

# Differentiating Human Enhancement and Transhumanism: Better or Perfect?

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**Abstract:** Philosophical concern for the human future is more important today than ever because of the ethical, social, and technological challenges we face—Human Enhancement (HE) and Transhumanism (H+) are some of the theories that are involved with the future of our species. These two positions tend to be confused, but we contend that a distinction can and should be made between the two approaches. To perform this explanation, we propose two axes of differentiation: the concept of enhancement itself and the valuation of the biological body. In this context, H+ begins with a disregard for the body and seeks to transcend the human condition with exponential enhancements, while HE advocates a gradual enhancement within our current limits. Clarifying this contrast between H+ and HE is vital for the responsible adoption of future technologies, enabling informed decisions about which scientific promises are viable and worthy of support, and which should be reconsidered.

**Keywords:** biological body; future; human enhancement; mind uploading; transhumanism.

## Introduction

Philosophical concern for the future arises from the renewed need to understand and anticipate the challenges we face (Diéguez & García-Barranquero 2024; Kudlek 2022; Rueda 2024). This interest is not merely speculative but has profound ethical, social, and technological implications. Philosophy allows us to project our aspirations, fears, and responsibilities towards a broader horizon, where the decisions of the present decisively shape the destiny of future generations (Benatar 2006; Rawls 1971; Parfit 1984). When reflecting on the time to come, we are confronted with fundamental questions about our identity, morality, progress, and the meaning of life.

In this context, philosophy serves as a conceptual compass, steering us through the complexities of an uncertain tomorrow and offering a wider perspective on which issues are worth addressing moving forward, especially in light of the rapid and vertiginous advancements in science and technology. The accelerated pace of growth in areas such as AI, biotechnology, or space exploration forces us to answer new questions. We are at a moment in history when we can directly influence the lives of the unborn as never before (MacAskil 2022). This is why critical reflection offers us the possibility of assessing the promises and dangers that lie ahead of us, helping us to imagine alternative scenarios and make important decisions in a world that is constantly transforming. No one can remain unmoved by statements such as (1) “We don’t have to get sick as we get older” (de Grey & Rae 2007); or (2) “superintelligence is probably the last challenge we will ever face” (Bostrom 2014). These supposed milestones have the potential to radically alter human life, which requires an intellectual effort to think about the long-term implications placing a high priority on the effects of our actions beyond the present (MacAskil 2022).

However, it would be unfair to ignore that these questions have been previously addressed. It is enough to look back a couple of decades.

Transhumanism<sup>1</sup> (H+), according to one of its leading representatives, Nick Bostrom (2005), is a cultural and intellectual movement focused on fostering significant enhancements in the human condition through technological developments. The claim of H+ is to be able to eliminate the limitations we have, especially biological, but also cognitive, emotional, or moral, while creating individuals of another species with significantly superior capabilities (*Homo Excelsior*). H+ can be considered the first major long-term approach—at least in a strict academic sense—insofar as it is intrinsically linked to the vision of a future transformed by technological advances, which are expected to require considerable time to be fully realized and for their effects to extend comprehensively to society. It is not surprising that a project of these characteristics, whose promises make us dream of the enhancement of the human species and even its surpassing, has had followers and critics alike (see, Agar 2010; Diéguez 2017; Hauskeller 2014).<sup>2</sup>

The purpose of this article is to illuminate the above debate by discriminating among a variety of philosophical positions that often appear confused or are treated in a unitary manner. Not all human enhancements are equally speculative, and there is great value for human benefit in many of these transformative technologies. It is therefore essential to draw a line that allows us to distinguish between the possible, the implausible, and the impossible; between the desirable, the preferable, and the rejectable. We believe it is highly relevant at a public level to provide a reliable map to guide us amidst the numerous estimates and predictions anticipating significant transformations for the human species. Understanding which promises are empty and which are credible, which deserve funding and which we would do well to forget, is of enormous importance in shaping the world of tomorrow.

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<sup>1</sup> For this article, we will focus mainly on the thought of Bostrom and Anders Sandberg. In this approach, there are many references of dubious quality, as Antonio Diéguez (2017) argues on more than one occasion.

<sup>2</sup> We will leave out, given the nature of our concern, the bioconservative approach (Fukuyama 2002; Habermas 2003; Kass 2002; Sandel 2007). We have already seen elsewhere how, philosophically speaking, the confrontation of these ideas with the H+ discourse becomes unfruitful in many terms (García-Barranquero & Diéguez 2022).

To this end, it is critical to overcome a certain generalized confusion on these issues. We believe that one of the fundamental roots of this confusion stems from the relatively common mistake of conceiving H+ and Human Enhancement (HE) interchangeably. Both approaches aim at increasing our capabilities through new technologies, but HE<sup>3</sup> bases its proposals on existing technologies, advocating a gradual view, with lower ethical risks, and focused on delivering tangible results in the present. A simple example could be found in cognitive enhancement: while H+ aspires to achieve superintelligence from futuristic technologies, HE advocates gradual increases in IQ by means such as pharmacology (Glannon 2008). On the other hand, H+, while intriguing and potentially transformative, faces greater challenges in terms of technological feasibility, social acceptance, and ethical implications, making it appear more speculative and long-term oriented. Along these lines, it is also worth alluding to how H+ and HE convey their message and their type of discourse. Even though a notable effort has been made in recent decades, mainly through Bostrom and Sandberg, to give a more academic and respectable basis and appearance to H+, its messianic and religious component (Diéguez 2017; Bishop 2023), make it difficult to attribute to it the same solidity as to other philosophical currents.

A final point to justify the relevance of the present article is that although this differentiation between H+ and HE is not unknown in the literature (Lyreskog & McKeown 2022), we believe that it has not been sufficiently thematized and developed. We aim to look beyond the more obvious and well-known differences to identify two critical distinctions between the two positions. To achieve this, the article will be structured as follows. After this introduction to the problem, we will address in separate sections what we consider to be the two fundamental differences between H+ and HE. First, we will explain the divergences in the conception of enhancement that exist between the two movements. Next, we will

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<sup>3</sup> Strictly speaking, it could be said that the HE is not a clearly defined philosophical current, but rather a category encompassing authors who advocate for the possibility and importance of enhanced use of new technologies. Although the identity ascription to this movement is weaker in the case of HE than in the case of H+, we consider that there are sufficient reasons to use the term HE, as the literature on the subject shows.

analyze the opposing view of the body and human biology that H<sup>+</sup> and HE defend. Finally, in the last section, we will summarize the contributions and value of the article, showing some limitations and problems of our approach.

## 1. From the imperative of enhancement to the enhancement of posthuman capabilities

H<sup>+</sup> and HE present some similarities that can lead to consider them as a single undifferentiated proposal. Both philosophical currents advocate for the use of technology on humans in order to improve their lives, going beyond essentialist understandings of human nature and proposing advances that exceeds the therapeutic goals of medicine (Diéguez 2017; see more specifically, Rueda et al. 2021). This optimism regarding human capabilities, along with a certain eagerness to explore new limits and possibilities for our species, could be considered common to H<sup>+</sup> and HE. Both positions, in short, are Western products of our time, of an era of accelerated technological advances that inevitably focus on imagining possible futures and decisive transformations for our human world.

However, if we go beyond these superficial similarities, we can discover profound differences between these two positions. In this article, we propose two central axes from which to understand this differentiation: the distinct approach to the biological body, which we will discuss in the next section; and the concept of enhancement itself, which we will analyze below. Our idea is that, due to the identification and description in detail of these two fundamental axes of the difference, the rest of the contrasting aspects between H<sup>+</sup> and HE will be better understood.

Let's begin by establishing two preliminary definitions. For Julian Savulescu (2006), one of the main representatives of HE,<sup>4</sup> this idea refers to the improvement of human capabilities—cognitive, emotional, physical,

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<sup>4</sup> We understand the multitude of definitions that we find in the literature and that would even strongly criticize what Savulescu advocates here—a welfarist approach. Just to mention some of the most recent ones (Hofmann 2017; Malmqvist 2014).

or moral—above the typical level or natural state of health, through the use of various technologies or interventions with the aim of increasing the degree of well-being and quality of life for people. In contrast, Bostrom (2008) understands that a posthuman capacity—control of emotions, radical life extension, or augmented cognitive power—is a trait that exceeds the maximum that a human being has obtained without the aid of new technologies, adding the desire to enjoy an existence radically different from the one we are living now. More recently, in his new book *Deep Utopia*, Bostrom (2024) conceptualizes this happy and superior life as a situation in which advanced automation and technology have eliminated the need for human effort, allowing people to live lives full of pleasure and meaning without the constraints of mundane tasks and repetitive work devoid of value.

The different definitions of H+ and HE are revealing enough in themselves, but if we look closely, we can find another key dissimilarity between the two approaches. HE usually focuses on capabilities that are already present in human beings (strength, intelligence), traits that could be developed beyond their usual limits, but which we would not feel as alien in principle. In contrast, H+ often pursues new attributes that are still unknown to members of our species, even some that are not even imaginable today. This is due to the desire for transformation and transcendence, exemplified in the pretension of surpassing what is possible for humans. Despite what we are exposing, for some authors, the distinction between H+ and HE can be understood as a difference of degree or intensity in their positionings. In this context, a well-known distinction for many scholars is the one proposed by Nicholas Agar (2014):

1. Moderate enhancement increases attributes or skills to levels within or close to the current human potential.
2. Radical enhancement increases attributes or skills to levels significantly beyond the current human potential.

According to Agar, there would be a fundamental difference between these two kinds of enhancement, insofar as moderate enhancement would be incremental and would not depart from the typical capabilities

of the human species, while radical enhancement would be predictably drastic and would completely transform the human being, distorting the image we have of ourselves. Although this distinction has connections with the contrast between H+ and HE that we are laying out, we must warn that we do not accept the idea that HE is identified with moderate enhancement and H+ with radical enhancement. That is, we do not consider moderate enhancement to be equivalent to HE, nor do we equate radical enhancement with H+ (see in this sense, Brennan 2023; Diéguez 2021).

This is because H+ not only advocates for an increase in capabilities but also encompasses a fundamentally different vision of what enhancement entails. What H+ seeks with the adoption of technology, regardless of whether it is implemented radically or moderately, is the transformation and transcendence of the species. If this goal becomes more feasible through the incremental and slow establishment of small technological modifications, H+ will not object (Bostrom 2014). Conversely, we could imagine HE advocating some kind of radical enhancement that nonetheless does not imply a split in the species, but rather substantially enhances some fundamental human capability. This point may be somewhat counterintuitive, but the key is to understand that what is important is not whether these enhancements are considered moderate or radical, but what is intended by them. On this, we agree with Jon Rueda (2024) when he says that:

A transhumanist may support human enhancement because of its benefits and because it is the necessary means to reach a higher species, or simply because it is a required causal step toward transhuman or posthuman existence. A non-transhumanist pro-enhancement author, however, may advocate enhancements because of their direct benefits to individuals and populations, but often regardless of whether or not they are necessary to reach 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 (2024, 533).

What for a transhumanist might be just a transitional enhancement, for an HE advocate could be a supra-enhancement or something beyond simple enhancement. For an HE proponent, certain kinds of interventions might be a leap beyond the goals of medicine, but they would never defend opening a range of infinite possibilities to develop as many life projects as we would like to imagine (see in this sense, Sandberg 2015). In the face of this, transhumanists tend not only to embrace any kind of possible enhancement, but to seek its maximum exponent. For instance, if extending life is an enhancement, a transhumanist would generally consider 1000 years to be better than 200; while a HE proponent might argue that 200 years is preferable for different reasons (e.g.: because 200 years would be a duration that would allow completing many of the projects that humans usually leave unfinished, while being a duration not so different from the current one).

On the other hand, let's think about a well-known enhancement such as cognitive augmentation. In principle, almost anyone would want to be able to store memories, retain the lessons of a university course with ease, or relive unforgettable and magical moments. But what would happen if we were not able to forget? What would it feel like for a person who was constantly reminiscing about a heartbreak or a traumatic situation? Or even a moment of joy that will never come back? (Alonso 2020). What was at first considered as an enhancement could be considered a severe punishment in a given set of circumstances. Something similar may happen with the transhumanist dream of immortality (García-Barranquero 2021). The fact of living forever may seem attractive not only because it gives you the possibility of carrying out a greater number of activities, plans and projects, but also because it erases death, so feared by all, from the horizon. However, what kind of life can await someone who cannot cease to exist, even when she would prefer to? What feeling of suffocation and agony would he have if she could not disappear, even if her life was a total suffering?

For all of the above, it is necessary to highlight a further difference, set out by Eric Juengst and David Moseley (2016), and expanded to some extent here: an advocate of HE would understand that enhancement interventions increase specific human capabilities and traits, not whole

persons. Significantly, H<sup>+</sup> aims for an evolutionary leap in the species and does not consider it sufficient to gradually augment specific traits. This distinction fits in with our defense that there are three major points here, for in contrast to this typically transhumanist view, HE would argue that: (1) the commitment to one enhancement may imply rejecting another enhancement; (2) defending one enhancement does not force us to assume that all other related enhancements must be pursued; and (3) the fact of seeking a greater degree of autonomy, well-being, or quality of life does not imply a commitment to the perfection of the human being. In short, wanting to be better does not imply being the best.

From this interpretation, we maintain that H<sup>+</sup> defends what we consider to be the “complete package of possible enhancements”. What this means is that any transhumanist desires the achievement of all the interventions, and at all levels, that will allow us to have a life substantially different from the one we have today. They will not see danger in the overlapping between enhancements, nor will they see any limits to the degree to which these enhancements can be achieved. Their aim is very clear: to reach the maximum capabilities of what we can now imagine, knowing that even much of what we are aiming for would only be feasible with technological advances that are still in the future and about which there is no certainty. H<sup>+</sup> believes that these new capabilities will inevitably lead us, ultimately, to a substantial transformation of ourselves that would justify speaking of a new evolutionary step (Bostrom 2005). This point is not shared by most HE advocates, at least as far as the inevitability of this happening is concerned.

As an example, let us take the discussion between Ingmar Persson and Savulescu (2008), and the ideas of John Harris (2011). All of them are representatives of HE, but they exhibit different criteria when it comes to valuing cognitive and moral enhancement. On the one hand, Persson and Savulescu defend the usefulness and even the necessity of moral enhancement to face the challenges presented by the rapid development of nuclear, biological, and other technologies susceptible of being used as weapons of mass destruction. The enormous problems that threaten the future of humanity (environmental, political, economic, or technological challenges) are probably too complex and urgent to be addressed simply

by a cultural and educational change in our current attitudes and values. The key for these authors is that the expansion of scientific knowledge and increased cognitive capacity, unaccompanied by moral refinement, can be a double-edged sword for the population: more likely to resolve conflicts, but also more capable of inflicting harm. Therefore, our moral capacity must be enhanced, even by biotechnological means, in order to avoid the major threats (environmental and terrorist) that these authors identify. On the other hand, Harris argues that moral enhancement would diminish our freedom. For this author, an intervention in our moral capacity would prevent human beings from performing morally evil actions, and although this could be a benefit for humanity, the possibility of desiring and performing these evil actions is an essential ingredient of free will, which would thus be limited or even destroyed.

Lastly, it is worth noting that this axis of differentiation, rooted in the contrasting perspectives of H+ and HE on the concept of enhancement, also partially aligns with the distinct technological pathways favored by each movement. Diéguez (2017) understands that there are two ways to enhancement:

1. Bioenhancement: consisting of medical, pharmacological, and genetic interventions.
2. Cybernetic enhancement: based on symbiotic integration between humans and superintelligent machines.

Although we must clarify that this distinction between bioenhancement/cybernetic enhancement is not perfectly equivalent to the HE/H+ distinction, it is possible to establish that HE is closer to bioenhancement, without implying any kind of technological enhancement in a very restrictive sense, while H+ makes sense on the cybernetic side, aspiring to a total hybridization with the machine. This can be connected with what we said above: while HE does not necessarily seek to transcend the species, and therefore preferably seeks enhancements in line with our biology; H+ embraces any technology, whether bioinspired or not, that moves towards achieving the desire to surpass *Homo Sapiens*. This leads us directly to the second axis that we find crucial for understanding the

distinction between H<sup>+</sup> and HE: their divergent views on the biological body.

## 2. Biological body: Damage mitigation or annihilation?

One of the main characteristics of H<sup>+</sup> is its conviction that the biological body, inherited by evolution through natural selection, is an inadequate *hardware* (Diéguez 2021). A key point that we have been alluding to is that transhumanists see our body as the inexhaustible source of suffering and limitations, and, therefore, we must unburden ourselves of it. This position is clearly expressed in the proposal of “morphological freedom”. This idea, coined by Sandberg (2001), is based on confidence in the power of technology to allow us to choose our bodies, bypassing the physiological limitations of our species, but also any kind of social or state restriction. Transhumanists regards as possible an authentic existence without the constraints dictated by biology. The proposal of morphological freedom is connected with the characteristic craving for immortality present in H<sup>+</sup>. The only way to live forever, if such a case is even possible to imagine, must be detached from the factual and biological reality we know, and surely so different that we cannot conceive it from our own mental structures.<sup>5</sup> For authors as Diéguez (2021), the great concern of H<sup>+</sup> is none other than to leave aside a substrate that always produces suffering and limitations for us; its philosophy focuses on liberation from the chains

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<sup>5</sup> Morphological freedom, to some extent, aligns with the principles of HE, extending its scope beyond incremental improvements toward a more radical transformation of our species. This approach not only permits the augmentation of certain attributes, capacities, and traits within humanity, within well-defined ethical and biological limits, but also offers us the option to explore new modes of existence. However, when morphological freedom is pursued to its fullest expression, it becomes feasible only within a digital environment, which surpasses the original assumptions of HE. In contrast, the ultimate aspiration of H<sup>+</sup> is to grant us the freedom to choose any bodily form, which includes: (1) not merely modifying the soma we currently possess but also completely altering it to adopt a new identity; and (2) the capacity to exist without any physical body, such as in the form of an avatar. We are grateful for the comments provided by an anonymous reviewer, which have enriched this discussion.

that oppress us and the guaranteed bet on a technological advance (see, Kurzweil 2005). According to H+, it is possible to imagine a future in which we can absolutely decide which form (biological, synthetic, or completely artificial) might be the most convenient.

As we can see, H+ goes so far as to argue that the only way for us to enjoy an authentic and fulfilling life is to detach ourselves from our limiting biological body. And not only that, but, according to H+, each of us is not our body, and corporeality is not even essential to keep us the way we are. According to H+, thanks to the advance of technology we will be able to experience a form of personal identity beyond the current physical condition, which is understood as contingent and dispensable. It is here that the idea of mind uploading (MU) makes its apparition (Chalmers 2010). This highly speculative concept refers to the hypothetical possibility of transferring consciousness of a human being to a computer. This would imply the scanning and copying of a person's mental characteristics and processes, including memories, thoughts, personality, and emotions. Proposals such as MU, but also other apparently less transcendent ones such as the metaverse (Donati 2019; López Cambronero 2023), are revealed as the ultimate stage in the transhumanist process of annihilation of the human body. For this purpose, the distinction proposed by Pablo García-Barranquero (2021) between digital immortality and indefinite life in the H+ debate is useful:

1. *Digital immortality*: This concept postulates that humans could live forever and never die. This is where the MU would be key, a technology that presumes a break from the biological basis of our existence. This could translate into each individual becoming an avatar that acts, thinks, and reacts like the person contained in his or her digital file.<sup>6</sup>
2. *Indefinite life*: Unlike digital immortality, indefinite life is a type of life extension which would take place through an elimination or overcoming of aging; although people would still be susceptible to death for many

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<sup>6</sup> In a very strict sense, even this immortality would not be absolute (García-Barranquero 2021; García-Barranquero 2022). Some might argue that achieving this transhumanist goal of immortality is impossible. Consider the scenario where our digital self could be wiped out by a computer virus or the eventual heat death of the universe.

external reasons, such as accidents, dehydration and murder, among others.

The contrast on this point is striking. In the face of the absolute denial of the human body and the H+ understanding of our biology as intrinsically limiting, HE advocates are usually in favor of alleviating and mitigating suffering of human beings, but generally without abandoning the biological path of enhancement. While HE advocates are critical of the diseases we suffer from, and even of the aging that accompanies us throughout our lives, they do not want humanity to part ways with its biological body.

Regarding this point, representatives of HE have positions that are generally in agreement with each other, with some divergent nuances. In general, it could be said that HE defenders are comfortable with their bodies, or at least not as uncomfortable as transhumanists. Additionally, reinforcing this stance of HE advocates is their belief that many of the riskier transhumanist promises, such as MU, are questionable, both in their desirability and their feasibility. This position is countered by the relevance given to our *hardware*, but also because, for these authors who follow the HE, the body is the only way to understand and feel in the world as we human beings do. The substantial difference lies in the fact of accepting or not accepting our material-biological underpinnings. The contraposition here is between the annihilation of the body, even if it is gradual, an idea dear to H+, versus the mitigation of damage that HE proposes.

In this sense, as an example is how de Aubrey de Grey (with Rae 2007) conveys the idea of the rejuvenation of the organism without appealing to immortality. There is an ostensible difference between treating aging to seek a healthier and longer life, and longing to live forever. Perhaps the price we must pay for never dying is to stop being the biological entities we are (García-Barranquero 2021). However, for the defenders of H+ it is considered inoperative to exist with the body we have, assuming, therefore, that it is time to reshape our identity and material underpinnings with the help of current and future technological advances (Diéguez 2021).

This consideration of the body is also directly connected with the longtermism proposal alluded to above and the typically transhumanist concern for existential risks—those disasters that could suddenly destroy humanity, such as environmental cataclysms, pandemics, or the emergence of a superintelligence (Bostrom 2002; 2013). According to scenarios such as these, H+ aims to make a leap in evolution that will enable us to better face the challenges of tomorrow. Having an organism much better equipped to combat diseases or aging does not eliminate the risks that will put humanity to a test. They have already foreseen that the world as such could cease to exist and that the destiny of those who are about to arrive could be located in places far away from Earth. Colonization of the galaxy is one more item on their agenda (Armstrong & Sandberg 2013; Bostrom 2005; see also, MacAskil 2022). The value of their life, as well as the meaning one wants to give it, is independent of the type of *hardware*, biological or artefactual.

This does not imply that H+ is not open to biological enhancements. Moreover, intervention on the body is the only sensible way we can completely detach ourselves from it. Bostrom (2014) goes so far as to argue that, in order to create superintelligence, we have to cognitively enhance ourselves. In a way, all these authors advocate, explicitly or implicitly, the need to establish intermediate stages in which humans in transition—in the manner of cyborgs that would be half animals, half machines—take the necessary steps to reach a posthuman phase. As Diéguez explains:

A transhuman would therefore be a technologically improved human being, but also a being in transition towards something new, towards a new species, inheriting from our own; someone, in short, who has decided to take the reins of her transformations to the point of making her body and mind her own creation. We could say that a transhuman is a person who takes to its ultimate consequences the self-creative will that the human being has always had (2021, 14).

An additional point not always highlighted is that different types of enhancements may be necessary for the H+ project to be truly viable. To be able to live in a technified world as envisioned by the

transhumanists—a completely artificial or virtual world— it may require our state of mind or psychological capacity to exceed what we can achieve today. Here reappears the point made above about the transhumanist inclination for the “complete package of enhancements”, as opposed to the punctual and concrete enhancements characteristic of HE. The proposals of HE are always more limited and do not necessarily imply the abolition of our biological condition. Regarding the discussion on life extension, its goal is to end aging, but not preclude death. Moreover, we can add, following again these coordinates (García-Barranquero 2021), that they understand the possibility of continuing to exist without ceasing to be the species that we are, without the need for a substantial change in the type of life they are enjoying.

We have schematically summarized the differences between H+ and HE in the table on page 12 (see Table 1).

## Conclusions

We consider that the effort of conceptual clarification and the differentiation made in this article is a step forward in the literature on H+ and HE. Although, as we have pointed out, this difference has consistently been present in most approaches to the subject, a detailed distinction between H+ and HE had not been conducted until now. This article identifies two axes of differentiation, the concept of enhancement itself and the valuation of the biological body, from which many other sub-divergences emerge, such as: the type of interventions selected by one or the other current, the contrast scope envisaged by these approaches, or their ultimate objective, improve or transcendence of the species.

We believe that the article constitutes a contribution to the debate, making clear some differences that are often implied but not made explicit. At the same time, and in a more general sense, we understand that the article also has value for the general public, by allowing us to distinguish H+, a utopian and speculative current; a position, in our view, philosophically questionable; from an equally polemic position, but much straighter and restrained, such as HE. Separating one proposal from the

other gives us a greater discriminatory capacity applicable in the social and political, extra-academic world.

As we have not failed to point out, the differentiation we have drawn does not mean that H<sup>+</sup> and HE do not share some assumptions, such as a certain optimism with respect to technology and their coinciding confidence in human potential. Nevertheless, some authors take an additional step and argue that, beyond these generic similarities, both philosophical currents could eventually converge—whether in theoretical terms or because of the foreseeable evolution of technological advances. The idea would be that these differences will be diluted as our understanding of the problems advances, or as our technologies become more complex and interconnected. Thus, by way of example, this line of argument could point out that, although in the short term the enhancements will necessarily be biological and limited, it is inevitable that these enhancements will accumulate, hybridize with artifactual technologies, and increase exponentially, inevitably leading to a complete transformation.

In this sense, it is interesting to allude to the concept of directed evolution (DE) that appears in the work of Harris (2007). DE argues that changes in the world require direct changes in Humanity, advocating for taking control of evolution until we become a completely new and improved species, a stance that is controversial in this debate. Undoubtedly, DE would be the last step, the frontier, between those who aspire to certain enhancements and those who do not feel comfortable in what nature itself has provided them. DE can be interpreted in two different ways:

1. as the acceptance that a considerable sum of changes, drastic for the most part, could lead to our ceasing to be *Homo Sapiens*;
2. as an incessant struggle to perfect ourselves, safeguarding those aptitudes, qualities and values that we consider useful for those who are yet to come (*Homo Excelsior*).

Ultimately, the problem of whether the assumptions of HE inevitably and necessarily lead to H<sup>+</sup> is an empirical problem that only time will

resolve. What we have argued in this article is that, as of today, there are tangible and significant differences between H+ and HE, differences that are not always understood or made explicit, and whose ignorance or misunderstanding can have severe practical consequences in terms of the support or rejection of certain technologies. For example, it may be important to discriminate between the improbable and questionable projects of achieving immortality by loading our mind into a computer, and the more feasible and acceptable projects of fighting aging by moderately extending our healthspan (García-Barranquero 2022). We understand that, in deciding, as individuals and as a society, between the abundance of technological possibilities presented to us, the distinction outlined in this article may be useful. Although our preference is directed towards HE, as we consider H+ to be excessively speculative, we have tried to objectively show both positions so that each reader can establish their preference according to their values.

**Table 1.** HE / H+ Differences

Main differentiating factors	Specific counterpositions	Human Enhancement (HE)	Transhumanism (H+)
Concept of Enhancement	<i>Human / Posthuman</i>	Increase in human capabilities	Acquisition of posthuman capabilities
	<i>Existing / Not existing</i>	Existing capabilities	New, unknown capabilities
	<i>Present / Longtermism</i>	Emphasis on the present and short term	Emphasis on long-term future and existential risks
	<i>Enhancement / Transformation</i>	Seeking to enhance human characteristics	Search for transcending the human species
	<i>Partial / Absolute</i>	Limited enhancements	Absolute enhancements, maximum expression

Table 1. HE / H+ Differences (Continued)

Main differentiating factors	Specific counterpositions	Human Enhancement (HE)	Transhumanism (H+)
	<i>Traits / People</i>	Specific enhancements	Enhancement of the whole person
	<i>Particular Enhancements / Complete Package</i>	Separation of the enhancements	Inseparable merging of enhancements
	<i>Bioenhancement / Cybernetic Enhancement</i>	Medical, pharmacological and genetic interventions	Human-machine integration
Valuation of the biological body	<i>Ambivalence / Rejection</i>	Body as conditioning factor and enabler	Body as an intrinsic limitation
	<i>Improvable / Expendable</i>	Reduced margin for biological improvement	Morphological freedom
	<i>Indefinite life / Immortality</i>	Life extension, disease reduction	Immortality, digital life
	<i>Enhancements as enhancement / Enhancements as transition</i>	Biological enhancements for better living	Biological enhancements to transcend the human species

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## References

- Agar, Nicholas. 2010. *Humanity's End: Why We Should Reject Radical Enhancement*. The MIT Press.
- Agar, Nicholas. 2014. *Truly Human Enhancement: A Philosophical Defense of Limits*. The MIT Press.
- Alonso, Marcos. 2020. "Memory, neuroscience and memory enhancement." *Canadian Journal of Bioethics* 3(1). DOI: <https://doi.org/10.7202/1068759ar>.
- Armstrong, Stuart, and Anders Sandberg. 2013. "Eternity in six hours: Intergalactic spreading of intelligent life and sharpening the Fermi paradox." *Acta Astronautica* 89: 1–13. DOI: <https://doi.org/10.1016/j.actaastro.2013.04.002>.
- Benatar, David. 2006. *Better Never to Have Been: The Harm of Coming into Existence*. Oxford University Press.
- Bishop, Jeffrey P. 2023. "Transhumanism's WEIRD Religion: On the Ontotheological Morality of the Posthuman." *Philosophy, Theology and the Sciences* 10(2): 175–98. 10.1628/ptsc-2023-0020.
- Bostrom, Nick. 2002. "Existential risks: Analyzing human extinction scenarios and related hazards." *Journal of Evolution and Technology* 9. <https://www.jetpress.org/volume9/risks.html>.
- Bostrom, Nick. 2005. "A history of transhumanist thought." *Journal of Evolution and Technology* 14(1). <https://www.jetpress.org/volume14/bostrom.html>.
- Bostrom, Nick. 2008. "Why I want to be a posthuman when I grow up." In *Medical Enhancement and Posthumanity*, eds B. Gordijn & R. Chadwick. Springer. [https://doi.org/10.1007/978-1-4020-8852-0\\_8](https://doi.org/10.1007/978-1-4020-8852-0_8).
- Bostrom, Nick. 2013. "Existential risk prevention as global priority." *Global Policy* 4(1): 15–31. <https://doi.org/10.1111/1758-5899.12002>.

- Bostrom, Nick. 2014. *Superintelligence: Paths, Dangers, Strategies*. Oxford University Press.
- Bostrom, Nick. 2024. *Deep Utopia: Life and Meaning in a Solved World*. Ideapress Pub.
- Brennan, Cian. 2023. "Weak transhumanism: Moderate enhancement as a non-radical path to radical enhancement." *Theoretical Medicine and Bioethics* 44(3): 229–48. DOI: <https://doi.org/10.1007/s11017-023-09606-6>.
- Chalmers, David, J. 2010. "The Singularity: A Philosophical Analysis." *Journal of Consciousness Studies* 17(9–10): 7–65. <https://www.ingentaconnect.com/contentone/imp/jcs/2010/00000017/f0020009/art00001>.
- de Grey, Aubrey, and Michael Rae. 2007. *Ending Aging: The Rejuvenation Breakthroughs that Could Reverse Human Aging in Our Lifetime*. St. Martin's Press.
- Diéguez, Antonio. 2017. *Transhumanismo: La búsqueda tecnológica del mejoramiento humano*. Herder Editorial.
- Diéguez, Antonio. 2021. *Cuerpos inadecuados: El desafío transhumanista a la filosofía*. Herder Editorial.
- Diéguez, Antonio, and Pablo García-Barranquero. 2024. "The Singularity, Superintelligent Machines, and Mind Uploading: The technological future?" In *Ethics of Artificial Intelligence*, edited by F. Lara & J. Deckers. Springer. DOI: [https://doi.org/10.1007/978-3-031-48135-2\\_12](https://doi.org/10.1007/978-3-031-48135-2_12).
- Donati, Pierpaolo. 2019. "The dream of transcending the human through the digital matrix: A relational critique." *Scientia et Fides* 7(2): 171–93. DOI: <http://dx.doi.org/10.12775/SetF.2019.022>.
- Fukuyama, Francis. 2002. *Our Posthuman Future. Consequences of the Biotechnology Revolution*. Farrar, Straus and Giroux.
- García-Barranquero, Pablo. 2021. "Transhumanist immortality: Understanding the dream as a nightmare." *Scientia et Fides* 9(1): 177–96. DOI: <https://doi.org/10.12775/SetF.2021.006>.
- García-Barranquero, Pablo. 2022. "Beyond the weak and strong life extension division: Don't add years to life if you cannot add life to those years." *ARBOR Ciencia, Pensamiento y Cultura* 198(805), e654. DOI: <https://doi.org/10.3989/arbor.2022.805002>.
- García-Barranquero, Pablo, and Antonio Diéguez. 2022. "El doble efecto de la pandemia en el discurso transhumanista." *Recerca. Revista de Pensament i Anàlisi* 27(2). DOI: <https://doi.org/10.6035/recerca.6155>.
- Glannon, Walter. 2008. "Psychopharmacological enhancement." *Neuroethics* 1: 45–54. DOI: <https://doi.org/10.1007/s12152-008-9005-9>.
- Habermas, Jürgen. 2003. *The Future of Human Nature*. Polity.
- Harris, John. 2007. *Enhancing Evolution: The Ethical Case for Making Better People*. Princeton University Press.

- Harris, John. 2011. "Moral enhancement and freedom." *Bioethics* 25(2): 102–11. DOI: <https://doi.org/10.1111/j.1467-8519.2010.01854.x>.
- Hauskeller, Michael. 2014. *Better Humans: Understanding the Enhancement Project*. Routledge.
- Hofmann, Bjørn. 2017. "Limits to human enhancement: Nature, disease, therapy or betterment?" *BMC Medical Ethics* 18: 56. DOI: <https://doi.org/10.1186/s12910-017-0215-8>.
- Juengst, Eric. T, and David Moseley. 2016. "Human enhancement". *The Stanford Encyclopedia of Philosophy* (Spring Edition). Available at: <https://plato.stanford.edu/archives/spr2016/entries/enhancement/>.
- Kass, Leon. 2002. *Life, Liberty and the Defense of Dignity: The Challenge for Bioethics*. Encounter books.
- Kudlek, Karolina. 2022. "Challenges in the human enhancement debate: A critical review." *Techne: Research in Philosophy & Technology* 26(2). <https://doi.org/10.5840/techne202278160>.
- Kurzweil, Raymond. 2005. *The Singularity Is Near: When Humans Transcend Biology*. Penguin.
- Lyreskog, David. M, and Alex McKeown. 2022. "On the (non-)rationality of human enhancement and transhumanism." *Science and Engineering Ethics* 28(6): 52. DOI: <https://doi.org/10.1007/s11948-022-00410-4>.
- López Cambronero, Marcelo. 2023. "Metaverse, religions and metahumans: A window to a hypercontrolled post-pandemic world." *Scientia et Fides* 11(1): 121–35. <https://doi.org/10.12775/SetF.2023.010>.
- MacAskill, William. 2022. *What We Owe the Future*. Simon and Schuster.
- Malmqvist, Erik. 2014. "Reproductive choice, enhancement, and the moral continuum argument." *The Journal of Medicine & Philosophy*, 39(1): 41–54. DOI: <https://doi.org/10.1093/jmp/jht058>.
- Parfit, Derek. 1984. *Reasons and Persons*. Oxford University Press.
- Persson, Ingmar, and Julian Savulescu. 2008. "The perils of cognitive enhancement and the urgent imperative to enhance the moral character of humanity." *Journal of Applied Philosophy* 25(3): 162–77. DOI: <https://doi.org/10.1111/j.1468-5930.2008.00410.x>.
- Rawls, John. 1971. *A Theory of Justice*. Cambridge University Press.
- Rueda, Jon. 2024. "Genetic enhancement, human extinction, and the best interests of posthumanity." *Bioethics* 38: 529–38. DOI: <https://doi.org/10.1111/bioe.13085>.
- Rueda, Jon, Pablo García-Barranquero, and Francisco Lara. 2021. "Doctor, please make me freer: Capabilities enhancement as a goal of medicine." *Medicine, Health Care and Philosophy* 24(3): 409–19. DOI: <https://doi.org/10.1007/s11019-021-10016-5>.

- Sandberg, Anders. 2015. "Transhumanism and the meaning of life." In *Religion and Transhumanism: The Unknown Future of Human Enhancement*, edited by Tracy Trothen and Calvin Mercer, 3–22. Praeger.
- Sandel, Michael. 2007. *The Case Against Perfection. Ethics in the Age of Genetic Engineering*. Belknap Press.
- Savulescu, Julian. 2006. "Justice, fairness, and enhancement." *Annals of the New York Academy of Sciences* 1093: 321–38. <https://doi.org/10.1196/annals.1382.021>.