophy*, 25(3), 228–245. <https://doi.org/10.1111/j.1468-5930.2008.00412.x>; Faust, H. S. (2008). Should we select for genetic moral enhancement? A thought experiment using the Moralkinder (MK+) haplotype. *Theoretical Medicine and Bioethics*, 29(6), 397–416. <https://doi.org/10.1007/s11017-008-9089-6>; Walker, M. (2009). Enhancing genetic virtue: A project for twenty-first century humanity? *Politics and the Life Sciences*, 28(2), 27–47. [https://doi.org/10.2990/28\\_2\\_27](https://doi.org/10.2990/28_2_27); Douglas, T., & Devolder, K. (2013). Procreative altruism: Beyond Individualism in reproductive selection. *Journal of Medicine and Philosophy*, 38(4), 400–419. <https://doi.org/10.1093/jmp/jht022>.

We shall adopt the Principle of Procreative Beneficence proposed by Savulescu to respond to that question.<sup>26</sup> The Principle of Procreative Beneficence claims the moral obligation of parents to have the best children, that is, bringing into existence those with the best prospects of having the best life. This principle is based on a conditional duty. Savulescu's Principle of Procreative Beneficence applies, given the case that one will be creating children, not just that we have the obligation *tout court* to create the best possible children. So, *if* someone is not going to have children, this principle does not apply. Moreover, the Principle of Procreative Beneficence is not disconnected from our issue to be discussed. With the notable exceptions of moral antinatalists and moral nihilists, most people believe that humanity should continue having (usually human) descendants. Therefore, the conditional part is given since there seems to be a generalized intention to continue humanity—and thus have future descendants. However, what is questionable is that human progeny is the most ethically desirable form of existence from a commitment to beneficence.

If we elevate the principle of procreative beneficence to a massive evolutionary project, we could infer the moral duty to create beings with the best prospects of having the best life. If the best lives were posthuman lives rather than human lives, we should aim to create posthuman lives. In fact, Savulescu has already acknowledged that posthumans could have 'better, longer lives', among other objective properties that we currently value the most, and that, therefore, 'we might have reason to save or create such vastly superior lives, rather than continue the human line'.<sup>27</sup>

However, it is unclear on which agent this duty would fall. The Principle of Procreative Beneficence establishes that the duty is owed by the prospective parents or individual reproducers. But the duty to create the best possible offspring of humanity would mainly fall on humanity itself. That is, this would be a collective duty on a large scale—similar to other far-reaching obligations such as combating climate change to preserve global biodiversity or improving the quality of life of future generations (including sentient nonhuman animals).<sup>28</sup> This 'perspective of humanity' as a collective agent—which, of course, depends on global coordination and individual actors—is common on the debate of existential risks.<sup>29</sup> If we can affirm that humanity has a moral duty to prevent existential risks, it is also plausible to conceive the opposite. As a consequence, following this reasoning, humanity could assume the duty to create a successor species, of the possible successor it could have, who is expected to have the best life.

Indeed, as transhumanists have described it, it seems that posthuman lives would have greater welfare than human lives.

<sup>26</sup>Savulescu, J. (2001). Procreative beneficence: Why we should select the best children. *Bioethics*, 15(5–6), 413–426. <https://doi.org/10.1111/1467-8519.00251>

<sup>27</sup>Savulescu, op. cit., note 19, pp. 242–244.

<sup>28</sup>Those two frequent examples aim to emphasize that we can owe collective duties to nonhuman beings. Certainly, it may seem puzzling that a duty can be attached to an entire species. Nevertheless, this is not altogether strange. Since climate change has an anthropogenic cause, the duty to mitigate its disastrous consequences falls on the species responsible, that is, *H. sapiens* species. This is plausible and includes the duty to prevent evils to other nonhuman species. What could certainly be stranger, however, is that the duty to create the best possible successor species can lead to the disappearance of the collective agent who assumes the duty. This will be discussed in the next section.

<sup>29</sup>Ord, op. cit. note 2, pp. 54–55.



Posthuman modes of being would be very worthwhile because they would possess the qualities that we humans value so highly (e.g., intelligence, emotional control, long-lived healthspan, creativity, physical vigour and so on) but to an extent that we could not consider these beings to be human.<sup>30</sup> Radical enhancement could thus bring closer the benefits of posthuman life.

For this beneficent aspiration to be truly realized, posthuman beings must come into existence. This is due to an intuition related to the nonidentity problem in creation ethics—the one that claims that what is bad needs to be bad for someone.<sup>31</sup> That is, creation is a bad act if and only if an existing or future person is harmed or wronged. (In general, it is often said that created beings would be harmed by their creation only if their lives were worse than nonexistence.) By the same token, to benefit posthumans with their own creation, posthumans *must* exist. The good that comes with posthuman life is realized only when the stage of posthumanity is achieved. So, if there is any duty to bring the benefit of posthuman existence, this duty entails the desirability of arriving at posthumanity.

After considering the previous arguments, I shall advance the PBIP:

*The Principle of the Best Interests of Posthumanity.* The moral duty to direct the enhancement of the human and transhuman species towards the creation of a posthuman existence that is substantially more valuable than its predecessors.

Although I think that the argument of beneficence has been clearly made from transhumanist and pro-enhancement (but non-transhumanist) positions, the PBIP seems to be in tune mainly with the basic evolutionary tenet of transhumanism. I would now like to point out a difference between both positions that I consider crucial. A transhumanist may support human enhancement because of its benefits *and* because it is the necessary means for the attainment of a superior species, or simply because it is a required causal step towards transhuman or posthuman existence. A non-transhumanist pro-enhancement author, however, may advocate enhancements for their direct benefits to individuals and populations, but often regardless of whether or not they are necessary to achieve a posthuman evolutionary stage. Some in this second group may even accept that the creation of a better species is a secondary consequence of enhancements, although they do not see this as what makes enhancements primarily morally desirable.<sup>32</sup> Other pro-enhancement authors, in contrast, believe that enhancements should be moderate so as not to cause the disappearance of the human species. For instance, Nick Agar rejected radical enhancement because it could alienate us from valuable experiences that give meaning to our human lives.<sup>33</sup>

Here, it is interesting to note that, if genetic enhancement could lead in the long run to the creation of a posthuman species, this is problematic for the authors who accept enhancement but reject the goal of posthuman existence. Still, they may adopt what we could refer to as a version of the doctrine of the double effect related to enhancement, according to which, in moral terms, enhancement is the intended good and accelerating posthuman evolution simply constitutes a foreseeable but unintended bad side-effect. For those who defend human enhancement and, on the contrary, do not see posthuman existence as undesirable, the unintended side-effect of accelerating posthuman evolution would not be bad, and then the doctrine of the double effect would not apply.

However, consider this controversy from the paradigm of longtermism. Longtermism is concerned with the very remote consequences of our actions and omissions in affecting the far future.<sup>34</sup> From a longtermist perspective, a doctrine of the double effect on human enhancement seems problematic. If we are to take into account the very long-term consequences of enhancement technologies, the transformation of the human species is a factor that we must consider in our moral evaluations of enhancement. Hence, we should focus not only on the intended short-term benefits and risks of enhancement but also on its long-term impacts, which include the continuity or discontinuity of the human species.

Transhumanism has been particularly adept at approaching the enhancement debate from the perspective of the future of humanity. Indeed, from this longtermist perspective, it makes sense to consider the project of intentionally improving the human species.<sup>35</sup> When we embrace the mission of affecting the far future, the welfare of the human species and its possible posthuman successor seems relevant in moral terms.

Finally, the PBIP seems important inasmuch as it is based on relevant ethical reasons. Beneficence is one of the strongest normative commitments in a consequentialist ethical theory. And, as long as the PBIP is grounded on the moral duty of beneficence, this principle is *prima facie* morally sound. However, we should scrutinize the concomitant consequences of following this principle. A relevant question is whether the PBIP would entail the duty to lead humanity into extinction to accelerate posthuman evolution.

## 4 | A DUTY TO SELF-EXTINCTION?

In this section, I will briefly argue that human extinction could be considered as one of the best interests of posthumanity. I shall first qualify this statement by remarking why we should prefer, from an impartial perspective, the creation of a posthuman life to a human

<sup>30</sup>Boström (2008b), op. cit. note 13.

<sup>31</sup>Parfit, D. (1987). *Reasons and persons* (p. 363). Clarendon Press.

<sup>32</sup>Harris, op. cit. note 17.

<sup>33</sup>Agar, op. cit. note 18.

<sup>34</sup>Greaves, H. & MacAskill, W. (2021). *The case for strong longtermism* (Working Paper 5-2021). Global Priorities Institute. Retrieved July 16, 2021, from <https://globalprioritiesinstitute.org/wp-content/uploads/The-Case-for-Strong-Longtermism-GPI-Working-Paper-June-2021-2-1.pdf>

<sup>35</sup>Liedo, B. & Rueda, J. (2021). In defense of posthuman vulnerability. *Scientia et Fides*, 9(1), 215–239. <https://doi.org/10.12775/SetF.2021.008>

one, and then I will frame the duty of self-extinction from a classical utilitarian viewpoint.

Some believe that to be born human, it is better not to exist.<sup>36</sup> Although I do not dislike my human life, I will not dispute that claim. Rather, I am more interested in granting the assumption that a posthuman life is worth living—and probably even more so than human existence. Note that this could be accepted by those antinatalists who reject human existence but who have not pronounced themselves on posthuman existence. In theory, it is not incompatible to claim that creating humans is bad with the assertion that creating posthumans is not bad (or even good).<sup>37</sup> In fact, Ole Martin Moen has recently suggested that the pessimism about human life of some antinatalist positions can be overcome if we were to use radical biomedical enhancement.<sup>38</sup> He argues that these technologies could make it not only worthwhile to be born at the individual level but also that we no longer should fear a technology-driven extinction by drastically altering humanity.

Now it is important to address the welfare that radical enhancements would produce in a more impersonal way. After all, what is being discussed is not whether I would have liked to be born posthuman rather than human, but what kind of descendants should exist in relation to the level of well-being they would experience. In choosing between two courses of action, it is advisable to consider impartially which leads to a better state of affairs. This also applies to deciding what type of individuals should be brought into existence. Future beings will have a greater interest in existing to the extent that their existence is as good as possible. And if posthuman existence is better than human existence, future beings have a greater interest in being born posthuman rather than human. If we are consistent with the beneficence implicit in the PBIP, we must create posthuman rather than human lives.<sup>39</sup> Therefore, if the price to be paid is that the human line of descent will not be continued, this would be an ethical toll that those accepting the PBIP would be willing to take, even if it entailed human extinction.

The previous line of argumentation could be acceptable from a strong theoretical commitment to impartiality. In this respect, one of the most paradigmatic examples would be that of a strict version of utilitarianism. Utilitarianism<sup>40</sup> is a consequentialist moral theory that aims

to maximize happiness and minimize unhappiness<sup>41</sup> and also takes into account the remote consequences (both in spatial and temporal distance) of our actions and omissions.<sup>42</sup> Recent contributions to contemporary utilitarianism have pointed out that the moral core of this theory is its impartial (universal) benevolence.<sup>43</sup> One of the consequences of applying the assumption of impartiality and the aspiration of beneficence to bioethical debates is that utilitarianism often deflates the importance of agent-relative considerations.<sup>44</sup> Then, utilitarianism requires us to be impartial and, as humans, to not be biased in favour of the interests of our own species.<sup>45</sup> If what matters is well-being and not simply the recipient of well-being, from a purely impartial perspective, we should try to generate as much well-being as possible, even if this means that this well-being is enjoyed by a species other than our own.

Moreover, the union of longtermism with a strict version of utilitarianism would entail prioritizing from a 'cosmic view' (or the point of view of the universe) the expected astronomical amounts of far-future value of posthuman existence. The reasoning would be as follows: If the human species succeeds in surviving existential risks, the future could be vast. Our history would be just beginning. Thus, if we avoid premature extinction, millions (or even billions) of years could be awaiting future generations.<sup>46</sup> Suppose now that each posthuman life has the double average welfare compared to human life. In that case, a posthuman future could contain much more value than a human future, even with less population. In other words, achieving posthumanity could help in maximizing overall well-being. Therefore, replacing the human species with a posthuman one could make the total sum of welfare much greater than simply continuing human life.

So, could this impartial beneficence entail some sacrifices for the human species? Utilitarianism<sup>47</sup> is often characterized by its high

<sup>41</sup>Mill, J. S. (1863). *Utilitarianism*. Parker, Son and Bourn, Chapter 2.

<sup>42</sup>Moore, G. E. (2005). *Ethics* (W. H. Shaw, Ed.). Oxford University, Chapter 1 (Original work published 1912).

<sup>43</sup>Kahane, G. (2015). Sidetracked by trolleys: Why sacrificial moral dilemmas tell us little (or nothing) about utilitarian judgment. *Social Neuroscience*, 10(5), 551–560. <https://doi.org/10.1080/17470919.2015.1023400>; Kahane, G., Everett, J., Earp, B. D., Caviola, L., Faber, N. S., Crockett, M. J., & Savulescu, J. (2018). Beyond sacrificial harm: A two-dimensional model of utilitarian psychology. *Psychological Review*, 125(2), 131–164. <https://doi.org/10.1037/rev0000993> Emilian Mihailov has recently argued that impartial beneficence is also a key aspect of Kantian ethics. Mihailov, E. (2022). Measuring impartial beneficence: A Kantian perspective on the Oxford Utilitarianism Scale. *Review of Philosophy and Psychology*, 0123456789. <https://doi.org/10.1007/s13164-021-00600-2> Still, Beauchamp makes it clear that beneficence is the absolute and supreme criterion of utilitarian ethics, and that, in Kant, benevolent motivations occupy a less important place and are always linked to the fulfillment of duty. Beauchamp, op. cit. note 24.

<sup>44</sup>McMillan, J. (2018). *The methods of bioethics: An essay in meta-bioethics* (pp. 59, 102). Oxford University Press.

<sup>45</sup>This aspiration to impartiality will encounter a challenge in Section 5 when addressing the alignment objection.

<sup>46</sup>Ord, op. cit. note 2; Greaves & MacAskill, op. cit. note 34. For a criticism of longtermism, see Torres, P. (2021). The dangerous ideas of "longtermism" and "existential risk". *Current Affairs*. Retrieved September 26, 2021, from <https://www.currentaffairs.org/2021/07/the-dangerous-ideas-of-longtermism-and-existential-risk>. The idea that if we avoid existential catastrophes human history is at an early stage is also present in Glover, J. (1984). *What sort of people should there be? Genetic engineering, brain control and their impact on our future world* (pp. 114–115). Penguin; Parfit, op. cit. note 31, pp. 453–454.

<sup>47</sup>It goes without saying that utilitarianism is a plural theory with different types of versions. See, for instance, Driver, J. (2014). The history of utilitarianism. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy*. Retrieved October 1, 2021, from <https://plato.stanford.edu/entries/utilitarianism-history/>; Savulescu, J., Persson, I., & Wilkinson, D. (2020). Utilitarianism and the pandemic. *Bioethics*, 34(6), 620–632. <https://doi.org/10.1111/bioe.12771>

<sup>36</sup>Benatar, D. (2006). *Better never to have been: The harm of coming into existence*. OUP.

<sup>37</sup>Another question is whether we can harm potential posthumans by not bringing them into existence. Benatar would argue against that view. For him, we cannot harm by not bringing a being into existence because if there is no existing person no one will be deprived of the goods of life. This view, however, is not unanimous. As we shall see at the end of this section, Hare argued in a sophisticated way that we can indeed harm potential beings with potentially good lives if we do not bring them into existence. I thank an anonymous reviewer for this comment.

<sup>38</sup>Moen, O. M. (2021). Pessimism counts in favor of biomedical enhancement: A lesson from the anti-natalist philosophy of P. W. Zapffe. *Neuroethics*, 14(2), 315–325. <https://doi.org/10.1007/s12152-021-09458-8>

<sup>39</sup>Of course, from the nonidentity problem, even if future enhanced beings are not born posthuman, they may not consider their lives as undesirable unless their existence is worse than nonexistence. I thank Marcos Alonso for this remark.

<sup>40</sup>To avoid accusations of begging the question, I do not assume here that utilitarianism is the most correct ethical theory. I simply mention that from some versions of this theory, human extinction could be considered a lesser evil on the way to the greater good of future posthumanity.



standards and counter-intuitive conclusions against common-sense morality. In particular, this theory can seem very over-demanding because it can sometimes oblige to self-sacrifices—that is, actions that entail significant personal (and even vital) costs for the sake of others.<sup>48</sup> In this context, accelerating human self-extinction to create a posthuman species would constitute a prominent example of self-sacrifice. Here is important not to conflate the idea of extinction with mortality.<sup>49</sup> In this context, I understand self-sacrifice as assuming the end of humanity as a collective agency to benefit our improved descendant species. Intentionally causing human extinction for the sake of posthumanity could then be the ultimate altruistic act by humans.<sup>50</sup>

One possible objection to this account is the following. For some versions of utilitarianism, the PBIP proclaims an implausible duty to human extinction for posthumans' sake. To speak of posthuman interests, as this principle does, would be nonsensical. Preference utilitarianism, for instance, holds that what is important is to satisfy preferences and that there is not a duty to satisfy the preferences of those who do not exist yet. Since posthumans do not exist yet, they do not have interests or preferences. Hence, there is no duty to self-extinguishing humanity to create posthumanity. However, this is only right if one assumes preference utilitarianism is the correct ethical theory. I do not believe that the PBIP should be based on this theory. On the contrary, this principle is more acceptable from a more classical utilitarian position. According to R. M. Hare, a 'utilitarian of the older sort' who seeks to maximize happiness should consider the interest in existing of possible happy individuals to maximize the future sum of happiness.<sup>51</sup> This view may reinforce the normative grounding of the PBIP in two ways. First, this vision points out that potential posthumans have interests, among which is not only to exist but also to exist in the best possible way. Second, it allows us to recognize the ethical importance of bringing into the world those beings who add the greatest happiness or well-being to the total sum. Since we have already said that posthumans could have lives of greater well-being than humans, we should bring in the former instead of the latter.

To summarize, if we base the PBIP on a strong normative commitment to impartial beneficence, its consistent application would push us towards human extinction. Thus, human extinction could be a self-imposed duty to accelerate posthuman evolution. In that sense, it should be noted that, within the PBIP, human extinction could be considered erogatory (i.e., within the call of duty) instead of supererogatory (beyond the call of duty but praiseworthy).

However, as mentioned above, PBIP is *prima facie* ethically relevant. By 'prima facie', I mean that this principle is based on an important moral aspiration (i.e., impartial beneficence), but if it

collides with other reasons, these should be balanced in the decision. In the next section, I will offer some overriding reasons that may invalidate the PBIP.

## 5 | OBJECTIONS TO THE PRINCIPLE OF THE BEST INTERESTS OF POSTHUMANITY

In this section, I will raise three objections to the PBIP that weaken its ethical appeal. These objections are related to the replacement problem, intergenerational justice and the problem of alignment. I shall also consider some possible responses to each objection. Since none of the answers detracts from the strength of the three objections, this indicates that the PIBP has significant ethical shortcomings.

The first objection is what I shall refer to as the *replacement problem*. Posthumanity will not appear out of the blue. The transition from the human to the posthuman (passing through the transhuman) would be gradual at an evolutionary level, and it is likely to create collective action problems at the societal one. The PBIP envisions a collective end whose realization depends on the orchestrated action not only of many individuals but also of the *whole* of humanity. It is highly likely that large sections of the population would not be willing to subscribe to the desirability of this collective goal and, therefore, its realization would become much more complex and its consequences would be different from a complete replacement of humanity with posthumanity. The replacement objection holds then that those transition costs have moral relevance. Similarly, if one prefers more utilitarian rhetoric, R. M. Hare argued (regarding the moral problem of what possible future populations we should create) for considering the disutilities created *in practice* by the process of transition to an end-state.<sup>52</sup>

For instance, radical enhancement may have profound societally disruptive consequences. According to various authors, genetic enhancement technologies have the potential to cause new hierarchies, to increase social inequalities and to create new population divides.<sup>53</sup> This risk is greater the more unequal the access to and distribution of enhancement technologies. Moreover, posthumanity would possibly not completely replace humanity, but rather, both species would live at the same time.<sup>54</sup> At this point, one of the most uncertain questions is how the coexistence between human and posthuman populations would look like, if at all. Would it be peaceful? Would there be violent tensions? Would one group dominate the other? Would one population try to annihilate the other? Or would members of both groups recognize each other as

<sup>52</sup>Ibid: 68 et seq.

<sup>53</sup>Harris, J. (1992). *Wonderwoman and superman: The ethics of human biotechnology*. OUP; Silver, op. cit. note 20; Annas, G. J., Andrews, L. B., & Isasi, R. M. (2002). Protecting the endangered human: Toward an international treaty prohibiting cloning and inheritable alterations. *American Journal of Law & Medicine*, 28(2–3), 151–178; Fukuyama, F. (2002). *Our posthuman future. Consequences of the biotechnology revolution*. Picador.

<sup>54</sup>It is worth noting that posthumanity does not necessarily have to be a homogeneous population. As there are different human cultures, there may be different posthuman cultures.

<sup>48</sup>Kahane, op. cit. note 43; Kahane, G. et al., op. cit. note 43.

<sup>49</sup>I thank an anonymous reviewer for raising this point.

<sup>50</sup>I owe this comment to Walter Glannon, who also mentioned that, paradoxically, it would be a case of collective rather than individual altruism, although altruism is typically described as individual rather than collective action.

<sup>51</sup>Hare, R. M. (2002). *Essays on bioethics*. OUP, especially chapter 5 on "Possible people", p. 67 (Original work published 1993).

having equal moral status? Or might this coexistence even be mutually beneficial? These are open questions that I cannot answer here. But it is worth mentioning that this objection suggests that there is a genuine peril that radical genetic enhancements may lead to future societal fractures that could reduce the well-being of future generations, all things considered.

One possible response to this objection is that, for a defender of the PBIP, there would still be value in undertaking the beneficent act of evolutionary enhancement towards posthumanity even if there were problems related to replacement. Some transition difficulties might be mitigable (by reducing the socially disruptive aspects), and it might even be better to have a world co-inhabited by both humans and posthumans than one in which there are no posthumans. Still, this response to the replacement objection overlooks the fact that the ultimate goal of the PBIP is the whole substitution of human existence by one that is substantially more worthwhile. A partial replacement would be unsatisfactory for the PBIP and would still create major collective action challenges because it would require the large-scale application of radical genetic enhancement.

The second objection holds that the PBIP is potentially *intergenerationally unjust*. Intergenerational justice is concerned with the fair distribution of burdens and benefits between present and future generations. The PBIP places normative weight on the future benefits of posthumans but ignores the costs and benefits of non-posthuman generations. In the pathway to posthuman evolution, there are some relevant costs to mention. For example, radical genetic enhancements may have socially destabilizing effects—as we have seen with the previous objection. If posthuman evolution were not adopted as a universal programme, which seems a far cry from happening, the effects of enhancement would most likely be unevenly distributed among diverse populations. This in turn could create social problems that would reduce the total aggregate welfare of humanity. Another aspect is the opportunity cost (the value of the foregone alternative) related to the projects we would neglect because of the investments we would have to make to massively enhance the world's entire human population. As resources are limited and genetic enhancement technologies would entail development and implementation costs, we must look at our framework of urgent global priorities (global poverty, climate change, digital transition and so on) to see how funding for other projects valuable to our well-being would be left over. Furthermore, nonhuman animals used in biomedical research to develop and refine genetic enhancement technologies prior to their use in humans may also incur substantial burdens (e.g., if experiments cause them suffering, separation from other members of their species or removal from their natural habitats). Ultimately, the PBIP would impose disproportionate costs on many non-posthuman beings for the future benefit of posthumans. This is unfair, and it could not be defended from an ethical perspective that takes fairness into account.

This objection can also be answered, though. First, humans could also benefit from radical genetic enhancement, not just bear the burdens. Even if the well-being of a human with radically improved genes is not the same as the well-being experienced by a posthuman,

this would not be negligible in the calculation of distributive justice. Second, the balance between costs and benefits could be tipped in favour of posthumanity from a utilitarian maximizing stance in terms of justice—which emphasizes just the total aggregation, and not the fair distribution among the parties neither favouring the least advantaged. It would all depend on how much welfare posthumanity could enjoy and for how long and what burdens would be borne by non-posthumans. The intensity and duration of the well-being experienced by posthumans may be so extraordinary that the costs borne by other species are justifiable. Bostrom envisaged in *Letter from Utopia* what a posthuman life compared to a human one might be like from the posthuman perspective:

Have you ever known a moment of bliss? (...) If you have experienced such a moment, experienced *the best type* of such a moment, (...) And yet, what you had in your best moment is not close to what I have now—a beckoning scintilla at most.<sup>55</sup>

However, I believe that this response to the objection is not satisfactory. Our calculations of distributive justice must take the fact of uncertainty into account. Posthumanity may *never* come to pass.<sup>56</sup> Betting a great deal of expense and cost for non-posthuman generations on a long-term benefit for a posthumanity that is uncertain might be considered inequitable and irrational. What if we bet on posthuman evolution and halfway through an asteroid drives us to extinction? Or if ecological collapse at some point makes the continuation of primate species unfeasible? Or if a nuclear world war breaks out? Those are possible courses of action that should not be ruled out. From an intergenerational justice perspective, we must take these uncertainties into account when organizing our current actions to distribute their burdens and benefits as equitably as possible. Moreover, even many utilitarians would reject a course of action with a low probability of maximizing utility because probability judgements are influenced by the uncertainty of the effects of our actions.<sup>57</sup>

The third objection is what I shall call the *alignment problem*.<sup>58</sup> We may wonder if what we humans value right now will be valued by posthumans. This problem is related to 'ethical locality', which mentions that what we believe to be good may change from time

<sup>55</sup>Bostrom (2008a), op. cit. note 13, pp. 1–2, italics in original source.

<sup>56</sup>Jones claimed that the posthuman vision is not only a future-oriented one but also a 'never-to-be-realised orientation'. This vision is too extreme since it is possible to create a posthuman species, as I showed in Section 2, but it can serve as a reminder that it is also plausible that posthumans may never come into existence. Jones, D. G. (2006). Enhancement: Are ethicists excessively influenced by baseless speculations? *Medical Humanities*, 32(2), 77–81, p. 79. <https://doi.org/10.1136/jmh.2005.000234>

<sup>57</sup>In fact, if the long run is much more uncertain than the short term, consequentialism can argue that we should prioritize betting on highly probable short- and medium-term benefits for non-posthuman existences, despite foregoing the greater benefits of a much more uncertain and improbable posthuman existence. Unfortunately, for reasons of space, I am unable to address this tension between propinquity and remoteness in consequentialist ethics of justice.

<sup>58</sup>Another possible term would be 'adjustment'. Jonathan Glover used it to mention the problem that future generations (including those created by positive genetic engineering) would probably not share our present values. Glover, op. cit. note 46.

to time.<sup>59</sup> If ethical views evolve over time,<sup>60</sup> we do not know if what we value right now will be valued by posthumans in the very far future. In the future transition from one civilization to another, such as from humanity to posthumanity, axiological changes may occur.<sup>61</sup> This creates an epistemic challenge that may cause some moral uncertainty about what posthumans would include as the constitutive elements of their own welfare. Thus, Jonathan Glover stated that, as far as it is unlikely that future generations would share our same values, we should not plan utopias for them.<sup>62</sup> Our vision of posthuman utopia may therefore be misguided.

To point out similar problems, Nick Agar proposed in relation to radical enhancement a conception of Species-Relativism about Valuable Experiences, which states that 'certain experiences and ways of existing properly valued by members of one species may lack value for the members of another species'.<sup>63</sup> Therefore, the goals of the radical enhancements that we contemporary humans value for future posthumans may not correspond to the real interests of future posthumans. This is akin to parents conditioning their children's future development without knowing whether their children will value those actions positively, but it adds an important nuance: the fact that moral uncertainty is much greater because there are two different species involved.

Some might try to answer this objection too. I shall consider two responses. On the one hand, following the alignment objection in other areas would lead to unappealing consequences. For example, would such an approach mean that we should stop caring about the well-being of other nonhuman species? Would this objection lead to paralysis impeding paternalistic actions we already take in pursuit of animal welfare? In fact, we already perform actions that improve the lives of nonhuman animals even though we are humans and *not* nonhuman animals. Thus, some might say on similar grounds that we have reason to try to improve the lives of future generations (even unborn posthumans) even if they may not be properly human.<sup>64</sup>

Despite the initial appeal of this reasoning, this response drives us away from the question. Unlike other nonhuman animals, posthumans may have high levels of moral autonomy (perhaps more than humans) and could have diverse conceptions of well-being. In this sense, the alignment objection is based on a cautionary view of the duty of beneficence towards posthuman beings and their well-being. This objection compels us to think about what we mean by posthuman well-being and whether

well-being is the only thing that posthumans would care about. Regarding the former, the existence of different conceptions of human well-being<sup>65</sup>—something that unfortunately I have not been able to address in this article for reasons of space—already invites us to think that there might be multiple ways of understanding posthuman well-being. Regarding the latter, it is reasonable to think that the creation of well-being is *not* the only morally important thing about human or posthuman enhancement. In a recent article, I defended along with Pablo García-Barranquero and Francisco Lara that the welfarist conception of enhancement is problematic and that the capability approach is a stronger framework to include enhancement as a legitimate goal of medicine.<sup>66</sup> This is because we should improve biologically based capabilities to enable individuals to freely choose the well-being that they have reason to value. Similarly, posthumans may have an interest not only in having lives of well-being but also in having the capabilities to freely develop the well-being most in line with their own values. However, this would still be surrounded by uncertainty because we should know what these capabilities would be without knowing how these posthuman beings (who do not exist) will really be like.

On the other hand, there is a second response to this objection. Bostrom claimed that the development of posthuman capacities can be morally defended from our current human values and reasons.<sup>67</sup> In general, we already value intelligence, emotional control, longevity or healthspan in such a way that improving these traits radically may have some justification from what we humans already understand as valuable. However, this ad hoc response can be deflated from previous ideas advocated by the very transhumanists. By definition, posthumans would have posthuman capabilities. According to Bostrom, our human limitations prevent us from imagining posthuman capabilities,<sup>68</sup> just as a chimpanzee would have difficulty imagining what it would be like to have human capabilities.<sup>69</sup> This has been called the 'chimpanzee challenge'.<sup>70</sup> This challenge creates a major gap in knowing what posthumans might actually come to value. Indeed, as mentioned by Anders Sandberg, 'posthumans may mostly value things we are unable to care about'.<sup>71</sup>

Hence, this objection holds. In addition, the alignment objection could point out a further problem around the convergence between our enhancement goals and the actual satisfaction of the enhanced posthumans. It is plausible to think that posthumans might be dissatisfied with the level of well-being achieved by their species and would seek their own extinction to create a post-posthuman

<sup>59</sup>Askill, A. (2020). *AI bias and the problems of ethical locality*. Retrieved July 16, 2021, from <https://askell.io/posts/2020/08/ai-bias-and-ethical-locality>

<sup>60</sup>With this claim, I want to commit myself neither to the rejection of moral objectivism nor to the existence of moral progress. Both positions have strong proponents and opponents, and I cannot make justice to both controversies here. I simply use this expression to record the moral uncertainty surrounding hypothetical moral duties concerning future posthumanity.

<sup>61</sup>Danaher, J. (2021). Axiological futurism: The systematic study of the future of values. *Futures*, 132(June), 102780. <https://doi.org/10.1016/j.futures.2021.102780>

<sup>62</sup>Glover, op. cit. note 46, p. 149.

<sup>63</sup>Agar, op. cit. note 18, pp. 12–13.

<sup>64</sup>Obviously, this response is weak because there is an important difference between posthumans and nonhuman animals. The former do not exist, and the latter do. We already have a wide range of evidence on animal welfare because we can scientifically study nonhuman animals and collect information on, for example, their preferences and physiological states.

<sup>65</sup>See, for instance, Parfit, op. cit. note 31, appendix I "What makes someone's life go best", pp. 493–502; DeGrazia, D., & Millum, J. (2021). *A theory of bioethics*. CUP, Chapter 8.

<sup>66</sup>Rueda, J., García-Barranquero, P., & Lara, F. (2021). Doctor, please make me freer: Capabilities enhancement as a goal of medicine. *Medicine, Health Care & Philosophy*, 24, 409–419. <https://doi.org/10.1007/s11019-021-10016-5>

<sup>67</sup>Bostrom, N. (2007). Human vs. posthuman [Letters to the editor]. *Hastings Center Report*, 37, 4–7.

<sup>68</sup>Bostrom (2008a), op. cit. note 13, p. 33.

<sup>69</sup>Bostrom, N. (2003b). Human genetic enhancement: A transhumanist perspective. *The Journal of Value Inquiry*, 37(4), 493–506, p. 494.

<sup>70</sup>Bradshaw, H. G., & Ter Meulen, R. (2010). A transhumanist fault line around disability: Morphological freedom and the obligation to enhance. *Journal of Medicine and Philosophy*, 35, 670–684, p. 676.

<sup>71</sup>Sandberg, A. (2021). Posthumans. In D. Edmonds (Ed.), *Future morality* (pp. 243–251). OUP, p. 248.



species.<sup>72</sup> To some, this may seem ridiculous, but it is a philosophically acceptable twist on the argument. The problem is that an aspiration to maximize welfare in an unlimited way through enhancement technologies could lead into a spiral of chronic dissatisfaction.

All things considered, the responses to these three objections are weak. Therefore, these objections offer strong reasons that override the extreme beneficent commitment of the PBIP. This is not surprising, after all, given that we have competing moral obligations about our duties towards present and future generations. We should not only be concerned about the welfare of hypothetical posthumans. The well-being and suffering of humans and nonhuman animals also create obligations that may reduce the appeal of creating a posthuman species.

## 6 | CONCLUSION

I would like to briefly draw a number of conclusions from my argumentative itinerary. I have tried to show the importance of genetic enhancement technologies in the bioethical debate on human extinction scenarios. In this regard, I have argued, first, that genetic enhancement can have cumulative effects that may influence human evolution and lead, in the long term, to posthuman speciation. Second, I have presented a series of ethical arguments based on beneficence that point to the moral obligation to create a posthuman species. On the basis of those reasons, I have characterized the PBIP. Third, I have argued that, from a strong normative commitment to impartial beneficence, the PBIP could make human extinction for the sake of posthumanity a resulting moral duty. Finally, I have developed three objections that discourage the ethical acceptance of the PBIP.

Those objections offer overriding reasons that invalidate the attractiveness of the duty character of the PBIP. If these objections are not overcome in future contributions, it is untenable to proclaim that human extinction for the creation of posthumanity is erogatory. At best, one could say (contrary to the PBIP) that it would be supererogatory. This alternative view would consider accelerating our own extinction to leave a better descendant species a very laudable altruistic act, but not a moral obligation. However, my previous objections point in a third direction. These challenges not only reduce the appeal of the PBIP but also give us prominent reasons to refute it. Taking these objections into account, a full-blown programme of posthuman evolution is ethically flawed. Radical genetic enhancement for the sake of posthumanity is thus a defective ethical aspiration. For some, this could be a disappointing conclusion: in principle, it may seem (ethically) good to create a posthuman existence, but in practice, it may go wrong.<sup>73</sup> For me, in contrast, this conclusion is completely assumable. After all, as Hare already mentioned, “when the question is what we ought to do, the distinction between what is conceivable and what is practicable is of the highest importance”.

To conclude, human extinction through genetic enhancement technologies is not an ethical duty. Although we may see

disadvantages to remaining merely human, embarking on posthuman evolution would also have notable shortcomings. Of course, there are some questions that this article leaves open. For example, it partially follows from my argument that radical enhancements are problematic because of the objections presented in Section 5. But if enhancements must be moderate for the collective good, from the phenomenon of the double effect (mentioned in Section 3), it is not excluded that they may also surreptitiously accelerate the conversion into another species in the very long run. I recognize that this challenge is not resolved in this article and should therefore be a starting point for future research. Upcoming articles should address in more detail the range of possible consequences that genetic enhancement technologies may have on the future of humanity and even, who knows, on posthumanity.

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## CONFLICT OF INTEREST

The author declares no conflict of interest.

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<sup>72</sup>I owe this comment to Markus Schrenk.

<sup>73</sup>Hare, op. cit. note 51, p. 68.