Universidade do Minho
Escola de Letras, Artes e Ciências Humanas

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Well-Being and Human Enhancement: Towards Human Nature Developmentalism

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Professor João Cardoso Rosas
and
Professor João Ribeiro Mendes

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Bem-Estar e Melhoramento Humano: Rumo à Natureza Humana Desenvolvimentalista

RESUMO

Nesta tese, apresento a visão que designo de Natureza Humana Desenvolvimentalista. O debate parte da premissa basilar de que uma ideia de natureza humana deve anteceder e fundamentar qualquer problematização em torno da permissibilidade moral de utilizar tecnologias de melhoramento humano. Nessa medida, entendo o ser humano, essencialmente, como agente criativo propositivo. Isto é, o ser humano realiza-se através do trabalho, que defino como o exercício livre, racionalmente controlado e dirigido para o exercício, desenvolvimento e fruição de um conjunto específico de capacidades, aqui denominadas componentes do florescimento. Resulta, pois, que somos seres ontológica e socio-historicamente constituídos: agentes cuja necessidade ontológica de criar permite a atualização das capacidades por via de um trabalho cujas condições de efetivação são, necessariamente, social e tecnicamente contingentes. Daqui resulta a tarefa de identificar que bens e atividades são não-instrumentalmente bons para o ser humano enquanto agente criativo propositivo: o que é bom e porquê só pode ser explicado e justificado à luz deste conceito de natureza humana. Note-se que o debate em torno da ética do melhoramento humano nunca deixou de estar profundamente ancorado em noções particulares de natureza humana. O que a minha abordagem traz de novo é o seguinte: i) um conceito distinto de natureza humana; ii) uma teoria distinta de bem-estar; e iii) um modelo polivalente de aconselhamento. As conceções de uma natureza humana e de uma teoria do bem-estar desenvolvimentalistas dão-nos o alicerce prudencial, ético e político para avaliar a permissibilidade de qualquer intervenção genética. Surge a seguinte cláusula: "as intervenções genéticas na linha germinativa são moralmente permissíveis se e somente se resultarem num incremento do nosso poder desenvolvimental ou contribuírem para o nosso florescimento como agentes criativos propositivos". Demasiado geral, abstrata e permissiva, a cláusula requer o desenvolvimento de um modelo desenvolvimentalista de aconselhamento. As equipas de aconselhamento são formadas por profissionais de várias áreas cujas competências principais consistem na prestação de auxílio médico, ético ou religioso e na obtenção de um consentimento informado reforçado dos potenciais pacientes que desejem submeter-se a intervenções. Este é um modelo de tomada de decisão partilhada em que o que significa ser humano e viver uma vida boa conduzirão o debate.

Palavras-Chave: Bem-estar; Melhoramento Humano; Natureza Humana; Natureza Humana Desenvolvimentalista.

Well-Being and Human Enhancement: Towards Human Nature Developmentalism

ABSTRACT

In this thesis, I present the view that I call Human Nature Developmentalism. The discussion starts from the basic premise that an idea of human nature must precede and underpin any problematisation around the moral permissibility of using human enhancement technologies. Therefore, I understand the human being essentially as a purposive creative agent. In other words, human beings realise themselves through labour, which I define as the freely undertaken, rationally controlled exercise directed towards the exercise, development, and enjoyment of a specific set of capacities, here called the components of flourishing. It follows, then, that we are ontologically and socio-historically constituted beings: agents whose ontological need to create allows for the actualisation of capacities through labour, the conditions for which are necessarily socially and technically contingent. This is followed by the task of identifying which goods and activities are non-instrumentally good for human beings as purposive creative agents: what is good and why can only be explained and justified at the light of this concept of human nature. It should be noted that the debate surrounding the ethics of human enhancement has never ceased to be deeply anchored in particular notions of human nature. What my approach brings that is new is the following: i) a distinct concept of human nature; ii) a distinct theory of well-being; and iii) a multi-purpose model of counselling. The developmental conceptions of human nature and well-being provide us with the prudential, ethical, and political foundation for assessing the permissibility of any genetic intervention. The following proviso emerges: "germline genetic interventions are morally permissible if and only if they increment our developmental power or otherwise contribute to our flourishing as creative purposive agents". Too general, abstract, and permissive, the proviso calls for the development of a developmental model of counselling. Counselling teams are made up of professionals from various fields whose core competencies consist of providing medical, ethical, or religious guidance and obtaining enhanced informed consent from potential patients who wish to undergo interventions. This is a model of shared decision-making in which what it means to be human and to live a good life will lead the debate.

Keywords: Human Enhancement; Human Nature; Human Nature Developmentalism; Well-Being.

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INTRODUCTION

Pretext, Context, Text

In late 2018, the Chinese scientist He Jiankui announced the creation of the world's first genome-edited babies. By that time, I was working on the research project that would result in the work I'm presenting in this thesis.

At that point, I had no intention of specifically focusing on gene editing, as my main interest was centred around the philosophy of transhumanism. I was particularly interested in the debate between transhumanist and bioconservative philosophers, especially regarding discussions about human nature and the concept of the good. Essentially, I was worried by the fact that neither transhumanists nor bioconservatives grounded their philosophical proposals on appealing and operative concepts of human nature, which rendered any discussion about the goodness of human enhancement inoperative. Without a clear understanding of human nature, it becomes exceedingly challenging to engage in a philosophically and ethically sound discussion on why biomedical interventions can be good for us. The same reasoning applies to similar situations. Without a comprehensive understanding of environmental ecosystems, it becomes exceedingly challenging to engage in a technically and ethically sound discussion on why conservation attempts can be good for a particular habitat. Likewise, without a comprehensive understanding of gorilla nature, it becomes very difficult to engage in an ethically sound discussion of what constitutes the well-being and flourishing of a gorilla.

At that earlier stage of my research, I was already concerned about the permissibility of human enhancement, and I knew that human nature would have to provide the normative basis to determine the permissibility of any biomedical intervention. But I was not yet working on the welfarist approach to evaluate the goodness of interventions which I later developed. My first work on this approach came only after I established the foundations of a proper notion of human nature. Once I laid out the fundaments of this notion that I called human nature developmentalism, I had what seemed to be an appropriate foundation to ground the discussion on the goodness of interventions. Initially, I operated within a perfectionist theoretical framework, which later revealed certain challenges. It wasn't because these challenges were insurmountable, but because developmentalism proved to be a more balanced framework that aligned with my conception of human nature. An important moment in this transition occurred when I started to distance myself from democratic transhumanism and to explore the idea that interventions could only contribute to human flourishing if they produce small, gradual advancements in our developmental power, rather than disruptive alterations that aim at maximising it.

During that time, I began redirecting my attention from the philosophy of transhumanism and the predominantly conceptual and ideologically polarised debate between transhumanists and bioconservatives. The proposed solutions from both sides often fell short of addressing the core philosophical questions satisfactorily. By this time, in late 2020, Emmanuelle Charpentier and Jennifer Doudna were awarded the Nobel Prize in Chemistry for their work on CRISPR gene editing. I then focused more closely on He Jiankui's case and on how the edition of the genome could lead to developmental flourishing. I started researching more into the debate on reprogenetics having human nature developmentalism as the normative framework for evaluating the goodness of interventions. Nonetheless, I encountered a significant challenge. First, the scope of developmentalism was proving to be too broad, meaning that virtually almost any intervention would be morally permissible on the simple condition that it contributes to the flourishing of the agent. Second, I realised that it would be necessary to evaluate the case of each patient willing to undergo an intervention, and that this would require a collaborative and reflective developmental shared decision-making model involving counselling sessions and specialised interdisciplinary counselling teams constituted by professionals and non-professionals. Unexpectedly, this solution came with problems of its own. How can developmental counselling navigate the challenge of reconciling the requirement for a universal ethical principle governing the permissibility of interventions with the need for individualised assessments in the complex and nuanced reality of each case?

Despite this complex challenge, I still maintained the initial goal: while not having the ambition of presenting a comprehensive theory of human nature, I wanted to ground an objective theory of well-being on at least a thin account of human nature. Put differently, I wanted to ground my argument on the thin claim that human beings are creative purposive agents, leaving aside any normative claims on the content of their creation. This thin account of human nature was enough grounding for an objective account of well-being, which can be used to evaluate the goodness of interventions. By making use of it, I examined a number of practical cases, most regarded as paradigmatic in the field of bioethics, that led me to arrive at a potential solution to the intricate challenge that emerged as my research progressed.

So, the pretext to conduct this research is clearly outlined: I felt that the debate on human enhancement lacked any meaningful reference to a coherent concept of human nature from which we could derive a theory of well-being to evaluate the moral and ethical permissibility of interventions.

But before detailing the arguments I used, it is relevant to add some terminological precision. This clarification is important as some of the concepts I employ may lack immediate clarity for readers unfamiliar with the theoretical discussions on the ethics of human enhancement and theories of well-being.

Let's start with the idea that human beings are creative purposive agents. Here, I'm adhering to an important philosophical humanist tradition that dates back to Aristotle, Immanuel Kant, John Stuart Mill, Karl Marx, and T. H. Green. I was particularly influenced by the ideas of the Canadian philosopher C. B. Macpherson, for whom creative purposive agency is the fixed ontological trait that characterises the human being. We are creative agents who act upon the world and ourselves through our labour, which Macpherson defines in a broad sense as our various human capacities. We flourish by exercising, developing, and enjoying these capacities. Macpherson presents a non-exhaustive list of human capacities: the capacities for rational understanding, for moral judgment and action, for aesthetic creation and contemplation, for the emotional activities of friendship and love, for religious experience, for transforming what is given by nature (including labour), for wonder or curiosity, for laughter, for controlled physical/mental/aesthetic activity, among others (cf. Macpherson, 1973, 53-54). The exertion and development of these capacities is non-instrumentally good for us. They "are seen as ends in themselves", as Macpherson puts it (1973, 5) and our flourishing depends on whether we can exercise, develop, and enjoy them.

Macpherson's idea that our labour is the same as our capacities is not that straightforward. To simplify things, I adopt Richard Kraut's idea of the components of flourishing. Kraut is key to understand developmentalism. Operating within his framework, we can subsume all these capacities and others under a smaller set of components of flourishing. These are the physical, cognitive, affective, sensory, and social components of well-being and each one of them comprises several different capacities (cf. 2007, 137). Essentially, developmentalism is anchored in the idea that goodness is the only legitimate way to arrive at practical conclusions (cf. Kraut, 2007, 15), and that some good or activity is non-instrumentally good for a person only if it is productive or part of human flourishing (cf. Kraut, 2007, 141). This is an ethical theory centred on the value of the good from which we draw conclusions regarding our appropriate courses of action, individual and collective.

It becomes evident that to put such a theory in place it is indispensable to know what is good for the types of beings we are. Whether something is good for a human being, or any other living creature, depends on facts about their nature. One could doubt, like Foucault did, that "one can never know too much concerning human nature" (1978, 22), but this doesn't exempt us from the duty of continuous enquiry and exploration into its intricacies, this being vital for informing our decisions about what social arrangements and policies to adopt. We would do better in paying closer attention to Edmund Burke, for example, who claimed that "politics ought to be adjusted, not to human reasonings, but to human nature; of which the reason is but a part, and by no means the greatest part" (1880, 398). In fact, this thought

effectively captures the concept conveyed by human nature developmentalism. What is non-instrumentally good is that we exercise, develop, and enjoy the components of flourishing that are constitutive of our nature as creative purposive agents. For this specific purpose, human enhancement technologies primarily serve as tools to help us develop a greater ability to engage with the aspects of flourishing. On my account, biomedical interventions are instrumentally valuable only, and their value is assessed based on their contribution to increment our developmental power.

In due time, the most relevant problem for Macpherson is whether we have access to enough developmental power to flourish or not. As Macpherson understands it, developmental power is the ability or the *de facto* power we have to exert, develop, and enjoy our only essential ontological need, which is that of creation. And creation comes about through labour, understood as our capacities and their actualisation (cf. Macpherson, 1979, 47). Developmental power is measured in terms of the access we have to the means of life (food, shelter, clothing, basic education, medical care, etc.), labour (capital and material resources), and the proper social and relational conditions to exert one's labour. To secure this, Macpherson argues for a restructuring of the right of property, with the goal of turning it into a "right to a share in the control of the massed productive resources" (1973, 137). At this point, however, Macpherson's broadening of the concept of property seems to require an additional condition. He argues that "with the conquest of scarcity [...] property must become a right to an *immaterial* revenue, a revenue of enjoyment of the quality of life" (1973, 139). What exactly is this revenue? First, it is not measurable in material quantities, and second it requires the "participation in a satisfying set of social relations" (1973, 139). Before looking more closely at this, it is important to say that, in Macpherson's terms, the good society is necessarily one that is a "positive agent in the development of capacities" (1973, 57); it is, necessarily, a power-maximising society or a developmental democratic society with the role of assisting individuals maximising their developmental power or their *de facto* ability to enjoy and develop human capacities (cf. 1973, 41-42). Democracy as a kind of society needs to be the medium through which our human capacities are most fully exercised and developed. A good society is one that maximises our developmental power by creating the conditions favourable to the exercise, development, and enjoyment of those capacities (cf. Lindsay, 1996, 55). In fact, this is the type of argument presented by those who defend the idea of putting in place a perfectionist basic structure that promotes the creation of open-minded environments and experiments capable of enabling us to live well-rounded lives (cf. Ferdman, 2019; cf. Bradford, 2017).

It was this idea that motivated me to think of biomedical interventions as a possible strategy to contribute to the expanding of our developmental power as well. It's worth emphasising that

Macpherson's focus was primarily on what he considered external impediments to human flourishing, particularly those related to the lack of access to the means of life and labour, as opposed to internal impediments, like congenital diseases. Here, part of my work consisted in adapting the concept of developmental power to encompass the removal of internal impediments. Contrary to Macpherson's perspective, I argue that not all internal impediments necessarily stem from or are a byproduct of external impediments. Also, I contend that there isn't a straightforward moral justification for prioritising the removal of external impediments over internal ones, or for addressing internal impediments only after the external ones have been removed (cf. 1973, 76).

Before moving on, it is also worth noting the following: I believe it's more appropriate to talk of incrementing our developmental power than maximising it. The former amounts to make small, incremental changes conducive to the improvement of one's capacities in ways that, if possible, are not too disruptive towards our agency. Instead of arguing for the maximisation of one's developmental power so that one can reach his highest level of potential, as a perfectionist approach would recommend, the developmental approach benefits from this gradual, moderate approach. Contrary to what much of the transhumanist philosophy conveys, biomedical interventions should not be seen as a strategy to give each and every person superhuman powers, implying a radical maximisation of our current capacities. And while it is important to recognise that biomedical interventions should not aim to endow every person with superhuman powers, opposing bioconservative views that advocate for a complete ban of interventions and a passive acceptance of what's given by nature also miss the point of what is good for us.

There are two main reasons in favour of the incremental approach. First, to maximise one's capacities may require a significant degree of effort, sacrifice, and risk, and could also entail that one ought to undergo a complex, costly, and disruptive programme of radical human enhancement to achieve such a goal. Predictably, "making radical changes to our bodies undoubtedly will have surprising side-effects" (Allhoff *et al.*, 2010, 15). Such an approach is, of course, in line with those versions of transhumanism that advocate for a radical transformation of the human condition, espousing various different forms of the proactionary principle. Among the most relevant challenges here, it can be expected that radical transformations would have a significant impact on our sense of identity and authenticity. Developmentalism markedly departs from these approaches.

Second, it is most likely that for this radical transformation of the human condition to occur, a significant distributive effort must be made to ensure that every individual is guaranteed the access to the necessary resources required to maximise his capacities. While some of the most basic enhancement technologies, like pills or minor cosmetic surgeries, might be cheap, easily performed, and widely

accessible, some genetic services, like gene editing, will involve a high financial burden to the clients and the state due to their technical and scientific complexity and the quantity and quality of resources required (cf. Singer, 2009, 285). Developmentalism recommends the use of highly complex and expensive interventions, but to argue for the incrementing of our developmental power does not necessarily require the same level of resource allocation and effort as maximisation. While the incremental approach will require some level of resource control and allocation to safeguard universal access to interventions, maximisation would predictably require significant distributive efforts to the greatest maximal enhancement outcomes for everyone. Take gene editing as an example. The incremental approach focuses on gradual, moderate improvements with the aim of incrementing the developmental power of the person up to a certain threshold that corresponds to the level at which a satisfactory engagement with the components of flourishing is possible. It is not about choosing *the best* possible genes to live the "best life" possible (cf. Savulescu, 2001), but to enable the person to have access to enough developmental power to live a well-rounded and flourishing life. The maximisation approach would be more favourable to prioritise costly and radically transformative interventions to achieve the goal of maximum growth, whereas the incremental approach considers not only the feasibility and sustainability of resource allocation in the pursuit of interventions, but also their potential disruptive effects to our agency. This helps explaining why I focus on developmental counselling as a collaborative reflective process involving both counsellors and patients in a holistic evaluation of what enhancements are and what their importance is for one's overall life.

But even if achieving maximum developmental power were cost-effective, it could still significantly endanger our well-being because of its potential to disrupt our personhood, our identity and autonomy, our social cohesion by creating a radical ability divide and a potential gap between enhanced and unenhanced, rich and poor, and undermine the foundations of human dignity which are rooted in our capacity to create (cf. Allhoff *et al.*, 2010; cf. Wolbring, 2006; cf. Silver, 1999).

My argument goes in the following direction: we need to have a sufficient amount of developmental power so we can engage properly with the non-instrumental goods and activities that enable us to actualise our capacities and thus realise our human nature as purposeful creative agents. I do not endorse a monist view on this. There is a plurality of non-instrumentally valuable goods and activities, and there is a plurality of ways in which different individuals may flourish and live well-rounded lives.

Here, I faced another challenge. Virtually any intervention that increments one's well-being as a purposeful creative agent would be permissible. Although this needs not be problematic *per se*, a closer examination of specific cases reveals that certain interventions do indeed appear problematic. On the one

hand, interventions aimed at promoting positional goods, like height, sex, or eye colour, seemed to be, *prima facie*, impermissible, as they confer an unjust advantage to those benefiting from them solely on the basis of others lacking these goods. But in certain cases, positional goods may contribute to an individual's flourishing to the same extent as non-positional goods. Education can be one of these goods. Take the case of two individuals who both aspire to flourish in their careers. One might be driven by a desire for personal achievement and recognition, while the other is focused on personal development and job satisfaction. While the first works diligently to secure a prestigious job title and a corner office with a view, the latter works for his personal fulfilment. To the first individual, his prestigious job title and the corner office are positional goods: these possessions contribute to his sense of flourishing and well-being because others lack access to them. To the second individual, non-positional goods such as personal fulfilment and a meaningful occupation, are the key factors contributing to his flourishing and well-being. In the final analysis, both positional and non-positional goods can decisively play a crucial role in a person's well-being and flourishing.

On the other hand, how do we go about defining what constitutes a sufficient amount of developmental power? The obvious challenge here is that developmental power is not only agent-relative, but also context-relative, time-relative, and culturally relative. Despite developmentalism being an objective account of well-being according to which the good life for a human being is determined by the specific set of capacities constitutive of our human nature and whose exercise is non-instrumentally good for us, this still leaves plenty of room for indeterminacy concerning the ways we flourish. Different creative agents in different contexts, in different times, and in different cultures flourish differently. The issue does not primarily concern the meaning of flourishing, as this was established as soon as I laid out human nature developmentalism: flourishing is a state that humans aspire to for its non-instrumental value. The challenge lies in determining the factors that influence flourishing and the specific role that human enhancement should take in enabling an agent's flourishing *vis-à-vis* alternative strategies (*e.g.*, socioeconomic strategies).

These challenges, along with the examination of two paradigmatic cases in bioethics, ultimately guided me to the solution I propose in the final chapter of the thesis: developmental counselling. In the end, the challenge will not revolve around quantifying the precise amount of developmental power required for flourishing (the pursuit of a general universal principle to establish this is not feasible). Rather, the goal is to establish a developmental framework that provides guidance to counselling teams in their role of assisting patients who wish to undergo interventions.

I mentioned how important two paradigmatic cases in bioethics were for me to arrive at the idea of developmental counselling. Truth be told, counselling is not a groundbreaking idea in the field of medical ethics, nor is the idea that, under specific circumstances, we must obtain an enhanced form of consent from patients in order to proceed with research. For example, Julian Savulescu, in his 2001 classical article on the principle of Procreative Beneficence, had already discussed the Principle of Non-Directive Counselling, to which he doesn't strictly adhere. From a developmental stance, this principle is problematic for the reason that it shuns away from providing any guidance other than "information about risk and options available to reduce that risk" (Savulescu, 2001, 419). The central idea behind developmental counselling is to help individuals make informed decisions that promote their well-being and flourishing as creative purposive agents. It recognises that individuals may benefit from ethical and practical advice when navigating complex decisions related to human enhancement. Also, it acknowledges that the counselling process is non-neutral, and that providing guidance within the developmental framework serves two key purposes. First, it goes beyond the traditional concept of informed consent by offering individuals a more comprehensive and personalised guidance in order to obtain their fully informed and enhanced consent. Second, it seeks to facilitate a holistic understanding of one's general condition and circumstances by means of a collaborative and reflective developmental shared decision-making model between counselling teams and prospective patients.

To resume the argument, the first controversial case in bioethics I'm referring to here is that of a deaf lesbian couple who voluntarily chose to have a deaf child (cf. Spriggs, 2002; cf. Wallis, 2020). I had two major concerns regarding this case. The first was whether a deaf child could have a decent chance to live a life of engagement with the components of human flourishing (*i.e.*, our cognitive, affective, sensory, social, and physical capacities). The second was whether deliberately bringing a deaf child to life constituted a violation of her identity and autonomy and threatened her right to an open future. At first glance, deafness is a clear instance of a drastic reduction of an agent's developmental power, posing challenges to his present and future ability to flourish as a creative agent.

Nonetheless, the mothers offered a range of compelling arguments in support of their position, with these arguments centring on issues of identity, culture, autonomy, inclusivity, and the normalisation of deafness. Moreover, on what ethical grounds should we address the restriction of the reproductive freedom of two autonomous agents? Procreative perfectionism understood as the view that "we should aim to have children who will have the best chance of a good human life" (Glover, 2006) automatically appears as counterintuitive and overly burdensome on parental procreative autonomy. On the other hand, I was rather suspicious of liberal versions of procreative perfectionism, like Savulescu's well-known

Principle of Procreative Beneficence. On this account, "couples (or single reproducers) should select the child, of the possible children they could have, who is expected to have the best life, or at least as good a life as the others, based on the relevant, available information" (Savulescu, 2001, 415). But who will guide parents in interpreting this principle? It involves not just the evident subjectivity surrounding the notion of "the best life", but, in some cases, also a comprehensive understanding of the challenging implications involved in planning the edition of the genome of a future human being. Sharon Duchesneau and Candy McCullough, the deaf lesbian couple mentioned above, appeared to have a clear understanding of the motivations behind their choice. But still, did they really? And even if they didn't, would this be reason enough to limit their reproductive freedom? Indeed, if that's the case, one could anticipate the objection that circumstances like poverty or severe disability might also offer plausible ethical grounds for limiting the reproductive freedom of prospective parents under these conditions. This restriction could be due to their potential to offer only a relatively disadvantaged upbringing and the risk of passing on genetic conditions. Under these conditions, the developmental power of the child wouldn't expectedly be sufficient so she could have any real prospects of living a flourishing life. This was the line of thinking behind many of the eugenic programs of the past.

These objections are particularly important at the light of He Jiankui's case. This serves as a paradigmatic example of ill-medical practice on many levels, but particularly concerning the violation of the ethical procedures to secure informed consent from the participants in his research (cf. Krimsky, 2019). Securing informed consent for a study as challenging as one that involves gene editing and embryo implantation, will inevitably present considerable difficulties. Informed consent requires a thorough explanation of the scientific procedures, a comprehensive assessment of potential risks and benefits, the exploration of possible alternative options, and the assurance that participants possess a complete understanding of all the procedures involved. Moreover, participants should be accompanied by qualified professionals throughout the entire process so we can guarantee their confidence, safety, and always ensure their full understanding. Considering the variety of consent types and the many approaches to obtaining it, I came to recognise that human enhancement requires an enhanced form of consent. Developmental counselling represents the best attempt at obtaining this enhanced consent.

In addition to He Jiankui's case, the other case that brought me to consider developmental counselling and enhanced consent was that of limb-lengthening surgery. During the Covid pandemics, this surgical procedure became popular in Canada, and particularly among young men (cf. Jiang, 2022). It was a common procedure since the 1950s to treat people with congenital illnesses or injuries, being regularly performed in children born with one leg shorter than the other. However, young adults began

undergoing this procedure solely for cosmetic reasons, hoping to attain a few additional centimetres in height. These people were happy to go through a major surgery which involved some personal risk and financial costs so they could feel better about their height, to belong to the right height group, and avoid being shorter than the average. Again, in this case, we are dealing with the problem of positional goods. Beyond treating minor disabilities, the reasons people presented for the surgery involved personal fulfilment, boosting confidence, and becoming happier persons living better lives. There are well-known correlations between height and higher scores on well-being indicators, such as attractiveness to the opposite sex and success in forming long-term partnerships (cf. Nettle, 2002). In the specific case of men, being taller often means more career opportunities and higher income (cf. Deaton & Arora, 2009; cf. Johnson, 2019; cf. Jiang, 2022). But should this fact of life suffice to justify one's decision to use the surgery? Would it justify parents to select height as a non-instrumentally valuable trait to pass on to their children?

What's relevant about this case is that healthcare providers required interested patients to attend counselling sessions with psychologists and surgeons to determine whether they needed the surgery (cf. Novikov *et al.*, 2014). More importantly, the statements made by some of the young men willing to undergo the procedure seemed to indicate that they were influenced by misconceptions about what constitutes their good. This is particularly so from the point of view of human nature developmentalism. Height is not one of the components of flourishing; being taller is not a fundamental human capacity indispensable to one's flourishing. This doesn't mean that one's flourishing is independent of one's personal perception on how his life goes relative to his height. For example, this implies that a Dutch man, with an average height of 183.8 cm, and a Timorese man, with an average height of 160.1 cm, can both flourish as creative purposive agents regardless of their stature. However, it is plausible that a Timorese who moves to the Netherlands may encounter missed opportunities due to his height in comparison to his Dutch peers. In any case, such disparities would likely stem from an unjust social setting rather than a personal inability to engage with the components of flourishing. The shorter stature of the Timorese does not, in any manner, provide him with a morally relevant claim to grant him access to biomedical interventions. Put differently, being shorter doesn't necessarily equate to a decrease in developmental power. If the Timorese were to submit to a counselling session, he would probably come to realise either that he was being led astray by a false idea of the good, or that the Dutch society is unfair in that regard. He could also realise that ongoing and unjust social circumstances are more likely to foster unfair prejudices, thereby giving rise to mistaken notions of what constitutes the good, and that somatic as well as germline interventions are not the proper strategy to address these challenges. For example,

racism stands out as a prime and definitive case of why it should be morally impermissible to use gene editing to select or change skin colour.

I mentioned that counselling is not a new approach in the field of medical ethics, and indeed, it is not. Emma Gordon's recently published book, *Human Enhancement and Well-Being*, proves this, offering a profoundly relevant and intellectually captivating contribution to the debate on the role counselling can play in a positive proposal of human enhancement. I owe much to this book. In it, Gordon clearly illustrates what the role of an enhancement counsellor might be and presents the many possible strategies to facilitate voluntary enhancement. This work played a crucial role in shaping my own approach to counselling.

Because of my developmental approach, the counselling model I propose differs in some relevant respects from Gordon's. Once a person initiates the process of undergoing an intervention herself or expresses a desire for their descendants' genome to be edited, she will be required to undergo a thorough monitoring process. Instead of talking of an enhancement counsellor, I prefer to talk about counselling teams comprised of professionals from diverse fields of expertise who can guide patients throughout multiple different stages of observation, before and after the intervention takes place. These teams will include professionals such as ethicists, bioethicists, philosophers, religious representatives, psychologists, social workers, human rights activists, and possibly people who were previous patients. It is expected that teams such as these are constituted to consider particular cases and to contribute to a comprehensive discussion on the relevant aspects that one ought to have in mind concerning enhancement. As expected, it's likely and desirable that team members will hold diverse and contrasting viewpoints. The rational deliberation this process entails is intended to guide patients beyond what might be their initial desires (*e.g.*, regarding the type of child they desire to bring into the world, or the degree to which an intervention can help enhance one's social skills), as well as in identifying their possible biases and misconceived assumptions. It is meant to help parents exploring the potential impacts of their choices on their future children, on themselves, and on society as a whole.

Where does this leave us? We are faced with the difficulty I mentioned above: it becomes challenging to reconcile the need for a universal ethical principle governing the permissibility of interventions with the practical reality of counselling, which requires counselling teams to conduct individualised assessments for each person's case. This casuistry will likely result in numerous potential exceptions to any general ethical principle devised precisely to avoid such an outcome. How can we prevent this? The combination of the developmental general ethical framework, the casuistic approach counselling entails, and a robust ethical oversight can assist us in addressing the tension between

universal principles and the need for case-specific analysis. This approach aims to sustain the fundamental ethical values of human nature developmentalism while allowing enough elasticity to accommodate the particular circumstances of potential patients. We must take into account that this model should be adaptable for implementation in different societies, each with its own unique cultural values, and different and diverging perspectives on what is good for individuals. Hence, the constitution of the teams will also be subject to different criteria and will vary significantly across cultures. Clearly, it should allow the ongoing examination and potential revision of the developmental ethical principles themselves, admitting that they cannot remain rigidly fixed and unalterable in the face of the radical transformations that may result from human enhancement and its application throughout different cultural backgrounds.

Moreover, it is expected that the counselling process is as transparent as possible, ensuring that decisions are made openly and are subject to the scrutiny of every member of the counselling teams, and potentially subject to examination by external, independent, and competent authorities. Regularly updating the general guidelines of the counselling process will also improve its transparency and accountability. Finally, ongoing ethical reflection between the professionals forming the teams, policymakers, and the wider public can contribute to better address emerging ethical challenges, allow for necessary adjustments to principles, and find new possible solutions.

I acknowledge that such a conclusion for this study might be uninspiring. Nonetheless, any potential lack of originality in this approach is counterbalanced, I hope, by the fact that developmental counselling affords us plenty opportunity to progress towards the initial goal I envisioned. This goal always involved offering support to those who wish to undergo interventions within a clearly defined framework of moral and ethical principles in tune with a distinctive developmental understanding of the types of beings we are, what is non-instrumentally good for us, and how we can live flourishing lives.

The strategy I am presenting here is the best response I came up with to address a significant threat to which I first devoted my attention to in 2018 and still consider a pressing concern today. This concerns the transhumanist belief that we are without doubt destined to merge with machines and radically alter our fundamental nature. An expression used by Michael Hauskeller quite clearly captures this idea: what is going on is a "transhumanisation of culture" (cf. 2015). This expression conveys well the belief shared by the transhumanist Nick Bostrom who stated that "[t]ranshumanism is entering the mainstream culture today" (2003, 5). The infusion of transhumanist ideas and values into our cultural narratives, artistic expressions, ethical and political discussions, societal structures, and human experience frequently sidesteps an exhaustive critical examination of the merits of those ideas and values.

My main concern was and still is that the transhumanisation of culture doesn't go hand in hand with a continuous discussion regarding the reasons behind the potential goodness of interventions in relation to the types of beings we are. Since we cannot return to a time prior to the transhumanisation of culture and set reasonable ethical boundaries to guide it, this is a debate that will have to take place as the process of the transhumanisation of culture unfolds. The approach I formulate in this work seeks to make a valuable contribution to this ongoing discussion.

§

This thesis is structured around the idea that germline genetic interventions are morally permissible if and only if they increment our developmental power or otherwise contribute to our flourishing as creative purposive agents. What I wrote before in this introduction was regarded as the necessary theoretical development to arrive at this general principle. To wrap things up, the developmental conception of human nature, which is the normative basis to ground the moral permissibility of interventions, generates the two following comprehensive requirements:

a. It is our purposeful creative agency that makes us humans, giving us our nature as persons or agents, and generates reasons to pursue its development, rendering developmentalism normative. Our individual well-being is a function of the type of beings we are and what is objectively and non-instrumentally good for us is to exercise, develop, and enjoy our capacities by making a conscious and controlled use of our faculties during the transformative and self-creative process of labour;

b. Given that being human is to act as a purposeful creative agent, the requirements of morality dictate that so long as another agent's end is their development, each one of us ought to make the development of others our end as well. Hence, because morality is about flourishing as a purposeful creative agent, we have prudential and moral reasons to promote flourishing and prevent unflourishing. This principle applies to all creative agents without exception, both to current as well as to future generations. Taking reproductive autonomy as an example of intergenerational ethics, this boils down to the following two principles: i) what we owe to our children is a decent chance to live a life of engagement with the components of human flourishing in ways that respect their identity and

> autonomy; and ii) to safeguard children's right to an open future and to facilitate the incrementation of her developmental power whenever feasible, provided its safe and efficient. Only thus can we treat other present and future agents in ways that reflect concern for their well-being, whose source is their creative agency.

The central problems explored in the five chapters of this thesis converge to establish this core set of ideas. I start chapter 1 with a general cartography of the problems to be addressed throughout the entire work. My aim is to provide a general theoretical framework of the problems I'll be dealing with. One aspect I make clear is this: when we do political philosophy, the construction of a philosophical edifice, however humble, is not immune – cannot be immune! - to ontological and normative judgements about the type of beings we are, what is good for us, and what type of socioeconomic institutions we should aim for to promote a good life to people.

It is easy to see why the first chapter of this thesis is titled "transformation". New emerging, converging, and disruptive technologies hold the potential to fundamentally transform the human being, human life, and the surrounding environment. This chapter can be viewed as an investigation into the philosophy of transhumanism, comprising three sections, each focusing on three distinct existential challenges of transhumanism encapsulated in the word "trans/form/action". These challenges, however, are not exclusive to transhumanism, as they permeate the entire discussion on the ethics of human enhancement.

In chapter 2, I'll examine how different accounts provide distinctive descriptive and normative approaches to human enhancement. I'll focus on the three main accounts in the literature: i) the augmentative account; ii) the "not-medicine" account; and iii) the welfarist account. My argument is that the welfarist account is superior to its rivals and adequately addresses relevant objections levelled against it, thus providing more reasonable answers to why interventions are valuable. But still, the welfarist account has problems of its own. It fails in providing a compelling explanatory and justificatory explanation for the project of human enhancement for two reasons: 1) it remains overly centred on individual perspectives and relies heavily on subjective notions of well-being, particularly hedonism and desire-fulfilment. As a result, this approach makes the concept of enhancement too broad, undetermined, and subjective, thereby failing in accommodating the dispersed ideas on what it means to be human that pervade the debate on transhumanism and the ethics of human enhancement; and 2) it fails in accounting for the problems resulting from the tension between the personal and the collective outcomes

of enhancement, and gives the value of well-being no real ethical significance in defining the permissibility of enhancement and the outlining of public policies *vis-à-vis* other relevant values.

In chapter 3, I lay down one of the key elements necessary to put forward a developmental theory of well-being: human nature. The main premise of the developmental theory of well-being I'm outlining in chapters 3 and 4 is that human well-being consists in flourishing, which is the same as saying that what is good for a human being is that he flourishes *qua* a human being. The goal of chapter 3 is the following: to formulate a conception of human nature capable of grounding an objective account of well-being that will serve as the corner stone to discuss why and in what ways can human enhancement help us flourishing *qua* creative purposive agents.

In chapter 4, I start by stressing the deep relation between morality and human flourishing and claim that biomedical interventions are justified because they contribute to increment our developmental power. In this respect, they are instrumentally good for us. What is non-instrumentally good for us is to exercise, develop, and enjoy our human capacities in the context of a well-rounded life structured around the value of flourishing. The two guiding questions of the chapter are: 1) what prudential duties have we towards ourselves?; and 2) what moral and ethical duties have we towards each other? To answer these questions, I set out from the following general premise: we have moral reasons to promote biomedical interventions whenever they contribute to our well-being by enabling us to exercise and develop our nature and the actualisation of our human capacities by purposefully engaging with the world. I then discuss and narrow down this premise, arriving at what I call the developmental proviso, which grounds the moral permissibility of interventions in the context of the developmental framework. The proviso is a general clause that is developed in chapters 4 and 5. It runs as follows: "germline genetic interventions are morally permissible if and only if they increment our developmental power or otherwise contribute to our flourishing as creative purposive agents".

Finally, in chapter 5, I focus on two questions that follow from the ones addressed in chapter 4: 1) what is the scope of enhancements and which ones are permissible? and 2) what plausible guidelines are obtained to rule the ways in which political and institutional arrangements cope with the developmental account of the good concerning distributive policies and the regulation of access to interventions? As it was conceived, the developmental proviso acts as a compass to offer us guidance and help answering these questions. The main challenge concerns the regulation of access to biomedical interventions. On the developmental account, the most fundamental concern is that access is only provided to interventions that increment our developmental power and are non-contentious, making them available to all under high standards of democratic regulation, safety, accountability, and fairness.

Hence, this chapter focuses on political developmentalism, or on the political implications of the ethical account of developmentalism as it was previously conceived. We saw that certain goods and activities are non-instrumentally valuable because engaging with them is constitutive of our well-being, and therefore these goods and activities are vital to determine what's the morally right thing to do. Only by setting forward this ethical grounding, the one that delivers us a fundamental account of the good that we ought to protect *and* promote, can we then argue for political developmentalism. Here, the underlying claim is that the state ought to be permitted and justified to both protect and promote the relevant opportunities so that each citizen can engage with valuable goods and activities. Concerning biomedical interventions, what is being provided is access to enhancements, not enhancements *per se*. This is done in accordance with the proviso in the following manner: a multilevel layered structure will provide us two thresholds to adjust and balance access and needs to interventions that are complex, costly, and risky. For the purpose of this discussion, the developmental proviso will have to be revised and it will take the following form: "we ought to guarantee access to germline genetic interventions until a level of sufficiency is reached, where sufficiency is defined as the point at which individuals have achieved a threshold of developmental power and capacity for overall flourishing that ensures a satisfactory quality of life and opportunities for self-determination as creative purposive agents".

I conclude chapter 5 with a comprehensive examination of the above-mentioned developmental counselling proposal.

Finally, I will conclude with some further remarks on developmental counselling and explore potential future directions that this investigation has paved the way for.

CHAPTER 1

Transformation

a. Introduction

This chapter serves as a cartographic chart of the thesis that I present here and develop throughout the following chapters. It is a modest thesis, but it shows some ambition. It is built under the guidance of this general principle: when we do political philosophy, the construction of a philosophical edifice, however humble, is not immune – cannot be immune! - to ontological and normative judgements about the type of beings we are, what is good for us, and what type of society we should aim for. These are the "big questions" that have troubled philosophers since the dawn of time, and in this work, I aim to explore and contribute to their answers.

Answering these questions will require, first, analysing the answers that others have already given. Here, I am particularly interested in the contributions of those thinkers who call themselves, or have been called by others, transhumanists. I am also interested in the contributions of those who, while not belonging to this more or less diffuse and difficult to delimit group, advocate for the use of new emerging, converging, and disruptive technologies to improve the human condition. All of them present, in a more or less manifest and programmatic way, answers to these questions, but the questions are not always clearly addressed, nor do the answers prove to be satisfactory.

The thesis I'm presenting will start from a fundamental premise concerning the types of beings we are: human beings are creative purposive agents whose life goal is to exert, develop, and enjoy a set of capacities conducive to their flourishing. Subsequently, I will claim that to engage with certain goods and activities is non-instrumentally good for us, and that human well-being, or human flourishing, is the ultimate source of normative value. Finally, because my thesis is that, all things considered, we should make use of any technology that advances our flourishing, I will offer some reflections on a particular institutional strategy to help individuals navigate their way when pursuing biomedical interventions that have the potential to radically transform their lives.

This is part of the reason why the first chapter of this thesis is titled "transformation". New emerging, converging, and disruptive technologies hold the potential to fundamentally transform the human being, human life, and the surrounding environment. Consequently, here, I will focus on a limited set of challenges that revolve around the premise that it is through technology that human beings transform the world and acquire the ability to inhabit it. Despite its evident Heideggerian flavour, this is a claim any transhumanist surely holds. Therefore, this chapter can be viewed as an investigation into the

philosophy of transhumanism, comprising three sections, each focusing on three distinct existential challenges of transhumanism encapsulated in the word "trans/form/action".

b. Trans;

The history of transhumanism as an intellectual movement is indissociable from the *Transhumanist FAQ (Frequently Asked Questions)*, a collaboratively developed document that, since the mid-1990s, is continuously updated and revised as the field of transhumanism evolves. The *Transhumanist FAQ* has been enriched by the significant contributions of well-known transhumanist intellectuals, making it a reference to those interested in transhumanist philosophy, science, and ethics.

At its opening, we are told that

> [t]he etymology of the term "transhuman" goes back to the futurist FM-2030 (also known as F. M. Esfandiary), who introduced it as shorthand for "transitional human". Calling transhumans the "earliest manifestation of new evolutionary beings," FM maintained that signs of transhumanity included prostheses, plastic surgery, intensive use of telecommunications, a cosmopolitan outlook and a globetrotting lifestyle, androgyny, mediated reproduction (such as *in vitro* fertilization), absence of religious beliefs, and a rejection of traditional family values (Bostrom, 2003, 7).

According to transhumanists, we are transitional[1] beings, or a "transitional species", as a human enhancement advocate like John Harris has defined us (2016, 47).[2] And as transitional humans, our human nature also reflects a dynamic elasticity that makes it mutable and alterable, instead of fixed and static. As Bostrom puts it, our human nature is a "work-in-progress, a half-baked beginning that we can learn to remould in desirable ways" (Bostrom, 2003a, 493). Elsewhere, he adds clarity to this passage and claims that "[w]hat we are is not a function solely of our DNA but also of our technological and social

[1] FM-2030's thesis seems to suggest that the human as a *homo faber* was always, in fact, in a transitional stage and was never really a human but a transhuman all along (cf. 1989). The true fate of this *homo faber* is, as a matter of fact, to become a *faber hominis* (cf. Martins, 2011, 369), who assumes God's role in creation. Max More also acknowledged that humans are in a transitional stage, "standing between our animal heritage and our posthuman future" (1998). John Harris also acknowledges this and claims that "*we humans* are humanimals" (2016, 48), creatures in a constant Darwinian process of evolution.

[2] Despite sharing a common ground, human enhancement and transhumanism are two distinctive projects. Some of those supporting human enhancement don't identify themselves as transhumanists or with the more particular and comprehensive understanding of the world advocated by transhumanism. Harris, in a 2016 book, explains that he doesn't think of himself as a transhumanist because of transhumanism's sense of "mission, a goal in and of itself. For me it is no such thing. Rather, the goal of enhancement is to make people and their lives better and the world a better place" (172-173).

context", meaning that human nature is "dynamic, partially human-made, and improvable" (2005a, 213). There is much to be said about this essentialist conception of human nature that, at first glance, might not sound as essentialist as other perhaps more familiar conceptions (*e.g.*, Aristotelian, Hobbesian).

There are two other main conceptions of human nature that transhumanists adopt. One of these conceptions is that of our Promethean nature. This was put forward by Gregory Stock and conveys the idea that we ought to assume the godly role of Prometheus and refuse to accept any limitations to what we can become, recognising the potential to transcend our current state and achieve much more. Just as the Promethean fire granted humans the tools for progress, emerging, converging, and disruptive technologies similarly expand our possibilities, empowering us to take "control of our evolutionary future" (Stock, 2003, 2). The desire to change our condition and the aspiration for total control is the true "characteristically human" mode of action (cf. Stock, 2003, 2). Somewhere else, Stock affirms that "it is time to acknowledge our growing powers and begin to take responsibility for them" (2014). On this account, there is no other choice than to continue playing God.

The third and equally essentialist conception of human nature was put forward by Julian Savulescu, Bennet Foddy, and Megan Clayton. According to their account, "[t]o choose to be better is to be human" (2004, 670). To be human means to make full use of rationality in order to improve ourselves. On this account, "[t]he rational animal is here reinterpreted as an essentially self-enhancing animal" (Hauskeller, 2016, 87). Hermínio Martins pushes this claim further as it ultimately depicts the self-enhancing animal as a *faber hominis* (cf. 2011, 369), thus synthesising the entire project of transhumanism. Human enhancement technologies of various sorts promise us not only to help us choosing better, but *to be* better.[3] Consequently, human enhancement, of which Savulescu is one of the leading proponents, should be morally permissible as it provides us the necessary means to fulfil our nature and flourish as choosing autonomous beings.

The debate about human nature primarily revolves around human form, specifically human morphology, encompassing not only external features, but also internal aspects. It has to do with our embodied nature and the transhumanist challenging of the body in the quest for full disembodiment. I will discuss this in the next section. In this section, my primary focus lies on a fundamental imperative present in all these conceptions of human nature: the notion of movement.

[3] Hermínio Martins rightly points out that the scope of new biotechnologies is beyond the simple provision of enhancements. They have an ontological vocation that comes to reality in the creation of new forms of life (cf. 2011, 28).

i. Movement;

Movement, in the context of this debate, acquires a very particular meaning. First of all, it is a future-oriented type of movement. Transhumanism is a philosophy of progress, scientific and technical, and progress, etymologically, implies the act of going on, of moving forward, (cf. Hoad, 1996, 372). This forward-looking orientation towards the future is fundamentally different from the old myths of the Golden Age, which imply that the past was somehow superior to the present and the future. The essence of modernity lies in the construction of a philosophy of progress or progression that envisages human perfectibility as its main goal. Technological optimism and education are crucial to achieve this end, and this also explains the shift in our perception of time: we no longer yearn for a desired past, but for an inevitably better future. For transhumanism, this forward-looking mindset is rooted in a deep and permanent feeling of shame, discontent, and frustration not simply for the current state of affairs of the world external to us, but for our (determined) internal *humanness*.

We can also look at this from the following angle: transhumanism is extropian instead of entropian. The idea of extropy may be associated with the notion of removing obstacles or limitations to human potential and progress, which associates with the concept of free movement. But extropy equally contrasts with utopia. According to Max More, the idea of utopia suggests a static ideal that is not compatible with the goal of perpetual change that motivates transhumanists. That is the reason why More adapted the term extropia as a conceptual and metaphorical alternative. "One of the principles of extropy", More explains, "is perpetual progress"; it is, in and by itself, a declaration: transhumanists "seek continual improvement in ourselves, our cultures, and our environments" (2011, 140).[4] If entropian perspectives tend to emphasise the natural tendency of systems to decay, degrade, and move towards disorder over time, it is natural that systems of the past are no longer up to the task of facilitating extropia.

In addition to the idea of progressing forward, there is also a vertical metaphor implying the notions of ascending or elevating. FM-2030's philosophical and political conception of transhumanism is instructive in this regard (cf. 1989), as it is based on the concept of "Upwing". Upwing is a new philosophical thrust aiming at transcending the left-right dichotomy and seeking answers to the challenges of the future, like those dealing directly with the achievement of physical immortality and space colonisation. It is based on four main guiding principles: Optimism, Abundance, Universalism, and Immortality (cf. 1973). According to FM-2030, utopianism has become too modest because the modern world evolved significantly. He ascertains that "Up-Wingers are beyond utopia — beyond the most utopian

[4] More's association of the concept of utopia with stagnancy and inertia should be critically examined. There can be a conceptual richness contained in the concept of utopia that is totally opposed to those ideas.

dreams of the most utopian philosophers" (1973, [unpaged; Part 3]). Again, we see the desire to strive to *elevate* humanity to higher levels of capacity and potential through the use of science and technology. It involves the pursuit of enhanced capacities, ultimately aiming for a posthuman condition[5] that transcends our current biological and organic limitations. Upwing embodies the idea of *upward progression* and the belief that humanity can and should constantly strive to reach higher levels of development.

Therefore, this first meaning of movement entails this future-oriented outlook that is deeply connected with the feelings of shame for our current (transitional) human condition, mainly our fragile organic and biological constitution. For example, an evident manifestation of this can be observed in the commonly used metaphor of our infancy. Its underlying claim is this: we are not yet the type of beings we have the potential to be, or the beings that we *really* are. Instead, there is an unexploited potential for human beings to become more than what we currently are, and the movement that really matters is that of transcending that quasi animal condition and boost our journey towards post humanity.

Unfortunately, transhumanists will claim, we are still in the earlier stages of our infancy. Nick Bostrom makes use of this metaphor in his *Letter from Utopia* (cf. 2008) to depict the current state of humanity in relation to its potential blissful future state. We are not simply told that the posthuman condition of our future Utopian selves is one in which we'll endlessly enjoy an ecstatic mixture of all the pleasures we can dream of and much more, but invited to become what we were always destined to be. As human beings, we were born destined to become posthumans, and are explicitly invited to take *action*; "[w]e are all dependent on you to make us real" (2008, 1), suggestively remind us our future Utopian descendants. Transformation involves action. After all, our biological, organic, human embodied existence is only a stage, but we are permanently evolving and transforming ourselves.

Still related to our infancy is the idea that we are like a child growing up. In his personal introduction on his website, Bostrom, who has elsewhere expressed his desire to become a posthuman when he grows up (cf. Bostrom, 2014a), writes that

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[5] The "transhumanist posthuman" is fundamentally different from the "posthumanist posthuman". A useful and schematic distinction between these and Transhumanism and Posthumanism can be found in a 2014 collection of texts on "Post- and Transhumanism", anthologised by Robert Ranisch and Stefan Lorenz Sorgner. While transhumanism of the kind presented in this thesis is a rather coherent set of techno-optimistic views with its roots in classical humanism and deeply committed to the Enlightenment project, posthumanism remains a highly ambiguous notion that serves as an "umbrella term for a variety of positions that reject basic humanist concepts and values" (Ranisch & Sorgner, 2014, 8). Transhumanism emerges as a contemporary renewal of the project of Enlightenment and embraces the values of reason, humanism, individualism, and the belief in progress and human perfectibility. Analytical philosophy, the liberal and utilitarian traditions, and the biosciences are the main academic areas in which we can see the burgeoning development of transhumanism. Posthumanism, on the other hand, is mainly affiliated in postmodern and the broadly conceived field of Continental philosophy, critical theory, feminism, and cultural and literary studies and criticism, among other related areas. It breaks with humanism and questions "persistent concepts and dualities in Western culture, such as nature/culture, man/woman, subject/object, or body/mind" (Ranisch & Sorgner, 2014, 8).

> [w]e're set on a journey that can ultimately take us into whole new realms of wonderful ways of being, thinking, feeling, and relating to each other. Some of our finest dreams can come true. In order for that to happen, we must grow up, and that may entail shedding some of our current biological limitations. I hope that as many as possible of us who are currently alive will get the opportunity to truly grow up and experience life as it should have been all along (Bostrom, n.d.).

Using the same metaphor, Gregory Stock, in a paper written for a BBC debate on designer babies, sates that "[t]he human species is moving out of its childhood" (2014), and that our scientific and technological powers over nature are growing rapidly. Stock concludes that "we have begun to play god in so many intimate realms of life that we could not turn back if we tried" (2014). Similarly, the philosopher and futurist Max More states that "[h]umanity must not stagnate to go backwards to a primitive life, or to halt our burgeoning move forward, upward, outward, [which] would be a betrayal of the dynamic inherent in life and consciousness. We must progress on to transhumanity and beyond into a posthuman stage" (1996).

This analogy of infancy in transhumanism can be related to Immanuel Kant's well-known definition of Enlightenment:

> *Enlightenment is human being's emergence from his self-incurred minority*. *Minority* is inability to make use of one's own understanding without direction from another. This minority is *self-incurred* when its cause lies not in lack of understanding but in lack of resolution and courage to use it without direction from another. *Sapere Aude*! Have courage to make use of your *own* understanding! is thus the motto of the enlightenment (1999, 17).

Transhumanists see the current state of humanity as one of immaturity and, as Kant urges individuals to take responsibility for their own understanding and reasoning, so too transhumanists urge us to seize control of our evolutionary future. Of course, this is no surprise, since transhumanists are happy to declare themselves heirs to a long tradition of thought that reaches its pinnacle with the Enlightenment project and the belief in the progress and perfectibility of humanity (cf. Bostrom, 2005).[6]

[6] In this context, the concept of perfectibility naturally directs our attention to the works of Jean-Jacques Rousseau. A closer examination of this concept will be conducted in chapter 3.

As an ideology streaming beyond humanism — in fact intensifying it —, its supporters are also acute to lay emphasis on their commitment to secular rational humanism and often quote the Renaissance philosopher Giovanni Pico della Mirandola's *Oratio on the Dignity of Man* as a seminal work of reference to underpin their narrative. His proclamations regarding the role God ascribed to humans are instructive and worth quoting at length. Addressing Adam, God says:

> We have given to thee, Adam, no fixed seat, no form of thy very own, no gift peculiarly thine, that thou mayest feel as thine own, have as thine own, possess as thine own the seat, the form, the gifts which thou thyself shalt desire. A limited nature in other creatures is confined within the laws written down by Us. In conformity with thy free judgment, in whose hands I have placed thee, thou art confined by no bounds; and thou wilt fix limits of nature for thyself. I have placed thee at the center of the world, that from there thou mayest more conveniently look around and see whatsoever is in the world. Neither heavenly nor earthly, neither mortal nor immortal have We made thee. Thou, like a judge appointed for being honorable, art the molder and maker of thyself; thou mayest sculpt thyself into whatever shape thou dost prefer. Thou canst grow downward into the lower natures which are brutes. Thou canst again grow upward from thy soul's reason into the higher natures which are divine (1965, 4-5).

The idea that we have an intrinsic desire to transform ourselves and that we are free to do so according to our rational judgment runs deep in the transhumanist worldview. It is, naturally, essential to the notion of movement I'm discussing here. At its deepest, the essence of this movement comes down to a conflict between the determinacy that Nature imposes on us and the will for indeterminacy that is at the core of our being. The necessary movement, or transition, entails departing from Nature's determinacy and progressing towards complete indeterminacy. Figuratively, if not Gods, our endeavour should be to transform ourselves into the godlike creatures whose blueprint we already possess.

In other words, not only humans are "confined by no bounds", as they are also responsible for fixing the limits of nature. To enhance ourselves is, like stealing the fire from the Gods, to act according to our nature. We cannot forgo the opportunities emerging, converging, and disruptive technologies provide us with to enhance ourselves. That would not be a "characteristically human" mode of action (Stock, 2003, 2). Accepting the determinacy of Nature manifested in in our biological limitations and the confinement to our frail physical bodies, goes against what is inherently human.

As for this first understanding of movement, we are left with a dynamic (extropian) and future-oriented notion that compels us to take action to transform ourselves. Metaphors like those of moving forward, moving/growing up, seize control of our evolutionary future, stealing the fire from the gods, and the like indicate the teleological, eschatological, and religious nature of transhumanism. In this context, the notion of movement is primarily linked to the modern concept of progress.

ii. Transition;

If transhumanism is all about movement, it is also all about transition. It is the notion of transition that better defines the essence of transhumanism. Etymologically, the prefix trans is derived from the Latin word "trans", meaning "across", "beyond", or "over" (Hoad, 1996, 501). Transitional beings are on the move, as the various metaphors above indicate. Our current state is transitory. The most common idea here is that we stand between animality and a posthuman stage, and that a gradual and voluntary process should be undertaken to radically transform the body. As Max More argued, as long as we are transitional beings, we will stand "between our animal heritage and our posthuman future" (1998). Note that, according to the conceptions of human nature mentioned above, this is a profoundly individualist understanding that regards the agent as a free, autonomous being whose essence is displayed in his act of choosing to be better (cf. Hurlbut & Tirosh-Samuelson, 2016, 8).

In his novel *The Transhumanist Wager*, Zoltan Istvan[7] makes this very clear: human life is all about an essential "choice between pursuing personal godhood or dust" (2013, [unpaged; ch. 10]). Qualities that only gods possess, such as immortality, omniscience, omnipotence, and omnipresence are the qualities that humans are destined to share as well once full mergence with ultraintelligent machines is possible. He further claims that the search for immortality and omnipotence, which characterise the transition to more advanced forms of human existence, will inevitably happen (cf. 2013, [unpaged; ch. 17]). Humans don't really get to choose their destiny, they have only to accept that Singularity is the destiny reserved for them.

Singularity translates the idea that a technological transcendence is necessary to achieve the final stage of human liberation from nature's determinacy. It is negatively defined with relative accuracy as the stage in which silicon replaces flesh as a carbon vessel for the mind, and the sufferings derived from pain, diseases, ageing, emotional dispositions, and death are no longer present. However, a positive definition seems harder to provide, as we see from Bostrom's rhetorical images of his techno-Utopia. We know what posthumanity is not supposed to be, but despite being told how this "technowonderland"

[7] Zoltan Istvan founded the U.S. Transhumanist Party in 2014.

(Linell, 2012) will probably look like, it will in all probability be different.[8] This is especially true considering the threats posed by manmade existential risks and, more realistically, our lack of control over the type of technologies transhumanists devise as necessary to achieve posthumanity. The only certainty is that our biological condition needs to be transcended. Singularity will thus be "heaven on earth" (Cady, 2012, 88).

It was Ray Kurzweil who defined technological Singularity as the "future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed" (2005, 24). An intelligence explosion (cf. Good, 1965) will be responsible for triggering the exponential growth of technological developments that will end in the creation of a superintelligence superior to human intelligence. The transformation of human life will be so radical that "there will be no distinction [...] between human and machine or between physical and virtual reality" (Kurzweil, 2005, 25), as these will have merged completely. The uploading of the human mind to a human-made machine is the most representative stage of posthumanity. According to Kurzweil, this is an inevitable outcome with a profound spiritual significance: "evolution moves inexorably toward this conception of God, although never quite reaching this ideal. We can regard, therefore, the freeing of our thinking from the severe limitations of its biological form to be an essentially spiritual undertaking" (2005, 284). The boundaries between the human and the divine are thus removed by the merging of humans and intelligent machines.

Once more, the eschatological nature of transhumanism is plainly visible here. But it has problems of its own. It is questionable that humans and human identity can be reduced to simple patterns of information, and subsequently digitalised and transferred to silicon-based devices. This would imply that our essence as individuals comes not from a consciousness rooted in the physicality and commonality of our bodies, but from a digital existence that renders us as patterns of pure quantifiable data ready to be uploaded into a machine with the goal of making us immortal beings. Hermínio Martins condensed this in the notion of the *ens virtualissimum* when addressing issues related to disembodiment and digital immortality (cf. 2011, 371).

Moreover, cybernetic, or digital immortality is still entirely dependent on human made hardware or artefacts. In this sense, "the transcendence depicted by transhumanists is no more than prolongation of a materially based human product" (Tirosh-Samuelson, 2011, 44). This reveals a self-contradiction

[8] There is an important epistemic constraint at work in this case. As Hermínio Martins explains, it is impossible to know what life will be like when Singularity is achieved. The level of intelligence present in a posthuman and post-biological state will be unintelligible to currently living humans. Singluarity is also the end of "intelligible times" (cf. 2011, 340-341). This also explains why our Utopian descendants admit that we cannot have but a glimpse of what their lives are like (cf. Bostrom, 2008).

operating at the heart of the transhumanist desire to overcome nature's determinacy: instead of reducing and completely supress nature, it is nature that expands itself and continues to determine human existence. Simultaneously, the notions of immortality and spirituality, which are central to traditional religions, are perceived in a fundamentally different manner within the context of digital immortality.[9] Humans are asked to usurp the role of God; Yuval Harari captured this insight quite clearly when stating that "new technologies kill old gods and give birth to new gods" (2016, 314).

Thus, transition entails another distinctive type of movement: *trans*cendency, *trans*ference, *trans*figuration, and *trans*substantiation. These four terms capture well the religious underpinnings of transhumanism, especially the advocated change of our flesh-based substance into a new, silica-based substance. They all convey the idea that before the inevitable "final hypervirtualisation", we will be cyborgs (*i.e.*, cyborgisised[10] beings progressively merging with machines) and only after the gradual suppression of our "meatware" or "fleshware" (cf. Martins, 2011, 119; 164) will we become "*entia virtualissima*" (cf. 2011, 370-371). Martins identifies here "three stages of universal progress" that evolve from the "*in vivo*" to the "*in vitro*" and, finally, the "*in silica*" (371). Michael Hauskeller says something similar. He names four different stages: 1) Illusionism; 2) Fortification; 3) Replacement; and 4) Displacement (cf. 2016, 65-71). The first two still deal with the organic as our main substance, while stages 3) and 4) aim at supressing it.[11]

From now, we seem to have an answer to the question "from what to what are we transitioning". The why is also partially answered: not only do we suffer from the evils imposed on us by the "enemies of the flesh", but there is an absolute rejection of the idea that all we are is biological beings confined

[9] Ted Peters concludes that cybernetic immortality as it is envisaged by transhumanists is utterly different and even incompatible with the type of immortality advocated in the Bible. In fact, the eternal life of the New Testament is not an extended life, and it requires physical death as a purgatorial cleansing to which resurrection follows. In this way, genetic enhancement to increase human longevity would still miss that part of the process to the renewal of the human being (cf. 2011, 173).

[10] In his work *Redesigning Humans*, Gregory Stock argues for a distinction between cyborgs and fyborgs. The distinction is one of boundaries. Cyborgisation involves physically incorporating machine components into our bodies, while fyborgisation achieves functional fusion with machines. Some instances of cyborgisation already exist, such as dental fillings or prosthetic limbs, but the physical boundary between our internal and external worlds remains relatively unchanged. On the other hand, the functional boundary between these domains has significantly blurred and shifted. Objects like hearing aids, eyeglasses, clothing, and telephones, though physically external to us, functionally become part of us, showcasing our growing fyborgisation. This transformation competes with cyborgisation and primarily relegates it to body repairs. In everyday life, we are already fyborgs. We rely on various technological enhancements (*e.g.*, phones, cars, and bank deposits) and we would feel diminished without these conveniences. Fyborgisation allows us to maintain our biological nature while embracing the benefits technology offers, and it is already a present reality, not just a concept for the future (cf. Stock, 2003, 25). But what transhumanists really seek is more than cyborgisation, as their goal is the total dematerialisation of our existence until the point that the categories of flesh and machine are no longer ontological realities.

[11] Hava Tirosh-Samuelson has developed an important work about transhumanism and religion (cf. 2014). This is not the place to look at this at length, but it's crucial to acknowledge this connection. It is particularly significant because prominent critics of human enhancement, such as Michael Sandel, Francis Fukuyama, and Jürgen Habermas, frequently draw on theological arguments to support their criticisms.

and limited by our physical bodies. The transhumanist belief is that we have the potential to transcend our current state and become much more than what we are today. Once determinacy is exposed as our *summum malum*, the logical and necessary move of the argument is to recognise that indeterminacy is only achievable with the radical suppression of all determinacy and that only a post-biological existence can deliver it to us. The argument is teleological in its essence. Determined materiality necessarily gives place to fully undetermined immateriality. In the next section, I'll look more closely at the relationship between determinacy and indeterminacy, as this is probably the fundamental contradiction at the heart of the transhumanist conception of our human nature.

For now, to close this point on transition as one of the most significant meanings of transhumanism, I'd like to highlight an additional potential outcome of this transitional movement. This is potentially the point at which the transhumanist ideology's perspective on the human body is most readily apparent. It is the idea that the body itself is a project. The term "project" itself holds considerable significance: etymologically, it indicates the ideas of "something thrown forth", as well as something that is an object of planning, drafting, or designing (cf. Hoad, 1996, 372). This is a topic that requires detailed discussion developed in the "form" and "action" sections below, as the transhumanist project concerning the body is, in essence, the most all-encompassing programmatic endeavour transhumanists put forth.

However, it is crucial to highlight several significant features that directly relate to the concept of transition as a *progressive* and *upward* movement. At the current moment, transition is one of the major imperatives of our age.[12] For transhumanism, the body is the prime object of transitioning, and transition needs to be accelerated (cf. Walker, 2011, 97).[13] Hence, the body is at the centre of a political discourse that makes it the object upon which we must act. The ones rejecting this thesis are, nonetheless, making the argument the other way around, consecrating the object body only to different political ends. The body, thus, appears as an object of certain relations of power, from which it constantly emerges as a

[12] The word "transition" (whether applied to climate, finance, digitality, or energy) has become significantly relevant in our days because of its connection to critical shifts and changes advocated by many social and political actors, especially of affluent societies. These shifts underscore the worldwide necessity to confront urgent matters like climate change, economic sustainability, technological progress, and energy effectiveness. Changes in these areas are viewed as vital for establishing a future that is more robust, just, and ecologically viable, thereby rendering the notion of transition exceptionally pertinent and pressing in the present global landscape. It also emphasises the idea that human beings should participate in collective projects transformative enough to ensure the future of our species. One of these areas of collective intervention is the transhumanist project focused on the body.

[13] Acceleration is another of the transhumanist imperatives. Max More defines the transhumanist mission as follows: "[t]ranshumanists seek the continuation and acceleration of the evolution of intelligent life beyond its currently human form and human limitations by means of science and technology, guided by life-promoting principles and values" (2011, 137). This rapid movement towards Singularity is, on More's account, a key element of extropia.

transformed subproduct. The body is a construction of power.[14] The "transhumanisation of culture"[15] also denotes that the construction of the body is part of a particular cultural project that interacts with other possible meanings of construction.

What I'm drawing attention to is simply the idea of construction. Especially, to the moral and ethical imperative that ought to guide that construction. Among others, the political construction of a transitioning body has deep impacts on identity, on how we think ourselves and others. But here, the term construction is key: I'm referring to it, at least, in its most basic sense, which is that of giving the body a form, shape, or appearance. Transhumanists, however, aim at eliminating that visible aspect of the body; it is a deconstruction of the body, really. Form, shape, and appearance are suppressed as categories that reveal the weaknesses of the body. Hence, the transhumanist construction of the body is, in fact, its total deconstruction or suppression.

Think of the internet of bodies, which is an interconnected network of wearable devices, medical implants, and other technological devices that are designed to collect, transmit, and analyse various types of bodily data (cf. Matwyshyn, 2019). Computer code and the human body merge and blend, making the body what Matwyshyn calls a "new technology platform" (2019, 81). The body becomes a receptacle on which technology acts upon. But, more definitively, it is a data pattern, or a bundle of living data from which information is collected. The body is monitored, placed under constant and permanent surveillance, its vital signals are transmitted, recorded, watched, analysed, measured, compared, regulated, adjusted. The body becomes the object that is constructed at a distance, it is a co-creation in which multiple human and artificial agents take a role. Although its monitoring and management is highly personalised, its construction will predictably follow a standard, either functionalist, hedonistic, aesthetic, or other. Bodies, in this sense, will acquire different value. To readapt Judith Butler's title, we will have *bodies that matter* differently depending on their construction.

Thus, the transhumanist deconstruction of the body is a construction. The existing body must be deconstructed at the same time that the desired, new body is constructed. What is at stake is a re-designing of the body and the human existence into a new form. The (de)construction is a deconstruction

[14] This is more evident, for example, in the emerging field of the internet of bodies.

[15] It was Michael Hauskeller who used this expression in a suggestive 2015 article intitled *A Cure for Humanity: the Transhumanisation of Culture*. In this article, Hauskeller was enquiring the "tendency to unquestioningly accept the enhancement-therapy identity thesis" (137). To this he called transhumanisation of culture. This idea accurately refers to the integration of transhumanist ideas and values into various aspects of society and human experience. Our cultural narratives, artistic expressions, ethical and political discussions, and societal structures all incorporate many of the key conceptual notions that were exclusive or limited to the transhumanist debate. This reflects the growing impact of transhumanist thought on how society views our human potential, and the role technology plays in shaping our lives. As these ideas become more ingrained in cultural dialogues, they shape the way people perceive themselves, their relationship with technology, and the very essence of our humanity.

of our physicality to render us non-physical beings. This idea of designing or re-designing the body is significant and it refers to the transhumanist project of radical control over nature. Vilém Flusser has argued that the intention (design) at the basis of all culture is "to deceive nature by means of technology, to replace what is natural with what is artificial and build a machine out of which there comes a god who is ourselves" (1999, 19). The notion of transforming humans, along with their inherent animal vulnerabilities, into God-like beings through cunning and skilful methods aptly characterises the entirety of the transhumanist project.

iii. Transgression;

The ideas of design, cunning, and artifice indicate that the human is a project to be constructed *against* Nature. Nature is deceived, challenged, controlled, and instrumentalised in an attempt for us to become totally independent from it. It is in this context that I refer to a third potential interpretation of movement to characterise transhumanism: movement, in this sense, is necessarily *trans*gression.

Those opposing transhumanism clearly identify transgression as one of its constitutive features. Bioconservatives view the transhumanist agenda as a form of transgression primarily against nature, human nature, and almost all established ethical boundaries. For example, the manipulation or edition of the human genome can disrupt the natural order of things, lead to unintended outcomes, or undermine the fundamental values and meaning of human existence if it endangers or destroys the core elements that make us human. According to these authors, what makes us human diverges significantly from the viewpoint asserted by transhumanists.

For instance, Jürgen Habermas argues that among the possible unintended consequences of manipulating our human nature, one is that "we may no longer see ourselves as ethically free and morally equal beings guided by norms and reasons" (2003, 40-41). Altering our inherent "natural" state or reshaping us into edited beings would result in a loss of our humanity. The idea that de-humanisation necessarily ensues from the "genetic programming of human beings" and leads to a "future bondage of the living to the dead" (2003, 47-48) is something I will return to later. For now, it suffices to say that, at many levels, it is doubtful that this is so. From vaccination to cochlear implants or bionic prosthetics, these interventions can be understood as promoting individuals' flourishing more than their de-humanisation. Additionally, it seems hard to justify that the lack of consent from future people is reason enough to forbade genetic interventions, and it is even harder to see how these interventions will exclude "the future person as a member of the universe of moral beings" (Habermas, 2003, 79). If gene editing can be used to enhance cellular immune responses in the context of treating cancer, what reasons would

we possibly have not to count this person among our moral equals, as having the same ethical freedom and equality as ourselves?

Michael Sandel shares many of Habermas concerns. His worry is centred on the idea that the act of "designing" children might push us towards the edge of seeking children who embody the concept of perfection. To Sandel, human enhancement represents "a kind of hyperagency, a Promethean aspiration to remake nature, including human nature, to serve our purposes and satisfy our desires" (2004, 26-27). Transgression becomes evident in the "drive to mastery" that will make us miss and even destroy the "appreciation of the gifted character of human powers and achievements" (27). In these terms, human enhancement is dehumanising in a double sense: first, it is a hubristic attitude towards the giftedness of life by means of which enhanced people would have the grounds of their human dignity and nature undermined (*i.e.*, they wouldn't be fully human because the *naturalness* in them was tampered with); and second, it possesses the potential to bring about an ethical division causing certain individuals to fail in acknowledging others as complete moral equals (*i.e.*, enhanced and unenhanced would not participate fully in human nature).

To Francis Fukuyama, there is an undefined and unquantifiable factor, "Factor X", that contributes to human flourishing and the richness of human life. To change human nature, or "factor X", ultimately endangers our human dignity and equality, and undermines the very foundations of liberal democratic societies (cf. 2002, 149-150). While technology and science can enhance human capabilities, there's an intrinsic value in the unpredictability and unquantifiable aspects of human existence that should be preserved. To pursue extreme technological enhancements could risk diminishing these elements that make human life meaningful and valuable beyond mere utility. This is why Fukuyama claims that transhumanism is the world's most dangerous idea: it proposes to strip us of our humanity and, consequently, of the normative foundation of our human rights and intrinsically valuable goods like freedom and equality (cf. 2004, 42-43).

Hence, transhumanist goals and aspirations breach fundamental boundaries that define the human condition. On bioconservative terms, seeking to enhance human capacities to an extent that surpasses the natural limits of biology and evolution is a form of transgression against the intrinsic attributes of human nature. This viewpoint is rooted in a concern for the potential consequences of manipulating human biology and the belief that such manipulation disrupts the inherent order of life. So, if the Promethean mythological narrative of defiance and the pursuit of knowledge carries deep resonance with the key elements of the transhumanist philosophy, bioconservatives find themselves at the opposite end of this outlook on life. "Prometheus sought adventure, faced danger, and crossed boundaries, which

led to civilization and technological progress" (Franssen, 2014, 78). But to bioconservatives, "[a]n appreciation of the giftedness of life constrains the Promethean project and conduces to a certain humility. It is, in part, a religious sensibility. But its resonance reaches beyond religion" (Sandel, 2007, 27).

As the humanist Pico della Mirandola already suggested, human beings possess the inclination to exceed limitations, to continually push toward greater perfection and divinity; "[i]t is in our very essence to transgress boundaries [...] This belief is also at the core of transhumanism. Scratch a transhumanist and you will find a humanist underneath" (Hauskeller, 2016, 20). Therefore, transhumanism appears as philosophy and worldview characterised by dynamic movement. This concept of movement forward and upward reflects, as we saw, the departure from the belief in the return to a Golden Age, displaying the modern and humanist roots of transhumanism, its belief in scientific and technological progress to ameliorate the human condition and transcend its current limitations. Furthermore, movement involves the ideas of transition and transcendence: our current biological and organic constitution doesn't reflect the type of beings we really are. Our limitations can be overcome if we progressively merge with technologies until our determinacy from nature is completely overcome. Finally, movement is always a transgression in the sense that it challenges established boundaries, pushing the limits of what is considered ethically, morally, and biologically acceptable. Only by the disruptive transgression of our natural determinacy through technological interventions can we become the beings we were always meant to be.

If these examples were not already sufficient, the ethics of transhumanism offers us further evidence of this desire to challenge boundaries, embrace risks for rewards, and in general, to exceed conventional notions of what is considered acceptable, secure, and good.

In a 2014 book, Steve Fuller and Veronika Lipinska argued for the adoption of a proactionary principle that ought to replace the precautionary principle in guiding policy-making and scientific and technological research and development. The proactionary principle was originally formulated by Max More (cf. 2004) as an alternative ethical principle that overcomes the allegedly limited and biased nature of the precautionary principle against technological progress because of the restrictions its risk/benefit trade-off entails. By contrast, the proactionary principle is less restrictive for the decision-maker and the researcher as it prescribes that greater risk should be accepted if the prospective benefits of the research and development of new technologies promises good outcomes. Basically, the proactionary principle is more responsive (although as biased as the precautionary principle) to the scientific and technological progress that transhumanists wish to bring about with fewer or no restrictions on the development of

stem cell research, regenerative medicine, genetic edition, and other types of human enhancement techniques.

Curiously, Fuller and Lipinska's *The Proactionary Imperative*, which has the suggestive subtitle *A Foundation for Transhumanism*, serves as an example of the philosophical, religious, and mythological foundation that underpins the ethical discourse surrounding human enhancement. For example, in the opening pages of the book, the authors assert that humans have qualities that have historically distinguished them from other creatures, "which amount to our seemingly endless capacity for self-transcendence, our 'god-like' character" (2014, 1). Like Savulescu and colleagues, Fuller and Lipinska seem to adhere to the view that to be human means to choose to be better and to autonomously transcend our current condition. If we are not prepared to embrace higher risks, including existential risks, in the pursuit of self-improvement, and to prevent inadvertently to "sleepwalk into a suboptimal future" (36), our contribution to the advancement of humanity, which carries significant moral importance, might be questioned. The proactionary principle that widens the ethical limits of what is permissible in scientific and technological research gives us also an opportunity for redemption. It allows us to become "martyrs of scientific progress" (Hauskeller, 2016, 170) by giving us the chance of giving our lives a higher meaning if we accept the risks and sacrifice ourselves for the sake of knowledge and scientific progress. As the authors claim, humans "are no mere part of nature; rather our existence gives meaning to an otherwise meaningless nature by serving as means to our ends" (99). We are left with a clear picture of the religious and mythological foundations of transhumanism conveyed by Fuller and Lipinska. And this substratum is by no means out of sight or covered by the kind of sophisticated ethical arguments like those used by human enhancement advocates. Fuller and Lipinska make their perspective unequivocally clear when they pose this rhetorical question: "what else could possibly justify transhumanism other than a literal belief in our own capacities for apotheosis?" (45).

c. Form;

We could say that movement has non-instrumental value to a transhumanist. Extropy, as opposed to entropy, specifically encompasses that idea. It is better to move than not to move at all because movement itself has a transformative capacity. But transhumanist movement is oriented towards a specific end, namely the increasing of our indeterminacy. And this can come in multiple forms, but one is the increasing of our morphological freedom. As it increases along the various stages of technological merging, so nature's determinacy decreases and human life comes close to be what it should have been all along. This transcendence is a liberation from the unjust burden of biology humans had to endure

before the possibility of becoming God-like creatures. To live like gods is, of course, what is expected from beings whose nature is the same as gods' and, in this regard, transhumanism is a liberation movement.

In this section, my concern is with form. But not specifically with the physical form that takes shape or structure and that gives a contour or outline to something or someone. I want to focus above all in human nature as the set of essential characteristics or attributes that define a particular entity or being. It is human nature that first gives a form to the human being. The physical form, which includes our biological and bodily composition, is a tangible manifestation of human nature. It reflects our genetic makeup, evolutionary history, and the physiological systems that enable our existence, but also our cognitive, emotional, and moral dimensions. Form emerges from the interaction between these factors.

Therefore, the transformation of the human form is entirely tied to the re-evaluation and redefinition of human nature. The ongoing debate between transhumanists and bioconservatives illustrates the process by which the transformation of human nature takes place in the discourse.

I've already mentioned that according to the transhumanist worldview, what we humans are at the present moment is far from being what we have the potential to become. Transhumanists claim that we are in the earlier phases of our growing process, and it is only by actively intervening in that process that we will become the type of beings we *really* are. Exactly how and what type of beings we will be in the future is part of the utopian narrative put forward by the advocates — or "prophets"[16] — of transhumanism. A fundamental part of this utopian narrative concerns human nature.[17]

The transhumanist perspective on what human nature is, its functions, and its normative roles, is rooted in a fundamental disagreement over two distinct interpretations of the term "nature". Transhumanists challenge the relation between what it means to have a *biological* human nature and to have an *essential* human nature. They call into question the idea that our biological human nature

[16] Hava Tirosh-Samuelson adopted this suggestive term to refer to three British scientists that in the early 20th century articulated a series of secularist visions regarding the future of the human species that, to a large part, are a source of inspiration for the transhumanist project developed later, especially in the last four decades. The "three British prophets of transhumanism" are Julian Huxley, John Burdon Sanderson Haldane, and John Desmond Bernal (cf. 2012, 55-82).

[17] Some, like Hauskeller, understand human nature both as utopia or myth. On the first account, existing definitions of human nature perform the role of miniature utopias: "they indicate a place that does not (yet) exist but that might and should exist in the future" (Hauskeller, 2016, 47). On the second account, "human nature is a myth" in the sense that "each attempt at defining what we are is the telling of a story that implicitly or explicitly claims to be of prime significance for the way we ought to lead our lives" (48-49). I believe the understanding of human nature as myth is more fruitful to our analysis than to conceive human nature as utopia. The problem with the first account is not only the bold claim that human nature "does not (yet) exist", but more decisively the assumption this claim conveys and that seeks to compare human nature to the construction of a perfect commonwealth that might one day reach the pinnacle of perfection and require no more from us. This is not how transhumanists view human nature. Also, it is seemingly inconsistent with a concept of human nature like the one I'll be presenting in the following chapters and that puts high emphasis on the incessant developmental essence of human nature. What human nature as a *topos* fails to grasp is that there is no completion or consummation of human nature, and no place to arrive at, only the continuous development and realisation of trans-historical essential human capacities.

imposes normative boundaries that, if crossed, endanger our human dignity. At the same time, they claim that to change our biological human nature is the utmost expression of our essence as free, rational agents, which are the constitutive fundaments of our human dignity (cf. Weiss, 2014, 185).

Above, I provided a brief overview of the three primary conceptions of human nature endorsed by transhumanists: the malleable, half-cooked conception of Bostrom, the Promethean conception of Stock, and the autonomous self-betterment conception of Savulescu, Foddy, and Clayton. These three accounts of human nature are extremely interesting and challenging with respect to two main aspects, in addition to shedding light on the relation between the two conceptions of nature (biological and essential).

Let's focus on Bostrom's remarks. First, he presents us an unmistakably essentialist conception of human nature. What makes us human is the capacity to shape ourselves according to our own normative conceptions of what it means to be human. There is a perpetual desire to change and enhance our nature that is posited as an inherent and unchangeable characteristic that defines humans' continuous drive to improve and evolve, regardless of external circumstances or influences. Our humanity and our moral rights and dignity are grounded on that distinctively human capacity.

But as we saw, it is the concept of human itself that transhumanists want to revise. The fact that what counts as human today doesn't qualify as human tomorrow doesn't necessarily imply a loss of moral rights and dignity: presumably, at some point in the evolutionary process, a daughter with "factor x" looked at her mother who lacked "factor x" (cf. Harris, 2016, 48). By granting full moral status based on non-anthropocentric foundations, the sphere of moral rights and dignity expands rather than contracts. This enlargement aims to extend the boundaries towards the posthuman society. The aim of promoting posthuman dignity, Bostrom claims, is to defend "a more inclusive and humane ethics [...] that will embrace future technologically modified people as well as humans of the contemporary kind" (2005a, 213). Likewise, in his *Citizen Cyborg*, James Hughes emphasises that this inclusivity aims to "replace human-racism with personhood" (2004, 75) by granting citizenship to *persons* rather than *humans* (Hughes, 2004, 75). Cyborg citizenship grounded on intelligent personhood, not humanness, should be accorded to human-animal chimeras (humanimals), genetically engineered people, clones, robots, uplifted animals, and the like.

The second interesting and challenging aspect of Bostrom's remarks concerns the "half-baked" conception of human nature and the dualistic ontological framework in which it is grounded. It involves the interdependent relation between a material and an immaterial dimension from which a negative and a positive conception of human nature arise. This is a problematic feature for transhumanism as it ultimately renders external nature as a limiting boundary that puts obstacles to our baking that other part

of our human nature that remains *natural*, but over which we are increasingly gaining knowledge and control. And it is problematic because the visible facets of nature as our enemy inexorably manifest themselves in our corporeal existence. It is our organic body that is most affected by the relentlessness of nature: it ages and deteriorates, we lack control over its functions, it suffers from numerous diseases, and, finally, it expires and disappears. The limits these enemies set on what we can do appear as an ontological category: our true nature becomes evident when we realise that our abilities are limited due to the boundaries imposed on us by nature (cf. Hauskeller, 2016, 57). Consequently, nature needs to be overcome because, despite its ontological value, it is still the ultimate factor responsible for our determinacy. Since transhumanists conceive us as essentially undetermined beings (cf. Hauskeller, 2016, 78), it is only by progressively enhancing ourselves and dispensing with nature that we come to realise our nature and to live and flourish as the beings we really are.

Those according special significance to humanness usually stand against the project of radically enhancing human beings. Human, for these authors, has both a descriptive and a prescriptive dimension, as well as considerable moral weight attached to it. For example, one of Maria Kronfeldner's main concerns regarding the use of "human nature talk" is that, in its vernacular usage, it can lead to social discrimination and dehumanisation by rendering some individuals as more or less human (cf. 2018, 15-32). Politically, Kronfeldner argues, the concept of human nature "facilitates social inclusion and exclusion" as it regulates "who is us and who is them", by means of which some people are dehumanised (16). The slippery notion of normalcy involved in ascertaining whether one has all the qualities that are *normally* shared by all members of the human species has in the past served this purpose. It excluded non- Caucasians, women, and homosexuals by classifying them as degenerate, deformed, or deviant, lacking the necessary normal qualities to "participate fully in human nature" (Hull, 1986, 7).

As we saw, bioconservatives accord a special meaning to human as well as to nature. They raise concerns about potential negative consequences and highlight our limited moral comprehension regarding the impacts of altering human nature. Leon Kass, for example, mentions "what is natural, or what is humanly dignified" (2003, 17) to refer to those aspects of our *biological* nature that constitute what he calls our "given humanity". Our given human nature gets its meaning from the natural order, like the birth-death cycle and our biological condition, and it is this natural "giftedness" that imposes limits on what we can do to ourselves.

Nonetheless, Rebecca Roache and Savulescu (cf. 2016, 145-159) argue that bioconservatives have no sound reasons to object the enhancement of our human nature since the instrumental use of enhancement technologies can ultimately promote the improvement of the values they cherish the most.

However, in claiming that enhancement can be consistent with the values that underpin conservative ideas, these authors seem to miss the bioconservative fear of tampering with human nature. Even if human enhancement was safe, fair, and conducive to preserving traditional values based on accumulated wisdom, or in avoiding contemporary issues like hyper-consumerism, individualism, lack of religious beliefs, or environmental destruction, the bioconservative anxiety reveals a more profound concern. Human enhancement is seen as interfering with the natural order of things. Bioconservatives express this disquiet by appealing to intuition when arguing for the ban of human enhancement as they frequently face difficulties in rationally expressing these arguments. Both Kass and Sandel's positions have been heavily criticised, but they quite clearly reveal the conservative stance regarding enhancement. Kass says not only that there is something "disquieting about our attempts to improve upon human nature", but that in fact "[i]t is difficult to put this disquiet into words" (2003, 17). By making use of his well-know "wisdom of repugnance", or "yuck factor" argument, Kass claims that "initial repugnances are hard to translate into sound moral arguments" (17).[18] Sandel echoes this position by claiming that we lack the moral vocabulary and understanding to articulate our unease in the face of the rapidly developing scientific advancements in biotechnologies (cf. 2004, 9). According to him,

> [t]hat is why the genomic revolution has induced a kind of moral vertigo. To grapple with the ethics of enhancement, we need to confront questions largely lost from view in the modern world—questions about the moral status of nature, and about the proper stance of human beings toward the given world. Since these questions verge on theology, modern philosophers and political theorists tend to shrink from them. But our new powers of biotechnology make them unavoidable (2004, 9-10).

As such, despite Roache and Savulescu's claims that intuitions are numerous, subjective, and hard to harmonise, that things change and progress is made over time, that a desire to enhance particular traits (*e.g.*, intelligence, strength, or self-confidence) was always present in our culture, and even despite their attempts to blur the line between therapy and enhancement, ultimately, all their arguments seem to be sent off course. According to the bioconservative perspective, if playing God were to lead to morally right outcomes, it would still be considered morally wrong overall. The act of human enhancement,

[18] Kass' argument mirrors the classical Spenglerian concept of "ideas without words" (Spengler, 1934, 14). Spengler's formula refers to the core, non-verbal expressions of a culture's worldview and its deepest values. These need not be explicitly communicated through language, but are embedded in the culture's arts, religious rituals, myths, and other forms of expression. These unspoken symbols are the essence of a culture.

involving the alteration of the natural order, the rejection of the giftedness of life, and the openness to the unbidden, would not be justifiable, regardless of the moral righteousness of the desired outcome.

The challenge posed by transhumanists (as well as by personhood theory and animal rights advocates) aims at broadening the moral circle in order to recognise non-human persons as agents enjoying partial or full moral status that necessarily ought to be accorded different treatment and consideration *vis-à-vis* their current standing. This broadening of the moral circle is grounded on a non-anthropocentric personhood ethics. According to transhumanists, it represents a continuation of the humanist and Enlightenment ideals that, in Western societies, progressively granted full moral status to non-white peoples, women, or homosexuals (cf. Bostrom, 2005a, 210). George Dvorsky summarised this in affirming that "the expansion of rights continues to be a work in progress" (2017). In fact, the number of non-human animals (*e.g.*, higher primates, cetaceans, advanced artificial intelligence systems) that exhibit traits like self-awareness and intentionality, the ability to suffer, and the capacities to develop symbolic communication, to create, and to plan (cf. Hughes, 2004, 82-84), and that ask for inclusion in a broader sphere of moral rights corroborates Dvorsky's claim. Nevertheless, it is not clear what kind of moral treatment should be accorded to non-human persons like uplifted animals, human-animal chimeras, or AI. Whether they should be treated as humans, as animals, or something in between is an open question (cf. Hauskeller, 2016, 42).[19] A similar concern arises as to whether machines that possess a set of capacities resembling those of humans and non-human animals should be accorded moral status. If self-aware, sentient, conscious, and morally capable machines come to exist, the challenge they pose is that of ascertaining what kind of social and political rights they will have, given that they shouldn't be treated as property.

The essential of the quarrel between transhumanists and bioconservatives concerning the concept of human revolves around whether the moral circle should be enlarged to include non-human persons of the various sorts. When it comes to humans, and particularly human nature, the essentialist claims put forward by transhumanists are of paramount significance. Transhumanists assert that our humanity lies in our capacity to employ reason for the purpose of utilising applied science and technology to mould ourselves in alignment with our envisioned normative ideals of what human beings should become.

[19] Hauskeller mentions (cf. 2016, 52, n. 2) the 2003 article by Jason Robert and Françoise Baylis, in which they argue that the engineering of creatures that are partly human and non-human necessarily produces an "inexorable moral confusion" in the relations between humans and non-human animals. Despite voicing this concern, Hauskeller doesn't voice the transhumanist conceivable answer to this challenge: the persistent moral confusion can potentially be resolved through the creation of more inclusive legislation, aiming to accommodate the legitimate moral claims of engineered creatures. This approach would grant them full moral status, thereby establishing the foundation for their claims to equal citizenship. The answer to this problem is the purpose of Hughes' *Citizen Cyborg: Why Democratic Societies Must Respond to the Redesigned Human of the Future* (2004).

Despite its broadness, this definition synthesises the positions of Bostrom, Stock, and Savulescu and colleagues. Underlying it is the idea that we act to overcome our own natural limitations and to realise the possibilities we think we have as humans. In this sense, it is both a positive and a negative account since it depicts us as beings in possession of the necessary faculties to realise our possibilities, but also beings with biologically limited faculties. The only way of realising our possibilities is by permanently "stealing the fire from the gods" and assuming our role as neither mortal nor immortal, but the architects responsible for shaping us into divine creatures, as Mirandola foresaw (cf. 1965, 4-5).

The conflict between these two accounts arises from the naturalistic and dualistic ontology on which transhumanism is grounded and that considers humans primarily as animals capable of transforming themselves. Timothy Taylor and Anders Sandberg convey this idea by conceptualising humans as "artificial apes" (cf. Taylor, 2010) and "technological animals" (cf. Sanders, 2013).[20] Thomas Philbeck explores this problem and points to the fact that "transhumanism piggybacks humanism's dualist ontology" (2014, 179) consisting of a material and an immaterial dimension that transhumanists conceive of as being in a constant and necessary interrelation. External characteristics of the being, namely senses, technological artefacts, and the natural world are the constitutive features of the material dimension, while the immaterial one comprises characteristics such as agency, thinking, and one's notion of self as a subject (cf. Philbeck, 2014, 179). Posthumanists of the continental tradition typically criticise this binary structure that opposes body and mind, animal/human, male/female, or nature/culture (cf. Ranisch & Sorgner, 2014, 15-16). Katherine Hayles, for example, expresses sympathy for the idea of deconstructing the subject of the humanist and liberal tradition along with its dualities, but rejects the transhumanist desire to abandon flesh in favour of silicon, which is part of the latter's post-biological project. Hayles' nightmare, as she admits, "is a culture inhabited by posthumans who regard their bodies as fashion accessories rather than the ground of being" (1999, 5).[21] This idea of the separation of the mind from the body (something the posthumanist cannot accept) pervades the transhumanist worldview; it is its highest aspiration.

[20] Working in the hermeneutics and phenomenology traditions, Bernard Stiegler has also elaborated on the idea that human evolution and the development of technical artefacts, or "technics", are intricately intertwined. Stiegler's argument is that the evolution of human consciousness and culture is closely connected to the evolution of technical objects and their externalisation in the world, resulting in a process of invention of the human through technics (cf. 1998, 134).

[21] On the other hand, her dream, as that of most posthumanists, is one in which individuals embrace the potential and opportunities that NBIC technologies necessarily bring about but are able to dispense with the "fantasies of unlimited power and disembodied immortality" (1999, 5). Individuals need to recognise and accept their human biological condition, celebrate their finitude, and acknowledge and appreciate the fact of having their life embedded in the complexity of the material world from which our survival depends (5). Such a view starkly contrasts with that of transhumanists and their project not only of abandoning flesh, but of radically controlling nature in order to overcome it.

The transhumanist aspiration to profoundly prolong life and transform intangible aspects of existence is perhaps where the problem of form better comes to view. Although transhumanists enthusiastically advocate for physical enhancement, they view the amplification of physical abilities as a transitional stage only, the true aim being full displacement and the full eradication of our organic form; post-biology is the true goal. Again, we come across the project of deconstructing the physical being. What is distinctively ironic about transhumanism on this reagard is that this project can only be achieved "via material means such as DNA augmentation and bionic enhancement" (Philbeck, 2014, 179). The "naturally-baked" part of our human nature that is here described as immaterial is the part that transhumanists wish to act upon in order to finish the baking, to use Bostrom's allegory. Philbeck's conclusion exemplifies the transhumanist challenging absence of a coherent ontological foundation:

> [t]hey hope to extend the ontological categories that are part of the immaterial constitution of the internal moral agent, and at the same time they demonstrate that they realize that this immaterial realm is dependent upon, and not separate from, the external material world (2014, 179).

The most visible consequence of this dualistic ontological framework is the conflict between a positive and a negative account of human nature according to which what it means to be human entails two distinct meanings. On the negative account, to be human means to be at odds with nature, especially by virtue of the determination it imposes on humans, which is most palpable in the limits it sets on our possibilities as embodied beings. The organic body and the enemies of the flesh are the key concerns of transhumanists precisely because they hamper our possibilities of (progressively) becoming undetermined beings, and that is the reason why nature is a prime enemy.

For example, Allen Buchanan considers nature as a poor engineer, and makes his case for human enhancement based on the premise that our natural, organic fragility represents an existential risk. If we don't enhance ourselves, it is the continuance of the species that is at risk (cf. 2011, 160).[22] But nature, perceived as an adversary, manifests itself in a number of ways and is happy to lay bare human vulnerability. It hampers our freedom, security, and well-being every time we get sick and are not allowed to go to work and enjoy our lives, or in the loss of faculties that comes with old age and that ultimately results in death, or in the lack of control we have over our emotions, as well as the perceived lack of

[22] In the 4th version of the *Transhumanist Manifesto* published on her webpage, Natasha Vita-More asserts something similar: "augmentation and enhancement to the human body and brain are essential for survival" (2020).

intelligence and moral judgement we often experience (cf. Hauskeller, 2016, 57). Corporality, as the most palpable limiting condition to our freedom, is thus the primary target of transhumanists, at least because, given the current developmental stage of the technological means, it is also the simpler way to tackle the challenges posed by nature. To dispense with the body and favour a silicon-based organism that renders us undetermined at last is not yet feasible. Consequently, on this negative account and for transhumanists in general, biology cannot be the essence of humanity. If anything, biology is partly responsible for a "half-baked beginning" that we urgently need to change in order to achieve greater autonomy and our true essence. Biology is that material stuff with which our true form is filled. As Hauskeller rightly notes, transhumanists resent the gap there is "between what we want to do, or wish we could do, and what we actually can do due to the limitations of our bodies" (2016, 62). The only way to close the gap is by enhancing ourselves, by turning our bodies into machines that we can control so we can master (human) nature completely. Part of this project of control stems not only from the limitations our corporality imposes on us, but from what transhumanists perceive as a lack of purpose inherent to human biology.

Atop of its in-built fragility, the human body as the carbon-based vessel of the mind seems to play no other function than that of keeping us alive.[23] Even this apparently simple task is barely achieved, as Buchanan and other enhancement advocates suggest (cf. Harris, 2007; cf. Savulescu *et al.*, 2004). In the face of manifold competing existential risks, transhumanists recognise this as well (cf. Bostrom, 2003a; 2014a; cf. Hughes, 2004). The fyborgisation and cyborgisation of the body is an expression of the project of control over (human) nature that is determinant on the negative account. This process of control and transformation that occurs in various stages, from the more ordinary change of appearance (*e.g.*, the use of cosmetics or even cosmetic surgery) to the final stage of mind uploading, is part of the teleological essence of transhumanism. Nevertheless, we see that only the matter that fulfils form is changed: organic flesh gives way to synthetic silicon.

On the positive account of human nature, however, to be human means to acknowledge our Promethean nature, as Stock claims. The essential capacity to shape ourselves into better beings that nature posited in us in the first place is nature's basic manifestation indicating that we were always meant to go beyond our given limitations. On this account, the only determinacy posited in human beings, and which is human beings' true essence, is the need to change one's nature and form. We are determined

[23] This perspective overlooks crucial aspects and functionalities of the human body, arguably the most significant being its ability to provide physical pleasure. Pleasure plays an important role in transhumanist thought, as one of its pillars, along with freedom. But as part of their project of control, transhumanists seem to be committed to the idea that to depend on others to feel pleasure is dangerous for one's autonomy and freedom. As long as other people are autonomous agents with feelings of their own, they may stop having feelings for us and decide not to give us pleasure anymore. Dependency on others represents a danger to our autonomy and freedom, which opens the way to the idea of replacing human relationships by human-robot relationships.

to change ourselves and this seems to be the only kind of determinacy transhumanists can accept, as they are willing to put it as the human essence.

Our essential determinacy is observable in us fulfilling ourselves by pursuing the exclusively human possibilities of becoming undetermined. Even though it seems paradoxical, transhumanists seem to understand essential determinacy as a means to achieve indeterminacy. The human essence appears as instrumentally valuable in the face of what has real non-instrumental value, which is indeterminacy: it is the being-undetermined "that is regarded as intrinsically valuable and as being the normative core of human nature" (Hauskeller, 2016, 78). Currently, humans are still determined beings, but the prospect that emerging, converging, and disruptive technologies offers is that we will achieve greater indeterminacy as we transform ourselves. In fact, the humans currently living are less determined than those living five centuries ago or any others that lived in any past Golden Age. On this account, enhancements are instrumentally valuable because they enable us to reduce determinacy and increase indeterminacy. But because of their disruptive transformative potential, it could be argued that enhancements are non-instrumentally valuable as well and should be pursued in virtue of their own value, *i.e.*, beyond their practical outcomes or utility. Deciding which of these views holds greater accuracy is not my aim here and I'll return to it later.

So far, we see that two conceptions of (human) nature coexist within the transhumanist worldview, and that both are diametrically opposed. Hauskeller has thoroughly analysed this aspect of the debate and came to the following conclusion:

> [t]his opposition reveals a dualistic, very un-Nietzschean and almost Manichean idea of the human, according to which the body is to be understood as our "evil" nature, which we must seek to overcome, and the mind (and hence the will, which is informed by the mind) as our true, "good" nature, which we need to protect and nourish (2016, 83).[24]

While this conclusion provides a fair picture of what the transhumanist thinks, it seems possible to delve deeper into the consequences it bears on the consistency of the ontological foundation of the being and beyond it.

At some point, Hauskeller refers to Spinoza and to the *omnis determinatio est negatio* formula to say that "all determination is a limitation" (2016, 71). Hauskeller's point is that not everything is possible

[24] A significant portion of the ideas that Hauskeller presents with significant length in his *work Mythologies of Transhumanism* concerning this matter were previously addressed by him in a 2013 article titled *Human Nature from a Transhumanist Perspective*.

to human beings because our abilities are also limitations to our action: any ability that "enables us to do one thing might prevent us from doing other things" (71). Consequently, the transhumanist desire for omnipotence, or complete indeterminacy, in the sense of having no limits, "is an unwholesome fantasy", Hauskeller remarks (71). Nonetheless, the above formula attributed to Spinoza is in fact Hegel's own adaptation with a slight modification of Spinoza's original formula: *et determinatio negatio est* (and determination is negation) (cf. Melamed, 2012, 176). I believe Hegel's "every determination is negation" to be of extreme relevancy because, in introducing the categories of negation and self-negation, it enables us to go beyond the ontological dualism that didn't cope with self-negation as a negation of negation. The determinacy of something is possible only because it stands in opposition to something else. It also prompts us to enquire further beyond the apparently infertile, Manichean dyadic structure of a positive and a negative account of (human) nature by considering the possible triadic structure that results from the opposition of the finite and the infinite. The dialectical interpretation of the conflict at the core of the transhumanist ontology implies that both the finite and the infinite mutually negate each other. Nature as the material dimension which imposes determinacy on beings is finite and appears as a limitation or negation of the non-material and infinite dimension that the transhumanist identifies as the human mind. The determinate is a negation of the indeterminate, but the indeterminate is also a negation of the determinate; it is a negation of negation. For the transhumanist, this conclusion is intolerable because it means that indeterminacy would never be attainable. This results from transhumanists' narrow interpretation of the "every determination is negation" formula. On this narrower interpretation, only the mind, the immaterial dimension, is absolutely indeterminate, free of any limitation or negation, while the material dimension that constitutes our biology is determined and always remains as a negation of the absolutely indeterminate.

Transhumanists accept that "what is merely negation or determination of the infinite is not fully real" (Melamed, 2012, 177). That explains the insistence on the idea of a human nature as "work-in-progress" and that "[c]urrent humanity need not be the endpoint of evolution" (Bostrom, 2003a, 493). Again, what humans living today are is not yet really what they *essentially are*.

Because the transhumanist cannot accept that the infinite, the immaterial, is a negation of negation and, consequently, is itself determined, he adheres to Spinoza's restricted reading of the formula rather than Hegel's dialectical reading. For the transhumanist, the notion of infinite is free of any internal negativity; as Hegel claimed about Spinoza, so too transhumanists fail to realise "that the infinite is essentially a negation of negation" (Melamed, 2012, 181), not simply negation. Self-negating negation is intrinsic to the infinite because the infinite itself is infinite only because it negates what it is not.

Thus, the dialectical reading of the formula demonstrates that the transhumanist conception is half-finished in claiming that only the material is a negation of the immaterial. And even if by its very nature the immaterial presents itself as a negation of itself, the transhumanist is still certain that this negativity can be suppressed. What the transhumanist is not in the position to accept, though, is that the immaterial is what it is *only* in the presence of an opposing category that it negates. To accept this conclusion would entail that the material could never be dispensed with as the immaterial would be unable to find its essence. In other words, the claim that only the immaterial is indeterminate and real is a one-sided claim as it fails to acknowledge that both dimensions gain their existence from their necessary dialectical co-existence.[25]

The transhumanist concept of human nature is one that is built to serve a specific purpose: to sanction a project of radical control and mastery over (human) nature. I will delve into this project in the upcoming section titled *action*. As I tried to show, however, transhumanists fail to acknowledge that full indeterminacy as *unnature* (*i.e.*, not having a nature or a form, which is the true essence of posthumans) is unattainable because to be fully undetermined the posthuman would have to supress the category that gives indeterminacy (unnature or unformness) its substance. And of course, the transhumanist faces the additional problem of explaining in what ways his *in silica* ontological existence is independent of a material basis.

To wrap up this section, let me briefly highlight an additional dimension of the transhumanist perspective concerning the interplay between technology and human nature that reframes this picture and opens the way to the section in which I describe the project of mastery and control that defines the transhumanist worldview.

The essence of the relationship with nature that the transhumanist requires of human beings in order for them to fulfil their essence is one of a perpetual "challenging forth" of nature. If, as Heraclitus once said, "Nature loves to hide" (Kahn, 1979, 33), the transhumanist's greater goal is to expose it by all means necessary. The transhumanist is happy with attributing *phusis* volition, to personalise it in order to act on it and against it.[26] There is a substantive difference between older and contemporary technology,

[25] An additional challenge transhumanists face and that stems from their desire to supress the material dimension concerns whether personal identity can survive in the event of dispensing with the body. It is without surprise that we find transhumanists supporting "patternism", a position that "permits radical changes to the body and brain so long as the sense of continuity, the memory of a flow of mental states leading to the present, is maintained" (Hughes, 2013, 230). This is also one of the challenges implicit to the discussion of cyborg citizenship and the concept of human in the posthuman society, to which I alluded to in the beginning of the present section.

[26] As was compiled and edited by Hermann Diels and Walther Kranz, the fragment DK22 B123 is presented as follows: φύσις [...] κρύπτεσθαι φιλεῖ (Phusis [...] kruptesthai philei) (Diels & Kranz, 1996, 178). This infamous fragment was the object of much philosophical discussion, and many argued about

such that the latter's orientation to the world is no longer the type of bringing forth into existence and revealing defined as *poeisis*. The mode of revealing the kind of technological apparatus transhumanists joyfully celebrate is not sympathetic with the idea of revealing that occurs in nature and according to nature's own terms (*physis*), or the one that results from the kind of production the craftsperson and the poet take part in as active agents (cf. Heidegger, 2013, 10). These technologies set up a qualitatively different mode of revealing in that their specified purpose is to challenge nature, to understand, rationalise, quantify it, and use it as a resource to be exploited and exhausted. Heidegger described this process as an instrumental enframing of nature as a standing-reserve. The conclusion of this project is that humanity itself, in operating in this cycle, is transformed in a standing-reserve as well (26-28).

These two distinct technological orientations to the world challenge the transhumanist and pro-enhancement positions of a technological continuity regarding human enhancement. Considering this perspective, significant moral distinctions emerge between the act of consuming modafinil or a cup of tea, as well as between the type of foot enhancement achievable through a cutting-edge pair of shoes versus that attainable through gene editing. This will be the subject of chapter 2, but it is important to mention it here because it highlights the problematic transhumanist idea that only by recurring to these contemporary technologies that challenge nature can we enjoy life to the fullest. To bring forth something into existence is no longer sufficient. We need to challenge (human) nature, to transform it in standing-reserve, and to know how to use it in order to overcome our natural deficiencies. On this perspective, this is the underlying idea buttressing the arguments in favour of cognitive and moral enhancement according to which we are not prepared to cope with potential existential risks. The argument goes that if at least we were wiser and morally prepared, terrorism, famines, climate change, environmental destruction, and nuclear devastation would be successfully tackled (cf. Buchanan, 2011a, 158-161; cf. Persson & Savulescu, 2012).

The transhumanist revealing and bringing forth of human nature as something that is concealed and manifests itself in the course of human activity follows this understanding of technology. Converging, emerging, and disruptive technologies are not conceived as *poiesis*, but as "enframing", which is consistent with the scientific and technological project of control guiding transhumanism. As the transhumanist project is one of radical opposition to nature's determinacy, he cannot allow it to reveal itself in its own terms but must exert control over it. The scientific understanding of nature involving observation, measurement, quantification, and experimentation is an expression of that project of control,

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its possible meanings (*e.g.*, Plato, Hegel, Heidegger). For a discussion on whether *phusis* has a personalised meaning or not, cf. Graham, 2003; for a very stimulating analysis and reply to Graham's article, cf. Tor, 2017.

with science's omnicompetence as the belief that all problems can be solved and that "our continuing advancement to ever higher levels of existence and experience" (Hauskeller, 2016, 8) will be safeguarded at the heart of this project. As such, human nature cannot be allowed to reveal itself in its own terms. This would be a reminiscent of the "naturalness" in us, which needs to be suppressed because it is nature's determinacy manifesting itself, and indeed exerting control over us. Humans, on this understanding, must be rendered standing-reserve, at least until nature is not rooted out of ourselves completely.

Where Heidegger and the transhumanist agree is that "the essence of technology is by no means anything technological" (Heidegger, 2013, 4). They both recognise that the essence of technology lies in specific orientations towards the world, and transhumanism expresses one particular orientation, one that arguably constitutes itself as the uppermost expression of enframing. The project of control that conceives science and technology as instrumental to the process of transforming us into better beings is also ambiguous, as was Heidegger's notion of enframing. His quote of Hölderlin's poem suggests this ambiguity: "where danger is, grows the saving power also" (2013, 34). So, on the one hand, there is a danger in the challenging forth that puts nature as a resource, something that is visible in transhumanism as it intensifies the project against nature and the determinacy it imposes on human beings. On the other hand, the "saving power" inherent to enframing suggests that it is up to humans to acknowledge their responsibility for the world: "he [human being] may be the one who is needed and used for the safekeeping of the coming to presence of truth" (2013, 33). This idea that humans should watch over and preserve the world presides to the transhumanist concern with existential risks that threaten humanity's survival but, paradoxically, in no way divert them from the desire to challenge forth nature in order to supress its determinacy. In his 2014 book, Bostrom confirms this: "what is globally significant [...] the essential task of our age [...] our principal moral priority [is] the reduction of existential risk and the attainment of a civilizational trajectory that leads to a compassionate and jubilant use of humanity's cosmic endowment" (260). Julian Huxley meant it when he urged us to assume our "cosmic office" of continuing to steal the fire from the gods (cf. 1957). What is paradoxical about this is that the transhumanist seems to believe that only by supressing nature's determinacy can we watch over the world and preserve it. Wiser, good, emotionally self-controlled, and strong (*i.e.*, enhanced) humans seem to be potentially *more* fit to tackle contemporary challenges.

It then seems that full indeterminacy is an elusive goal. We are part of nature and responsible for it: "human reflection can ponder the fact that all saving power must be of a higher essence than what is endangered, though at the same time kindred to it" (Heidegger, 2013, 33-34). Where the transhumanist

sees a necessary conflict with nature because it stands in the way of full indeterminacy, we are compelled to understand nature as an irreducible part of our essence. Thus, "form" encompasses the framing of our perception of the world through technology and our interconnectedness with nature perhaps to a larger extent than the understanding of human beings defined as physical and biological beings. Form is equally, if not predominantly, a matter of knowing how the substance (*i.e.*, the biological material) will be acted upon and shaped in the milieu of public and political relations to bring about a cultural outlook that favours the creation of a new type of human being. Currently, this phenomenon is evident in the ongoing process of the transhumanisation of culture I mentioned above.

d. Action;

To act reports to the idea of setting something in motion. Transhumanism, too, has a comprehensive agenda whose main goal is to set in motion the radical transformation of the human being. This is not simply the transformation of individuals, but of the entire human species. In fact, as I will discuss in this section, the transhumanist worldview accords not only a very specific place to human beings in the world, but also to other living species. Animals, for example, are also subjects of the transhumanist project. Once we bestow the gift of reason to animals, these will be uplifted and finally become better than they currently are (cf. Hauskeller, 2013, 64).

I now intend to centre my attention specifically on this philosophical and political agenda. For this purpose, I will divide this section in two subsections. The first deals with transhumanism as a worldview and the mythological roots that infuse its current agenda, while the second deals with its problematic project of radical control over nature.

i. Worldview;

As presented here so far, we see that transhumanism is both a philosophy and a worldview (*Weltanschauung*). In a strict sense, as a philosophy, it retains the commitment to rational and scientific reasoning applied to the critical study of the current condition of humanity and how emerging, converging, and disruptive technologies are *transforming* that condition. Philosophy, as a non-integrated or non-unitary discipline, aims at producing particular and specialised analyses of different areas of thought, mainly ethics, aesthetics, and metaphysics as isolated subjects that refer to the same body of ideas but that can be tackled separately. Transhumanism contemplates the ethical implications of altering human nature, delves into the metaphysical questions surrounding the boundaries of humanity and species membership, and envisions the potential aesthetic changes that technology-driven transformations might bring about.

In a broader sense, as a worldview, transhumanism seeks to provide a comprehensive and structured explanation and rationale for fundamental enquiries such as "what is life and what is its purpose and meaning?", "what is the essence of existence and what constitutes human nature?", "what defines goodness and badness?", and "what characterises a fulfilling life and an ideal society?". In this sense, "[a] worldview is a comprehensive conception of all there is" (Bunge, 2010, 3).[27] On Wilhelm Dilthey's account, a worldview is an attempt "to provide not only a cognitive picture of the world, but also an estimation of what in life is valuable and worth preserving, and finally how we can strive to improve reality" (Makkreel, 2021). Hence, a worldview goes beyond simply providing a cognitive or intellectual picture of the world. It encompasses a broader framework that includes evaluations of what is valuable and worth preserving in life, and it conveys ideas on how to improve reality or human existence. It doesn't restrict itself to a descriptive role of understanding and interpreting the world, but, above all, passes value-based normative judgments about what is important, meaningful, and worth pursuing. Personal beliefs, values, experiences, and economic, social, historical, and cultural context all inform one's worldviews. What is morally good and bad, what is the right thing to do, and what our purposes are in life are tied to and rooted in one's worldviews, making them guides for practical action. It is in this sense that transhumanism can be considered a worldview.

Philosophy and worldview should not be treated as separate entities. Neither should they be completely identified with each other, as is the case with dialectical materialism, for example. Instead, my argument is grounded upon the premise that a worldview is the uppermost expression of philosophy. Fundamental questions like those just mentioned are the ones to which philosophy ought to seek and provide answers to. According to the classical model put forward by Albert Wolters concerning the relationship between philosophy and worldview, the model I'm following here is model b): "worldview crowns philosophy" (1989, 16). This is the model most congruous with the idea that the task of the philosopher should be to work on seeking answers to the so-called "big questions". As an alternative to compartmentalising transhumanism and examining it from various academic disciplines, this approach endeavours to maintain philosophy as a fully integrated and unified discipline. Mario Bunge calls this unification and integration of philosophy "an elaborate worldview or, if preferred, as a theory of everything"

[27] In his essay *On What There Is*, Willard Quine declared that the ontological problem is simple and comes down to the question "What is there?", to which there is also a simple answer that many will accept as true: "Everything" (cf. 1948, 221). There is an evident parallel between both definitions of ontology and worldview, as both definitions share the fundamental notion of encompassing the entirety of existence. But while Bunge's comprehensive framework recognises that a worldview encompasses what exists, how we know and understand the world, and the ethical and evaluative aspects of human experience, Quine's ontology, seems to focus primarily on the question of what exists, rather than how we come to know that things exist in the world.

that helps placing "every philosophical problem in a network of knowledge items, instead of tackling it as an isolated puzzle" (2010, 3).

Most transhumanist philosophers fulfil the aforementioned role of offering responses to the big questions. They advance thought-provoking considerations about the world and our place in it, about ourselves, what we are and what we could and/or ought to be (in fact, about what we *will* be), and about what kind of society is the most desirable. If, like Hauskeller claims, "[a]ll philosophies tell a story" (2016, 4) precisely about these matters, so too transhumanism *is* a story, and the more those telling it are able to infuse it with psychological, cultural, and spiritual significance, the more compelling that story becomes. The transhumanisation of culture of modern societies can be partly attributed to the compelling nature of the transhumanist worldview and the myths it utilises to communicate its responses to fundamental questions. These myths contribute to shape and influence cultural transformations. I believe Bunge's argument to be convincing: while the influence of philosophers might be negligible if they focus solely on small, partitioned, problems, it might be of considerable significance if they try to provide answers to the big questions (cf. 2010, 21). Because they often involve deep personal convictions about a wide-ranging number of matters, most significantly those dealing with the nature of individuals and society, answers to those questions are fervently disputed.[28]

As we saw already, the transhumanist worldview is deeply rooted in a specific understanding of human nature and much of the debate on the ethics of human enhancement is built upon its mythological substratum. In this context, mythology refers to the stories conveyed by transhumanists to support their arguments[29], from the myth of Prometheus to mythological figures like Gilgamesh, Icarus and Daedalus, or the medieval alchemists. All of them are used to convey a profound spiritual and cultural meaning,

[28] When one considers why is the transhumanisation of culture taking place — supposing that it is really taking place —, two related observations seem to be relevant, though others may be considered. First, it is possible that the transhumanist worldview with its set of stories on the nature of individuals and society is, for multiple reasons, more compelling and persuasive than other competing worldviews. Alternatively, perhaps most contemporary philosophers are not addressing the big questions, either because they're not interested in providing a worldview, or because they're working on very particular and specific problems that drive them away from the big questions. Bunge thinks the latter explanation hits the nail on the head: "most contemporary philosophers manage to ignore those big questions, for they prefer to work on flowerpots rather than in open fields" (2010, 4).

[29] This might suggest a potential connection between transhumanism and structuralist anthropological theory, as the latter emphasises the examination of underlying structures and systems that shape cultural phenomena, encompassing elements such as myths and symbols. But the mobilising myths employed by transhumanism serve more as fragmented narratives that aim at inspiring and motivate individuals or communities towards technology-driven objectives and ideals. These myths predominantly focus on analysing and endorsing technological progress, prioritising a future-oriented and highly individualistic approach. They do not extensively explore the underlying structures of existing collective cultural phenomena and their shared meanings, nor do they move beyond the exclusive influence of technology and how this single factor has and can shape our lives. Hence, transhumanism uses *some* myths as levers to its storytelling around technology and to give substance to the claim that we are technological beings destined to progressively merge with technology until our biological and organic determinacy is overcome.

appealing to images and ideas of what is good and worth fighting for, to hopes, fears, and beliefs concerning the human condition.

What is implicit in the transhumanist reliance on these myths is the recognition that the narratives supporting the responses to fundamental questions are not solely reliant on rational philosophical arguments. The dependence on a set of mobilising myths in transhumanism is fundamental, as these myths communicate specific evaluative judgments concerning what human nature and human life are. Likewise, they provide normative guidelines for achieving desired states or outcomes. In other words, they form the ideological narrative that will help set things in motion, that inspires its followers to act and transform what is given. In the words of Robert Fowler, "*logos* is tainted by *mythos*" and to try to isolate *logos* implies an infinite regression by means of which the distinction between both proves itself to be pursued by means of a faculty that is itself a "mix of *logos* and *mythos* in unknown proportions" (2011, 64). As Hauskeller rightly suggests, *logos* remains firmly rooted and gets its direction and purpose from *mythos* (cf. 2016, 4). So, not only the *mythos*/ *logos* dichotomy proves elusive, but myth serves a decisive function, as it does when framed in the transhumanist worldview: it provides "an imaginative way of shaping complex data into a structure of meaning" (Gillman, 2004, 104).

As these myths are beyond scientific verification, it is only by putting forward alternative and challenging myths that we can come across more or less compelling stories and answers to the big questions. The feeling that a transhumanisation of culture is taking place may owe its reasons to the fact that, presently, transhumanist myths enjoy a superior persuasiveness when compared to alternative myths. In addition, it is possible that the answers provided by transhumanism to the big questions align closely with the prevailing contemporary sentiments and beliefs regarding the nature of humanity and the ideal form of human life.

ii. Power and Mastery;

Transhumanism is a project of radical control over nature, and this is already present in its mythological roots. Its agenda actively pushes these ideas and tries to set in motion a radical transformation of the human being and the nature surrounding it, making use of the familiar Modern technoscientific vocabulary. But as before, this project will also prove elusive and contradictory: the human enterprise of conquering nature is the completion of a process in which it is the human that is being conquered by nature. Let's see how so.

For humans to conquer nature comes down to humans themselves being conquered by nature. C. S. Lewis, who conducted an enquiry into the meaning of the expression "Man's conquest of Nature"

(2009, 53), examined and revealed this paradox, and concluded that not only to control nature is an elusive and unattainable goal, but that our human status is threatened because human beings are the ultimate objects of the domination of nature. In opposition, transhumanists and human enhancement advocates challenge this understanding of our relation to nature, laying emphasis on the ideas of technical and scientific progress mentioned above.

Lewis' analysis starts with a fundamental question: "[i]n what sense is Man the possessor of increasing power over Nature?" (54). His answer points in the direction of the socioeconomic organisation of societies and the structures of power and property relations governing them, which constitute the specific conditions under which individuals have access to the supposed power that science and technology elicit. What is determinant to the relation of humans with this power is that it is contingent upon those specific conditions and, as such, it "can be withheld from some men by other men" (54). Sellers, producers, or proprietors can at some point limit the access to the scientific and technological means by which power over nature is exerted. The immediate consequence of this structure of relations is that the power over nature "is, in reality, a power possessed by some men which they may, or may not, allow other men to profit by" (54). Therefore, we can be the proprietors and exerters of that power, but we can also be its subjects, patients, or victims, particularly if we are the ones lacking the tools and resources to exert it. To Lewis, this was the necessary result of a particular structure of property relations that defined human power over nature as what it "always and essentially" is: "the power of some men over other men" (55-56). It is a power that is not shared by all individuals and one of which some or all individuals might be the victims of.

Now and in the foreseeable future, we face an analogous, and yet different challenge. The "intelligence explosion" Irving John Good alluded to in the 1960s and that will be engendered by the creation of the first ultraintelligent machine is paradigmatic. According to Good, the first of these machines can be "the last invention that man need ever make, provided that the machine is docile enough to tell us how to keep it under control" (1965, 33). Transhumanists are aware of this challenge, as is clear from their analysis of manmade existential risks. The relevant question today is not that the power humans have over nature is elusive because it doesn't correspond to a *de facto* power that is exerted by *all* individuals, or because that power can be used by some to control others. What's more decisive is that it is becoming progressively feasible to render humanity as a whole a victim of that power. Bostrom openly admits this, and as he affirms, "many of the gravest risks stem [...] from anticipated future technologies that we have only recently begun to understand" (2002, 4). George Dvorsky, on the other hand, claims that the coming into existence of superintelligence raises the possibility of it being capable of rising itself

up as the single decision-making agency in the world, a kind of "god-like AI [that] could covertly exert control over the human population" (2013; cf. Bostrom, 2006).

Despite their concerns with manmade existential risks, transhumanists cannot agree with Lewis' conclusion that the power exerted over nature ends up rendering us subjects or victims of one another. In fact, they believe it is the other way around, and in addition to their certainty that we need to develop further our capacities to exert power over nature as the only means to prevent existential risks (cf. Bostrom, 2002; cf. Persson & Savulescu, 2012), they also believe that it is only by exerting that power to its fullest potential that we will be free. As natural born transitional beings (cf. Pedace *et al.*, 2020), we are subjects and victims of nature and it is the power that technology allows us to exert over nature that progressively increases our freedom from nature's determinacy. The idea defended by transhumanists and human enhancement advocates that there is no possible distinction between therapy and enhancement stands on the basis of this assumption. The technological continuum expresses our ever-increasing gaining of control and exertion of power over nature through multiple techniques, and that is one of the reasons why those supporting this assumption see no relevant moral distinction between therapy and enhancement.

The intensification of our transhumanity and the ultimate goal of creating posthumans as persons of unprecedented physical, intellectual, and psychological capacities, capable of self-programming, and potentially immortal and unlimited individuals (cf. More, 1998) is the right step towards greater freedom from nature. In his defence of human enhancement, John Harris claims that we live in an age in which to make the world a better place we "will have to include not only changes to the world, but also changes to humanity" (2007, 3). The changes Harris envisages will result in humans being something more than humans. The case for human enhancement shows why transhumanists consider the power exerted over nature as beneficial and, all things considered, the trade-off between the possible dangers it brings and the advantages it confers favours the former.

The will to conquer and transform nature is only a manifestation of our Promethean human essence and our desire to be better: not only is it permissible to enhance ourselves, but "in some cases there is a positive moral duty to enhance" (Harris, 2007, 3). A practical example comes from embryo selection. Harris argues that there are relevant moral reasons to prefer to implant embryos with a genetic condition that confer immunity to diseases like cancer or HIV/AIDS and at the same time confer longevity if given the opportunity to choose. Such choice wouldn't imply that there was a problem with the quality of life of normal embryos or that such a life wouldn't be worth living (cf. 2007, 108). Yet, to have the opportunity of enjoying a longer life free from the suffering caused by severe impairing conditions and diseases

contributes to the possibilities we have to flourish as humans beings. In a similar vein, Jonathan Glover says that the reason why we want to defeat cancer is not because we disrespect people suffering from cancer, but precisely because cancer harms and brings suffering to those people (cf. 2006, 35). In this sense, we conquer nature to lessen or supress suffering, harm, and impairments imposed by nature.

The conquest and mastery of nature by scientific and technological means has always been a much-debated problem in the literature.[30] In its most basic sense, to conquer nature means to enter in a relationship with the natural world in which humans transform it so as to arrange for the provision of adequate material goods needed for human survival. Of course, the problems raised by the classical idea that humanity has an entitlement over nature are numerous, especially because of the destructive potential our current hyper-intensified struggle for existence is launching upon the planet (cf. Leiss, 1972, 165-166). But the apparently unpretentious idea that "[t]he purpose of mastery over nature is the security of life — and its enhancement — alike for individuals and the species" (Leiss, 1972, 165) retrieves an important dimension of our relation with nature of which Lewis is perhaps inattentive and that proponents of human enhancement and transhumanists are happy to push to an extreme. Food, housing, clothing, medical care, education, and labour as the goods we conquer from nature to promote human flourishing stand in a continuum from which emerging, converging, and disruptive technologies are an integral part as well. What's distinctive about new types of enhancements is the amplitude of their potential to enable "us to achieve certain effects that would otherwise require more effort or be altogether beyond our power" (Bostrom & Savulescu, 2009, 2). To drink a cup of coffee to boost attention and concentration, or to take a cognitive enhancer in the form of a pill, both pertain to the same realm of conquering nature, according to the transhumanist. If anything, they diverge only in the scale of control they allow us to assume over ourselves. On this account, transhumanists understand that we can flourish and live happier, healthier, and more meaningful lives because of the extended understanding and control we exert over nature.

However, in a relevant sense, what Lewis' analysis puts into question is the very notion of scientific and technological progress as a means to master nature. The inevitability of progress is a cherished idea for transhumanists, but they wish to go beyond the simple mastery of nature. Their project of power and control is guided by the idea that mastering nature is insufficient, or at least, that growing mastery over nature serves the non-instrumental valuable goal of suppressing nature's determinacy. Yet, due to the specific disposition of the structure of power and property relations in which power over nature is exerted,

[30] William Leiss' 1972 book *The Domination of Nature* is still one of the most comprehensive and insightful studies on the theme. More recently, Svetozar Minkov and Bernhardt Trout (2018) anthologised a number of essays specifically focused on the transition occurred in the early modern period that led philosophers to understand their task concerning nature as a practical project aiming at making human beings masters and possessors of nature, rather than dispassionate contemplators subject to it.

the increasing of that power stands in a correlation with the increasing of human exposition and vulnerability to that power. This is one of the consequences of the disposition towards the world adopted by the transhumanist and his approval of a continuous challenging forth and enframing of nature. The failure to assure the cooperation of the ultraintelligent machine can confirm the distress expressed by theologian David Tracy: "[w]e began as technical agents of our willful destiny. We seem to end as technicized spectators at our own execution" (1981, 352).

But Lewis develops his argument further to claim that control over nature is not only expressed in the power some individuals exert over others at a specific moment, but that it equally bears intergenerational consequences. According to Lewis, "[e]ach generation exercises power over its successors: and each, in so far as it modifies the environment bequeathed to it and rebels against tradition, resists and limits the power of its predecessors" (56). In this sense, the power exerted over nature expresses one possible way in which a generation seeks to gain control over its destiny. This leads to a clash between the past and the predetermination of the future (cf. Leiss, 1996, 196). Lewis' idea is that the purported increase of power and control humans exert over nature doesn't ineludibly conduct to greater liberation from nature, as the idea of progress suggests. To exemplify how a generation exerts power over the next, Lewis brings up the cases of eugenics and scientific education as tools that enable one generation to transform the next. Lewis' impression is that "all men who live after it are the patients of that power" (57). This position, however, is problematic and difficult to support. First, it gives us no account of what a free humankind, or at least a free first human being, is and when did we become victims of any power, and in what precise ways it expressed itself. It also echoes the "dehumanisation challenge" Kronfeldner referred to as one of the dangers of using human nature talk (cf. 2018, 15-32). When Lewis claims that both those conducting genetic experiences (the Conditioners) and those that are genetically modified "are not men at all" (cf. 62; 64), that the former "sacrificed their own share in traditional humanity" (62), and that the latter are "artefacts" (64), he is arguing that, in some relevant sense, they both lost their human status. Here, an obvious similarity echoing Hegel's dialectical analysis of the master and slave dynamic emerges. As artefacts, human beings can no longer be and act in authentic ways; authenticity has been robbed of us by those who conditioned us into being the mere products of their desire. The decision to play God and altering the meaning of "humanity" by conducting genetic experiences strips Conditioners of their humanity, while those that are genetically modified cannot be said to be proper humans because they were (partly) fabricated, just like artefacts produced by a

craftsperson. This is part of the argument of contemporary bioconservatives. As noted earlier, Habermas presents a similar argument, possibly reflecting his perceptive engagement with Lewis's ideas.[31]

Of course, it is hard to see why parents choosing to have children without specific genes that would otherwise result in them living with genetic disorders are less human or no human at all because of that choice. Even though there may be something valuable in the sense of belonging to the deaf community, or in living with Down's syndrome and having a good and meaningful life[32], there is also something "unethical" about not preventing these hampering conditions (cf. Hughes, 2004, 140; cf. Savulescu, Sandberg, & Kahane, 2011, 12). Jonathan Glover claims that it is "morally alarming" to deny full human status to someone who has had gene therapy, for example (cf. 2006, 82-83). Children whose parents have used pre-implantation genetic diagnosis (PGD) to select against cancer predisposition syndromes, for instance, would be artefacts rather than full human beings according to Lewis' strict notion. The additional challenge of ascertaining whether conventional education and therapeutics are ways of transforming children into artefacts along their growing process would ensue. This is analogous to the problematic enhancement-therapy distinction. Even though Lewis' concern seems to be directed at state sponsored comprehensive eugenic programs, his argument is unsatisfactory in explaining why Conditioners and, more significantly, those with an altered genetic make-up lose their human status. Should a liberal state endorse eugenic measures aimed at safeguarding and expanding reproductive choices, as proposed by Nicholas Agar in his *Liberal Eugenics* (2004), or enact a universal vaccination initiative to immunise its population against certain illnesses, it becomes challenging to argue that our humanity is under threat. It would be bizarre to claim that such actions would render doctors and those receiving vaccines any less human.

These insights are particularly challenging and relevant in the context of what Erik Parens and Josephine Johnston call our "age of gene editing" (2019). The advancement from the genetic engineering of the 1970s to the gene editing technologies inaugurated by CRISPR-Cas9 made it easier, cheaper, and safer to genetically intervene so as to alter specific traits of the human being in a way that would be far-

[31] While it's uncertain whether Habermas directly engaged with Lewis's work, it's worth noting that he was acquainted with Hans Jonas's ideas, particularly the concept of the "bondage of the living to the dead" (2003, 48), which he incorporated into his own arguments against enhancement. I'll look at this below.

[32] Michael Sandel opens his case against perfection by mentioning the case of Sharon Duchesneau and Candy McCullough, the lesbian deaf couple who wanted to have a deaf child. The couple considered deafness as a cultural identity, not a disability in need of a cure: "[w]e feel whole as deaf people and we want to share the wonderful aspects of our deaf community — a sense of belonging and connectedness — with children. We truly feel we live rich lives as deaf people" (cf. Sandel, 2007, 1). In an article published in *The Washington Post*, Jennifer Doudna, co-winner of the 2020 Nobel Prize in Chemistry with Emmanuelle Charpentier for their work on CRISPR-Cas9 as a method for genome editing, told that the mother of a child with Down's syndrome wrote her saying she wouldn't use gene editing technologies to change her child: "I love my child and wouldn't change him. There's something about him that's so special. He's so loving in a way that's unique to him. I wouldn't change it" (Achenbach, 2016).

fetched when compared to Lewis' idea of eugenics.[33] These technologies allow targeting specific stretches of DNA and to delete or paste new genes, although because of the little control we currently have over these technologies, unintended consequences may result from their use, or the intended results may not yet be possible (cf. Parens & Johnston, 2019, 2-3). Even so, if our understanding and control over gene editing increases to the level of the one we already possess over reprogenetics and the genetic makeup of children, for example, it is easier to see why Lewis considers that the next generations are patients or victims of the power exerted by their predecessors. Germline genetic interventions that pass DNA modifications to the next generations[34] quite clearly exemplify how morally contentious the extent of that intergenerational challenge is. As anticipated, advocates of human enhancement and transhumanists diverge from Lewis and bioconservatives in general as to the moral and ethical implications of germline genetic interventions. Fritz Allhoff, for example, argues that certain types of germline interventions are morally permissible "if and only if they augment Rawlsian primary goods, either directly or by facilitating their acquisition" (2005, 39). Harris, on the other hand, and adopting a quasi-libertarian approach, argues that "the overwhelming moral imperative for both therapy and enhancement is to prevent harm and confer benefit" (2007, 58). These problems will be addressed in the future chapters of this thesis.

In both these instances, enhancement is a "positive action", one that we have a moral obligation of choosing. This choice serves to avoid potential harm from befalling our progeny and future generations, while also enabling them to partake in valuable goods and activities. A "negative action" would entail that we should refrain from adopting germline genetic interventions and genetic manipulation of designer children and thus leave things as they are (cf. Harris, 2007, 79). According to Lewis, and contrary to the transhumanist intuition, to choose for positive actions will not make future generations stronger, but weaker: "though we may have put wonderful machines in their hands we have pre-ordained how they are to use them" (Lewis, 2009, 57). Negative actions, on Lewis' account, would thus mean to prevent the "omnicompetent state" and its employment of irresistible scientific techniques to shape humanity (60). If we do otherwise, "[w]e shall have 'taken the thread of life out of the hand of Clotho' and be henceforth free to make our species whatever we wish it to be" (59). This seems to be the final stage of the process of conquering nature, which Lewis fears is not far from happening. As he claims,

[33] Lewis was writing in the early 1940s, before the idea of eugenics came to be too closely associated with the Nazi experiences. Before that, during the earlier part of the twentieth century and as an intellectual inheritance of the Enlightenment, the promotion of eugenic goals was commonly accepted as a sensible way of allying scientific knowledge and social policy making. For a brief but thorough history of eugenics and its relationship with human enhancement, cf. Michael Selgelid's 2014 article *Moderate eugenics and human enhancement*.

[34] As opposed to somatic cell interventions that affect the cells that are not germ cells and that cannot be passed to next generations.

> [t]he final stage is come when Man by eugenics, by pre-natal conditioning, and by an education and propaganda based on a perfect applied psychology, has obtained full control over himself. Human nature will be the last part of Nature to surrender to Man. The battle will then be won (59).

The reader might be curious about the direction this seeming diversion is leading us. However, this deviation serves a purpose in illuminating the paradoxical nature of the project to control nature, in exploring the transhumanist discourse regarding power relations, and in delving into the agenda for transforming both human beings and their environment.

The idea that nature is everything which lies beyond our range of control, and which is not yet controllable reveals the paradox with which this section started. The reason why we reduce things to nature, Lewis argues, is to justify our desire to conquer them: nature is the name we give to things we have conquered, and we treat them accordingly, as things that were conquered and are now under our control (cf. 71). Therefore, the project to control human nature is one that reduces humans to nature because it reduces us to something controllable (cf. Hauskeller, 2016, 88). It reduces humans to standing-reserve. The more control we exert over ourselves, the more we recognise ourselves as nature, as natural objects, and raw material to be manipulated for the sake of exerting more power over nature, while at the same time enlarging the empire of nature. Lewis' conclusion is once again that our power over nature is both elusive and impossible, but more decisively, it is a power that is part of a project of *some people* who have the tools and knowledge to exert it. On this account,

> if man chooses to treat himself as raw material, raw material he will be: not raw material to be manipulated, as he fondly imagined, by himself, but by mere appetite that is, mere Nature, in the person of his de-humanized Conditioners (72-73).

This passage calls to mind the anxiety expressed by I. J. Good concerning the control the ultraintelligent machine can come to exert over humans and the fear that our desire to control nature can render us spectators as we become the object of control. In the present time, more so than during Good's days, artificial intelligence presents this same danger. But for Lewis, just like for critical theorists, the domination of nature is nonsensical because only human beings can be objects of domination (cf. Leiss, 1972, 122).

Some have argued that we should "wake up from the transhumanist dream" (Pedace *et al.*, 2020, 112), even though their intention was primarily to convey that transhumanism is more akin to a

nightmare. Pedace and colleagues' article doesn't introduce any novel insights, but it summarises well the idea behind the transhumanist project of control and why we should be aware of it. Their argument is that "we are not our mere biology" and that the transhumanist conception of human nature is "unacceptable" (2020, 129). As many posthumanists have demonstrated, we cannot be reduced to a bundle of categories that are chosen from a pre-established pool where each category stands in opposition to the next. Instead of the dichotomous nature transhumanists assign to us, we have it that we are "human animals, embodied minds, biological organisms coupled to objects created by us, biological organisms situated in cultural niches and involved in normative practices" (Pedace *et al.*, 2020, 129).

Hauskeller offers an intriguing example of the inclination to exert control over others by first exerting control over ourselves through enhancement. He refers to the enhancement of social competences facilitated by oxytocin. Vero Labs, who commercialises oxytocin, advertises it as "trust in a bottle"[35]: a product which is an "extremely efficient means to manipulate other people and get them to do what you want them to" (cf. Hauskeller, 2016, 89). The idea conveyed by the slogan "trust is power" is that once one sprays himself with the product, it will be easier to persuade others to do what we wish them to do. Of course, one must also assume that others can be using the same method of persuasion and manipulating us whenever it suits their purposes. Lewis would have sympathetically agreed with Hauskeller's conclusion: "[t]he more extensive is the control we have over the world, the more extensive is the control the world has over us" (2016, 90). The consequences of the widespread use of this and other enhancing technologies are numerous, but they seemingly serve the same purpose of extending a control over the world that ends up being a control that is also exerted over us. At all times and places, we can be the victims of the power we use to control nature.

Hauskeller's example is meant to give a picture of the ultimate and most extravagant consequences of pushing the idea of control over nature to its limits. We saw that similar consequences resulted from the duality determinacy/indeterminacy: if taken to its limits, no determinacy is permissible.

But we cannot fail to acknowledge that human enhancement advocates usually argue for enhancements that fulfil a different purpose than the one depicted in the example above. In the case just

[35] At the present moment, Vero Labs' website advertisement policy remains equally suggestive, describing oxytocin as the "miraculous molecule". One ad goes "More Social. More Connected. More You.", and another emphasises the guaranteed effects of the product: "Enhance Relationships. Strengthen Bonds. Improve Confidence" (cf. Vero Labs, 2020). Perhaps more suggestive is the fact that "Pet Bonding Oxytocin" is also available for sale, promising to help our pets feeling "more secure and confident in stressful situations", helping them "making new friends and keeping a stable and relaxed behavior before other animals and humans" (cf. Vero Labs, 2020a). Such uptlifting of our pets is illustrative of the human desire to supress nature's determinacy from animals as a way of enabling them to enjoy the type of goods we humans value and cherish, like friendship, trust, and self-confidence. Furthermore, the discussion consistently revolves around concepts of heightened capacities, improved future prospects, and increased authenticity *vis-à-vis* our current lack of all of these features in our unenhanced human (still too human) lives.

mentioned, enhancement using oxytocin appears as a way of improving one's position in comparison to his fellows; it is a way of gaining a competitive advantage using a positional good. Bostrom and Savulescu define these as goods "whose goodness for those who have them depends on other subjects not possessing them" (2009, 11). Similarly, Buchanan and colleagues (cf. 2000) argue that the enhancing of a positional good such as height would be "either self-defeating or unfair": first, if universally available, there would be no advantage to be gained as everyone would increase their height; second, if available only to the wealthiest, it would be unfair to allow them to be the only ones to have such an advantage. However, if height enhancement is used to treat extreme shortness induced by disease, these two objections wouldn't apply (cf. 2000, 155). This is also Harris' position: "I favor and defend enhancements as absolute rather than as positional goods. I defend them because they are *good for* people not because they confer advantages on some but not on others" (2007, 29; my italics). What these positions share is the belief that the moral justification for enhancements lies in their making the lives of all individuals go better in some relevant way. This, however, is not without difficulties, as it raises questions concerning economic efficiency, safety, well-being, and justice. It also poses an additional challenge: it seems possible to enhance goods that confer positional advantage but that have non-instrumental value as well, and there seems to exist a *prima facie* difficulty in establishing a clear dividing line between positional and non-instrumental value.[36] These are challenges that need not concern us here and I will be developing this in the forthcoming chapters.

Lewis' anxiety concerning the power that a class of individuals can exert over others by virtue of the structure of power and property relations in place can equally be mitigated by adopting democratic procedures of the kind James Hughes proposes for his democratic transhumanism (cf. 2004). Public regulatory agencies and social policies, namely those addressing concerns regarding how enhancements can exacerbate social inequality or posing health and safety related risks, can ensure that biotechnology as a way of controlling nature is used to increase human well-being. Human enhancement advocates aim to respond to Lewis' concern that the conquest of nature can be a means for certain individuals to exert power over others in this manner. They target the structure of power and property relations by advocating democratic regulation to guarantee fair access, safety, and funding (cf. Lin & Allhoff, 2008). On the other

[36] Peter Singer's example is illustrative of this:

> Suppose, for example, that we can find genes that correlate with doing well on IQ tests and scholastic aptitude tests used as part of the admission process by elite universities. Doing well on university admission tests is obviously a positional good. If everyone does better, the scores needed to get in will rise. If the tests are well designed, however, a good score presumably indicates an ability to learn, or to solve problems, or to write clearly and well. That sounds more like an intrinsic good, and an important one (2009, 287).

hand, they stress that what is of the utmost importance is not that humans become a controllable resource in the process of controlling nature, but that harmful and impairing conditions are diminished by the applied use of science and technology to promote non-instrumentally valuable goods. On their account, not all exertions of power result in Faustian bargains. This is the opposite of what Lewis claims.

An example of a non-instrumentally valuable good that human enhancement proponents are particularly eager to advocate is autonomy. The question of whether human enhancement endangers or fosters autonomy lies at the heart of the debate. For transhumanists, autonomy reveals itself as a problematic value with very distinctive features. The project of radical control over nature's determinacy entails that complete autonomy can only be achieved if human needs have been successfully supressed. One strategy to extend human autonomy is replacing full human relationships by human-machine relationships. One of the implications of this project is not only that human needs are to be suppressed, but that the *human* element itself as the source of those needs is to be overcome. Illustratively, in his 2007 work *Love and Sex with Robots*, David Levy, a prominent expert in artificial intelligence, contends that the advancement of sexual technologies will result in the normalisation of intimate connections between humans and robots. He expects this becoming a widespread practice by 2050. More recently, and in the advent of the market release of the first sexbots (cf. Mozes, 2018), Levy reassessed his book and considered further aspects of our possible relationships with robots beyond sex, including to love and being loved by them, and even to marry and treat them as life partners (cf. 2017). Levy's conclusions are illustrative and fit the transhumanist ambitions of total control:

> [b]y the time there are no laws to prevent human-robot marriages, robots will be patient, kind, protective, loving, trusting, truthful, persevering, respectful, uncomplaining, complimentary, pleasant to talk to, and sharing your sense of humour. And the robots of the future will not be jealous, boastful, arrogant, rude, self-seeking or easily angered, unless of course you want them to be (2017, 12).

Robots such as these are more than the mere sexbots that in 2012 Levy defined as serving the purpose of assisting "the user in achieving orgasm, without the necessity of having another human being present" (227). They are *social* robots fulfilling particular functions like personal care and companionship,

promising to establish meaningful relationships of an intimate and emotional nature with humans in the future (cf. Lin, 2012, 5-6).[37]

A bleeding-heart transhumanist like Hank Pellissier, who was managing director of the important Institute for Ethics in Emerging Technology (IEET), shares many of Levy's ideas about sexbots. But on his account, the emotional and relational aspects involved are weakened when compared to Levy's description above. According to Pellissier, these robots function more as tools rather than as companions with whom individuals seek to cultivate emotional bonds. Sexbots, and predictably all other social robots, are meant to serve us, not to replace other humans. The following statement by Pellissier is illuminating:

> [s]exbots will never have headaches, fatigue, impotence, premature ejaculation, pubic lice, disinterest, menstrual blood, jock strap itch, yeast infections, genital warts, AIDS/HIV, herpes, silly expectations, or inhibiting phobias. Sexbots will never stalk us, rape us, diss us on their blog, weep when we dump them, or tell their friends we were boring in bed. Sexbots will always climax when we climax if we press that little button on their butt (2009).

Pellissier's statement seamlessly aligns with the central theme of radical control that lies at the core of transhumanist philosophy. If one can command the robot's emotions, the power and control one exerts is extended. The robot is not autonomous. As such, emotions still have a role to play as long as we are able to control them. Human enhancement advocates, for example, propose emotional enhancement as a way of controlling one's emotions with pharmacological products like Prozac and others. Transhumanists display a different, more comprehensive, ambition. They wish to replace human relationships by relationships with artificial beings that have the possibility of being as enjoyable as and even more satisfactory than human ones (cf. Hauskeller, 2016, 181-183).[38]

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[37] Matthias Scheutz discusses how social robots are becoming an integral part of contemporary societies and already and increasingly fulfilling important roles in them. Scheutz is particularly concerned with "the potential for humans' emotional dependence on social robots" (2012, 205), which differs substantively from our current dependence from other technologies because of the emotional and relational dimension they have. The cases of robo-pets, robo-nurses, robo-therapists, and robo-companions that Scheutz lists as some of the most significant cases in which meaningful emotional relationships can be established between humans and robots (cf. 2012, 227) are also those that present the greater personal, social, and emotional challenges due to their deep personal and societal penetration. Scheutz concludes that the best way for robots not to manipulate and hurt us is "to endow future robots with human-like emotions and feelings" (cf. 2012, 218). But this conclusion, at least from a transhumanist point of view, is unacceptable because it fails to give us total control over the machines we create in order to serve and love us unconditionally. If they behave, feel, and think like humans, they *are* human, or at least they present the same problems humans present: they reduce our autonomy and freedom.

[38] Discussions on whether artificial persons are *real* persons in the sense of them being self-aware and self-concerned, and regarding the quality of the human-robot relationships and how these can be as good as or better than fully human relationships are abundant in the literature (cf. Lin *et al.*, 2012; cf. Cheok *et al.*, 2017; cf. Zhou & Fischer, 2019). Hauskeller discusses these questions at length with regards to the posthuman condition (cf. 2014; cf. 2016, 181-198).

More importantly, the true aim is the possibility of controlling other person's (or robot's) emotional dispositions according to our own biddings. The emotions of others are merely perceived as reflections of our own desires. Two main ideas guide this project: first, the idea that an emotional necessity such as love, for example, is part of the disease of being human and that our freedom and autonomy are curtailed because of our emotional dependence on others since they are autonomous beings whose feelings belong to them and may change at any time; and, second, the idea that as long as another free and autonomous being is present, we lack full control over ourselves and, because of that, our autonomy and determinacy are never absolute. The main problem for the transhumanist is that "[t]o have another human present is currently still a *necessity*" (Hauskeller, 2016, 196). Necessities infringe upon our freedom and the sought-after God-like self-sufficiency that transhumanists advocate for. Moreover, the existence of a significant relational dimension in our lives, which entails dependence on other autonomous human beings, further undermines both the desired self-sufficiency and our autonomy.

This exposes a paradox concerning the significance of autonomy. As was the case before with the radical control over nature, here, too, the transhumanist position is radical in its essence. The needs and desires of those with whom we establish emotional relationships limit our autonomy because the other autonomous person may decide not to satisfy our needs and desires anymore. The challenge confronting the transhumanist is twofold: either he finds ways to decrease the autonomy of others in order to increase his own, or he fashions a way that enables him to exert control over those with whom he relates. Social robots are a promising way of achieving total control, at least if there is no regulation in place prohibiting robot slavery or allowing robots to openly manifest their emotional states.

So, how can one achieve full autonomy? As previously observed, complete digitalisation is perceived as a method to attain complete detachment from nature's determinacy. However, it turns out to be narrow and self-contradictory, as our survival dependence merely shifts from the biological realm to technological devices.

An equally narrow and self-contradictory aspect of the transhumanist project of radical control concerns the enhancement of the cognitive capacities of non-human animals. Animal uplifting is a project that aims at giving animals the privilege of becoming autonomous beings. It's true that for the world to become a better place, it's the human that needs fixing the most. But the comprehensiveness – or benevolence? – of the transhumanist project could not left non-human animals behind. We have the moral obligation of fixing what is *wrong* with them (or *in* them). After all, animals, like humans, are disabled beings. James Hughes argues that "we have the same obligation to uplift "disabled" animal citizens that we have to disabled human citizens" (2004, 225). *Uplift*, we know it already, is a suggestive vertical

metaphor for attributing human-like qualities to animals. As the animal rights advocate George Dvorsky explains, "animal uplifting [...] is the theoretical prospect of endowing nonhumans with greater capacities, including and especially increased intelligence" (2008, 130). As a matter of fact, on Hughes' account, it seems that animals' lives are comparable to the Hobbesian account of life in the state of nature. Just like humans, animals can also be more than animals; they can be "transanimals", perhaps even "post-animals", free of nature's determinacy. Nature *in* animals, just like *in* humans, reflects the "immaturity and dependence" that condemns them and us to live in a state of "permanent childhood" and, worse, of mental disability. Consequently, we have the moral obligation of outstripping them of their animality; it is the animal *qua* animal that needs to disappear (cf. Hauskeller, 2016, 103). Our moral obligation to protect their well-being is what justifies the uplift imperative. In fact, Francis Bacon's account of the experiments conducted in Salomon's House already anticipated this uplifting that conduced to the creation of perfect creatures (cf. 1999, 179).

In the end, the transhumanist position concerning anthropocentrism remains highly ambiguous. In the *Transhumanist Declaration* it is stated that transhumanists "advocate the well-being of all sentience, including humans, non-human animals, and any future artificial intellects, modified life forms, or other intelligences to which technological and scientific advance may give rise" (Humanity+, 2013). Both Hughes (cf. 2004, 221-227) and Dvorsky (cf. 2008, 129) are clear that with the possibility of biologically enhancing non-human animals, we need to grant them full moral status and personhood and integrate them in the post-biological society of the future. On the other hand, it becomes clear that to be human is still better than to be animal, mainly because we are less dependent on nature; we are already transitioning our human condition, meaning that we are less subject to the determinacy of Nature than animals. As Robert Ranisch claims, "[e]ven though there might be no reason to preserve the human condition in its current form, most transhumanists are eager that posthumanity emerges out of humanity" (2014, 156). So, posthumanity as the state in which we will no longer be humans is a desirable end because it will free us, and it must also be desirable to non-human animals (even if they don't know it yet) because, as post-animals, they will surely enjoy the complex goods we humans already (partially) enjoy and those that are unknown to us yet. Overall, though, we find ourselves facing a profound leap of faith regarding the well-being of non-human animals, given our uncertainty about whether a state of post-animality genuinely serves their ultimate well-being.

In any case, it seems that one of the consequences of seeking to control nature's determinacy by supressing the *natural* from animals is the enlarging of the space of autonomy. Again, the project of "Man's conquest of Nature" proves to be self-defeating, more so if the chief purpose of uplifting is, in

reality, to guarantee a "post-biological future for human and nonhuman creatures alike" (Danta, 2018, 2). But because autonomy is a prime good, as important as pleasure, humans have an obligation to uplift animals (cf. Hughes, 2004, 225), perhaps to the point in which a dolphin gets a seat at the table of the United Nations assembly, as Dvorsky suggests (cf. 2008, 140). By enhancing the cognitive, physical, and emotional capacities of non-human animals, we act as the Promethean gods transhumanists think we essentially are; we give animals the fire of Reason. Because of the paradox of autonomy, only a post-biological existence holds non-instrumental value, as it is the sole form of existence that aligns with absolute autonomy. Initially, as part of the project of control, non-human animals undergo enhancement. This begins with scientific experiments akin to those Bacon mentions.[39] Subsequently, through the practical application of science and technology, non-human animals experience enhancement, characterised by the suppression of nature's determinism from their essence. The suppression of the animality that humans were unable to tame and master is the necessary step in order to make non-human animals rational and compliant agents. In this way, uplifting is one way of expanding human control over nature.

Considering all of this, it becomes more evident why Sandel says enhancements represent "a kind of hyperagency, a Promethean aspiration to remake nature [...] to serve our purposes and satisfy our desires" (2007, 26-27). Of course, for transhumanists, to be hyper-agents is an inevitable fact of our Promethean human nature. Yet, greater freedom to choose also leaves open the possibility of nature's pervasiveness as every choice may have its unintended effects. CRISPR technologies serve as an exemplification of the uncertain perils associated with what many identify as the transhumanist project of control.

But every cloud has a silver lining. In liberal democratic societies, for example, liberal eugenics promotes and extends the range of citizens' reproductive freedom in the sense that it gives parents the choice of selecting their children's characteristics (cf. Agar, 2004, 6). On Agar's view, parents don't have

[39] Bacon wished to enlarge "the bounds of Human Empire, to the effecting of all things possible" (Bacon, 1999, 177). He wished to learn from research and experimentation on plants and animals what could "be wrought upon the body of man" (1999, 179). We are told by Bacon, for example, of the remarkable scientific and technological achievements of the people of Bensalem. Considerations on how to improve the human condition are abundant throughout *Nova Atlantis*. The various scientific and technical experimentations conducted on plants and animals are undertaken with the purpose of exploring what could be achieved in altering the human body: "take light what may be wrought upon the body of man" (179). The paramount concerns of the scientific community of Salomon's House are the "preservation of health" and the "prolongation of life", but they certainly go far beyond that (cf. 177-178). The systematic and controlled "resuscitating" of dead animals and the creation of "perfect creatures" (179) are standard practices. Physical human enhancement is also praised as it allows humans to overcome the fragility of their biological bodies: "[w]e have some meats also and breads and drinks, which taken by men enable them to fast long after; and some other, that used make the very flesh of men's bodies sensibly more hard and tough, and their strength far greater than otherwise it would be" (180). No wonder transhumanist advocates so enthusiastically celebrate Bacon's techno-utopia as a work of reference and source of inspiration for their ideas on progress, science, and technology.

a moral obligation to enhance their children, contrary to what John Harris and Jonathan Glover suggest. Even so, Agar's liberal and pluralistic idea leaves open the question of what characteristics we should enhance, given his rejection that we should commit ourselves to a particular conception of the good. The sole constraint on the utilisation of genetic enhancement technologies is the preservation of our *real freedom*. This principle, though intangible, becomes evident when enhancing heritable traits today potentially encumbers the freedom of our descendants in the future. Even if we allow only the enhancement of somatic traits, enhanced people of the present will wield influence over societies in ways that will shape the freedom of future generations.

So, while reproductive freedom can be seen as a form of control, akin to Lewis' viewpoint, his assertion that genetically intervened individuals are objects, less human, or less free is clearly implausible.

The example of social robots also challenges the transhumanist project of control, as it brings to the forefront important moral and ethical considerations regarding autonomy and safety. Even though we can control social robots and make them serve our purposes and satisfy our desires, either by making them perform dull, dirty, dangerous, and dispassionate jobs (cf. Veruggio & Abney, 2012, 360), or to have them as companions for romantic or sexual purposes, these robots introduce new types of threats that were absent in earlier technologies. The integrity of our personal, emotional, and social lives is put at risk by our reliance and dependence on the relationships we maintain with increasingly human-like robots. This is another example of the ways in which nature's determinacy is always a pervasive feature of any project of human control over nature. Once more, it echoes Heidegger's claim that modern technology itself serves the purpose of transforming humanity into standing-reserve. To a certain extent, we end up being controlled by the very mechanisms we create to exert control. This thought expresses the idea that nature reveals itself in its own terms and that the only thing humans control is their orientation towards the world and the ways we think and act upon it.

e. Conclusions: What to be? What to do? Where to go?

To conclude this introductory chapter on the nature of transhumanism, I intend to provide a brief glimpse of the direction we are heading, considering the points that have just been discussed. Many aspects of transhumanism have not been fully addressed here due to both the economy of the text and the specific plan I have for this project. For example, I didn't focus on its aesthetics, and even its utopian, eschatological, and religious dimensions were only briefly touched upon. In any case, the diverse strands of transhumanism were presented here in a manner that provides a comprehensive overview of the essence of transhumanism, even though the literature offers various accounts of transhumanism.

In this thesis, my aim is not to study transhumanism at length. Instead, I want to introduce a perspective that I will call "human nature developmentalism". This account diverges from the transhumanism discussed in this text in several ways, yet it also exhibits certain shared characteristics. Furthermore, hereafter, I will shift my attention towards delving deeper into the ethics of human enhancement. Some who argue for the enhancement of our human capacities are not necessarily transhumanists. The moral considerations, principles, and values involved in genetic interventions to alter our human capacities need not be transhumanist in their essence. More importantly, despite its relative comprehensiveness, human nature developmentalism will focus only on three main tasks here. First, it will provide a consistent theory of human nature that will answer the question of what human beings are. Second, once that theory of human nature is established, my account will also encompass a theory of well-being, guiding our approach to human enhancement. Third, it will pave the way towards a counselling model aimed at assisting individuals comprehending and determining whether interventions align with their individual needs, and if these align with the broader requirements of the community of which they are members.

For now, it is sufficient to say that human nature developmentalism shares with transhumanism the idea that human nature is not fixed and immutable, but constantly actualised upon the existing material conditions. As a theory of well-being, it advocates that our goal as human beings is to flourish as purposeful creative agents, and that any intervention should be evaluated at the light of the well-being it brings to our lives. Lastly, there's a political dimension to my account, as it views interventions as integral to a societal endeavour aimed at improving individuals, their social environment, and society as a whole.

CHAPTER 2

An Enquiry Concerning Well-Being

a. Introduction

In this chapter, I'll examine how different accounts provide distinctive descriptive and normative approaches to human enhancement. I'll focus on the three main accounts in the literature: i) the augmentative account; ii) the "not-medicine" account; and iii) the welfarist account. My argument is that the welfarist account is superior to its rivals and adequately addresses relevant objections levelled against it, thus providing more reasonable answers to why interventions are valuable. Nevertheless, the welfarist account has problems of its own. It fails in providing a compelling explanatory and justificatory explanation for the project of human enhancement for two reasons: 1) it remains overly centred on individual perspectives and relies heavily on subjective notions of well-being, particularly hedonism and desire-fulfilment. As a result, this approach makes the concept of enhancement too broad, undetermined, and subjective, thereby failing in accommodating the dispersed ideas on what it means to be human that pervade the debate on transhumanism and the ethics of human enhancement; and 2) it fails in accounting for the problems resulting from the tension between the personal and the collective outcomes of enhancement, and gives the value of well-being no real ethical significance in defining the permissibility of enhancement and the outlining of public policies *vis-à-vis* other relevant values.

b. Different Accounts of Human Enhancement

In the same way that there is no consensus regarding a definition of enhancement, there are also different accounts or approaches to the project of enhancement itself, particularly of enhancing human beings. Human enhancement can be comprehensively defined as

> any kind of genetic, biomedical, or pharmaceutical intervention aimed at improving human dispositions, capacities, and well-being, even when there is no pathology to be treated (Giubilini & Sanyal, 2016, 1).

Different evaluative approaches elaborate further the meaning of enhancement and provide comprehensive frameworks in which it is discussed in relation to other principles and values.

In this section, I'll consider three different approaches: the augmentative account, the "not-medicine" account, and the welfarist account. Each of these reflects on the meaning and value of human

enhancement in distinctive ways. They also raise different ethical questions regarding whether enhancements should be (im)permissible or, in other words, whether we should use genetic, biomedical, or pharmaceutical interventions to improve human capacities beyond what we commonly take to be their *normal* range of functioning, although the claim for normality reveals itself problematic. Throughout the text, a significant ethical differentiation will emerge, highlighted by the fact that the initial two accounts under discussion will primarily emphasise functional enhancement — improving specific human capacities such as intelligence, hearing, or vision. Conversely, the third account will direct its attention to the moral aspect of human enhancement, focusing on enhancing the overall quality of a person's life (cf. Savulescu, *et al.*, 2011, 3).

So, the first two accounts are essentially *functionalist* accounts. Their chief concern is to determine in what situations an intervention can be properly termed as an enhancement as opposed to a treatment. This is particularly true for the "not-medicine" account, which is *naturalistic* in its essence, because it specifically aims at establishing very concrete thresholds to determine what is *natural* or *normal* about the physiological and biological constitution of human beings, and what is a healthy and/or diseased condition. Conversely, the augmentative perspective primarily focuses on the augmenting outcomes generated at the functional level and their effects on specific individual functions and capacities. This account doesn't need to establish functional thresholds as it prioritises boosting particular functions and capacities, irrespective of an individual's initial level of functioning.

Apart from the approaches to enhancement discussed below, which are among the most significant in the literature, there exist other perspectives aiming to establish a defining framework for the discourse on the nature and implications of enhancement. Savulescu, Sandberg, and Guy Kahane identify two other approaches. The first is the sociological pragmatic account, according to which it is difficult, if not impossible, to arrive at a satisfactory definition of enhancement since concepts such as disease, normalcy, and health have a deep cultural, social, and historical context which cannot give us independent and universal definitions. Each society at a given time defines enhancement differently and, as such, it is not possible to have "a substantive transcultural independent meaning" of it (cf. 2011, 4). But Savulescu and colleagues too rapidly discard this as an account worth considering at length. Among its primary contributions, this account helps us focus on the discussion of culturally, socially, and historically contingent elements, such as normalcy, naturalness, health, flourishing, and others, when assessing interventions.

The second alternative account is what Savulescu and colleagues call the "ideological approach", which is best represented by the President's Council on Bioethics, under its former director, Leon Kass[40], but that extends to the arguments put forward by Sandel, Fukuyama, and Habermas, for example. Here, metaphysical concepts and often controversial values are set forth to provide a moral and ethical framework under which the uses of human enhancement technologies are evaluated. In their words, this "approach offers a range of specific and contentious value claims but no general conceptual framework for thinking about enhancement" (2011, 4). This is a strong and, I believe, biased charge against the reluctant positions those authors have assumed concerning the project of human enhancement. Although accurate in identifying the lack of a distinctive conceptual definition of enhancement independent of more or less suspicious metaphysical and religious (or crypto-religious) concepts and values present in their writings, once again Savulescu and colleagues too quickly discard the relevant inputs this account delivers to the debate. Moreover, the "ideological" label that they attach to these accounts could also apply to all the remaining accounts, since each of them reflects an ideological alignment with specific moral, ethical, and political principles.

As an example of these inputs, consider Sandel's claim that what is more relevant when it comes to enhancement and genetic engineering is not that they "undermine effort and erode human agency", but that "they represent a kind of hyperagency — a Promethean aspiration to remake nature, including human nature, to serve our purposes and satisfy our desires" (Sandel, 2007, 26-27). For example, whether the limits of procreative liberty ought to be stretched out or not illustrates the tension that a secular argument as this generates. In the same way, bioconservatives' religious arguments raise important concerns that shouldn't be rejected straightaway based on their religiousness. As we saw in the previous chapter, most transhumanists tend to overlook the possible nefarious consequences of the project of mastery and control over (human) nature pervading their worldviews. Bostrom noticeably departs from this tendency as he recently gave more notice to the dangers of existential risks arising from this project of mastery and control (cf. Bostrom, 2014).

One of Habermas' most significant arguments against enhancement also concerns prenatal genetic modifications occurring in a context in which parents enjoy an extended right to procreative liberty. As we saw, the charge is that these manipulations can threaten the ethical freedom as well as the equality one is entitled to at birth. In this way, it is "the capacity of "being oneself"" (2003, 63) that is affected,

[40] Kass' tenure as chairman of the President's Council on Bioethics lasted from 2001 to 2005, followed by bioethicist Edmund Pellegrino. In 2009, under Barack Obama's administration, this "philosophically leaning advisory group" was replaced by a bioethics commission to offer "practical policy options" (cf. Wade, 2009).

which Habermas claims is an irreversible intervention on the genetic makeup of the unborn child that necessarily conditions his right to open life prospects by genetically determining him in what capacities and dispositions he ends up born and living with (cf. 2003, 60-66). This seems particularly relevant to our debate, but Savulescu, Sandberg, and Kahane too expeditiously discard the possible contributions of the ideological account.

Despite the lack of a general conceptual or descriptive framework to think about enhancement, these accounts provide an evaluative framework that focuses on relevant moral and ethical aspects of interventions and their relation to other values. The fact is that the concepts of enhancement the ideological account makes use of are those of the two functionalist accounts developed below, and also because of that, their responses to why interventions ought to be impermissible are unsatisfactory. In reality, their focus is more on a debate on what constitutes the foundations of a good life rather than a debate on enhancement *per se* (cf. Savulescu *et al.*, 2011, 8). This, however, is part of the welfarist account as well.

Therefore, the three accounts presented here are the philosophically more sophisticated approaches in the literature and the ones that provide a distinctive conceptual framework for discussing human enhancement.

i. The Augmentative Account;

In general terms, an enhancement is defined as "an improvement on what went before" (Harris, 2007, 9), and is often connoted with augmenting some particular human function, capacity, or mood, the most commonly suggested in the literature being intelligence, hearing, vision, or bodily strength more generally. The idea of using some pharmacological, biotechnological, or other interventions to enhance oneself or others, as is the case with reprogenetic technologies aimed at enhancing our offspring, conveys the belief that these methods have the specific purpose of *increasing*, *heightening*, or *amplifying* particular human capacities, functions, or moods. Likewise, it suggests that to enhance is always positive, that it always *adds* something valuable to the baseline genetic makeup of the individual to enable him to better experience the world. Savulescu cuts to the point on this subject: "to enhance is to increase the value of a person's life" (Savuslescu, 2006, 325). This is certainly so with the augmentative account, which reflects the augmentation as a positive procedure, as an improvement not only of one's functions, but more generally, of the human condition.

Brian Earp, Sandberg, Kahane, and Savulescu have defined this account as one in which

> [i]nterventions are considered enhancements insofar as they improve some capacity or function (such as cognition, vision, hearing, alertness) by increasing the ability of the function to do what it normally does (2014, 2).

Hence, it appears that enhancement in itself holds value. To exemplify this, consider a drug that enhances cognitive performance. On an average poet, it has the effect of enabling him to produce Homer-like poetry, while on an individual with a mild cognitive dysfunction it allows him to properly read and write whereas he couldn't do so before. At the light of the augmentative account, the cognitive variance between the two individuals is not relevant. What is relevant is the impact of the enhancement the drug produces on the capacities and functional level of the individual taking it.[41] In contrast to competing accounts, this account does not seek to define a baseline of good health to establish a threshold distinguishing interventions as enhancements or treatments.

Bostrom is one of the advocates of this functionalist approach (cf. Bostrom & Roache, 2008; cf. Bostrom, 2009). We need only recall his *Letter from Utopia* to get a sense of how the augmentation of human functions and capacities is automatically associated with states of *enhanced* perception of the world. The inability of us humans to understand our posthuman Utopian "possible future selves" stems from the fact that our cognitive, moral, and physical[42] capacities are still too limited to understand those states of being and feeling. The profound transformation discussed by Bostrom in that *Letter* involves the enhancement of human capacities, consistently presented with a sense of urgency and affirmation: "upgrade cognition!" and "elevate well-being!" (2008, 4) are two of Bostrom's slogans. They both suggest the boosting of particular functions and capacities in order to enjoy music, science, food, and pleasure more authentically — even voluptuously. Thus, the value of authenticity appears to hinge on our enhanced capacities to perceive and engage with reality. The less our capacities are enhanced, the less authentic our experience of the world becomes.

In a more thoughtful examination of the ethical concerns surrounding human enhancement, Bostrom and Rebecca Roache advocate for the ethical acceptability and widespread accessibility of enhancements. They argue that the distinction between therapy and enhancement poses challenges for

[41] We can find plenty of examples like this in the literature. Hazem Zohny presents one that I'll investigate more carefully (cf. 2014, 123), and I'll look at others presented by Earp and colleagues with more detail below. Surely these examples are only useful if we take their initial premise as to the existence of such drugs to be true, which is not evident, as we'll see.

[42] At least, if physiological and biological dimensions of the human body that can still collect sensory information from the external world and thus experiencing it is to be retained. But this is not guaranteed since the posthuman is usually conceived as a digital entity, a pattern of information, as opposed to a biologically constituted entity.

those who oppose the idea of enhancements. Their claim is that this distinction is hard to maintain. Contemporary practices of preventive medicine, plastic surgery, and fertility treatments exemplify some of the many possible cases in which medicine is not used to treat diseases or injuries, while performance and appearance enhancers like physical exercise, meditation, coffee, and cosmetics are used independently of medicine (cf. Bostrom & Roache, 2008, 1). Vaccination is also a dubious and paradigmatic case because whether it is classified as a treatment or an enhancement is difficult to determine: it enhances the immune system but it is also a preventive therapeutic intervention (cf. 2008, 1). Additionally, there is the problem of determining what a *normal healthy state* is. On the one hand, a medical procedure to cure a disease or injury can restore good health and end up augmenting one's capacities beyond those he previously had. On the other hand, due to the fact that an individual's capacities and functions undergo substantial variation throughout his lifespan, it becomes plausible that a drug providing an 80-year-old individual with the same physical and mental functioning as he had in his twenties could be categorised as both therapy and enhancement (cf. 2008, 2). Where should we draw the distinctive line?

Further problems come from the often-mentioned continuity thesis according to which new controversial enhancements are simply more scientifically and technologically developed forms of old familiar, accepted, and uncontroversial ways of enhancing human capacities. In this sense, as Bostrom and Savulescu explain, "all technology can be viewed as an enhancement of our native human capacities" (2008, 2). For instance, what differentiates Lasik surgery from the utilisation of glasses, and similarly, what distinguishes this from the application of contact lenses? The answer suggested is how "internal" an intervention is:

> [w]ithout some requirement that an intervention be "internal", all technologies and tools would constitute enhancements in that they give us capacities to achieve certain outcomes more easily or effectively than we could otherwise do (Bostrom & Roache, 2008, 2).

Hence, it's only through the introduction of an "internality constraint" that we can prevent the merging of enhancement and technology. Nevertheless, the assessment of how "internal" an intervention is gives rise to a range of intricate challenges that extend beyond the scope of this chapter.

Unlike other functionalist advocates, the augmentative advocate doesn't need to justify and rely on the problematic therapy-enhancement distinction. His concern is only with the ways in which augmenting capacities contributes to improving the life of individuals, and both therapy and enhancement can

contribute to that end. They serve the similar purpose of protecting and expanding life, "health, cognition, emotional well-being, and other states or attributes that individuals may desire in order to improve their lives" (Bostrom & Roache, 2008, 3). The fact is that they too easily convey the idea that augmenting one's functions and capacities is always good for an individual because it invests him with greater powers to experience the world. Once more, we gather the sense that well-being is a consequence of the augmentation itself, rather than a process where the augmentation of capacities is carefully evaluated and pursued only if it truly enhances well-being. In fact, Bostrom and Roache commit themselves to show how enhancing capacities is valuable to individuals precisely because of their augmentative nature.

Mood, cognitive, and physical enhancement are the prime areas for potential interventions. Moral enhancement is also often referred to as a possible candidate, but it is subject to an extensive debate (cf. Douglas, 2008; cf. Harris, 2016). As an example, Ingmar Persson and Savulescu have argued, quite boldly, that until safe and effective moral enhancement is developed and compulsory administered, we should consider to deliberately delay scientific and technological innovations that can cause existential risks to occur (cf. 2012). To use the suggestive title of their work, unenhanced as we currently are, we are morally and ethically *unfit for the future*.

Regarding these interventions, I think there are two sound objections to which the augmentative advocate cannot answer properly: one regarding the scientific and technical feasibility of enhancements, and the other — more robust and morally relevant — regarding their value.

Let's just take the example of cognitive enhancement. The first objection concerns the premise that cognitive enhancement is feasible and effective among those with normal cognitive capacities, like the poet mentioned above. The argument is that certain drugs specifically target and enhance cognition, distinct from other psychological functions associated with mood and motivation (cf. Zohny, 2015, 257). The same would be true for moral enhancement: *i.e.*, that a drug or other pharmacological or neurological intervention exists that helps people to act and behave morally so they can do the "right thing" all the time.

John Harris has been a vocal critic of the project of what he calls moral bioenhancement.[43] Among his conclusions, one is that, for the foreseeable future, moral enhancement can only be pursued via cognitive enhancement (cf. 2016, 117; 176). He sees it as threatening autonomy, authenticity, and freedom; it robs us of the capacity to act autonomously and denies us the "freedom to fall", or to behave

[43] Thomas Douglas, a leading theoriser of moral enhancement, has defined it as "an enhancement that will expectably leave the enhanced person with morally better motives than she had previously" (2008, 228). Harris exhaustively explores and challenges Doulgas' arguments in favour of moral enhancement in his book.

immorally if we want or need to. As an example, the administration of molecules seeking to induce pro-social attitudes and reduce aggressiveness may be freedom-subverting as well as autonomy curtailing by preventing individuals from acting aggressively towards others when justified (*e.g.*, self-defence, prevent a terrorist attack) and by dulling one's capacities to choose freely and, ultimately, to self-reflection, to think on one's own identity, on who one truly is. The problem of the morally enhanced action is that it has become "automatic, unconscious, and therefore unintended, entirely outside the realm of moral responsibility" (Harris, 2016, 118). In some relevant sort, moral enhancement is alienating; it estranges us of the understanding, when faced with a moral dilemma, of what is good and bad.[44]

And so, perhaps Harris' most important insight regarding this matter concerns the meaning of morality itself, which makes us question why we would want to (bio)augment morality:

> morality necessarily involves the self-conscious examination of one's actions and indeed one's life. Only self-conscious reflection on conduct can deliver answers to the question as to whether what one feels is right is indeed right. It is only such an examination, and the resolve to put its conclusions into effect, that constitute a moral life and, *a fortiori*, a morally enhanced life (118-119).

There are two considerations here. The first is that the type of moral bioenhancement required to (morally) enhance one's life involves a deep relation with one's prudential desire to lead a good life. Likewise, it suggests that our (moral) actions also dictate us to help others in leading good lives as well (cf. Harris, 2016, 118). The second consideration regards methods, which brings us to our objection.

[44] Douglas' definition of moral enhancement clearly fits the augmentative account. Douglas attempts first to dismiss the idea that by getting morally enhanced, we get "more virtuous, more praiseworthy, more capable of moral responsibility, or that we make ourselves act or behave more morally" (2008, 229). His aim is to shift the focus from what we can call the "more moral" thesis to the "morally better motives" thesis. In other words, if enhancing ourselves was possible, that wouldn't make us more moral in the sense of being more virtuous but would only "cause ourselves to have morally better motives" (2008, 229). What's important to note is how difficult and counterintuitive it is to dissociate the idea of enhancing oneself to have morally better motives to act from the idea of enhancing oneself in order to act more morally, thus making him more virtuous by comparison to his unenhanced self or his unenhanced peers. Think about a pious man who leads a deeply virtuous and altruistic life, yet he perceives himself as not reaching the level of virtue and altruism he desires. Due to his religious, spiritual, or philosophical beliefs, he already has strong moral motives to act altruistically towards others, but not enough. He decides to take a "morality pill" so his moral capacities are augmented, and he can finally have *more moral motives* and behave *more morally* towards others (perhaps even against his own prudential interests). This example can also be extended to those with bad or suboptimally good motives. If morally enhanced, world leaders would have *more* morally better motives than they currently have to address important contemporary political, economic, or environmental challenges. What about moral agency? We see that moral bioenhancement can, if feasible, cause a person to behave in a way that can be positive regarding the results of his actions, but whose motivations lack a genuine moral foundation. Enhanced moral capacities give a supposedly positive contribute to the life of the enhanced individual, those around him, and society in general: it enables him to behave more morally and it can even reduce the kind of existential threats Persson and Savulescu see as coming from individuals with bad motives. Nevertheless, it also challenges freedom, autonomy, and authenticity. I'll return to this issue once again in chapter 4, where we will explore the developmental morality.

This is already present in Persson and Savulescu's acknowledgement that, to this date, we are a long way from finding safe and effective possibilities of enhancing morality via pharmacological means (cf. 2011, 498). As with the majority of bioenhancements, the discussion on moral enhancement is grounded, for the most part, on (valuable) hypothetical considerations of how beneficial or hazardous would it be to enhance morality by means of a "pill of morality". However, the practical feasibility of these interventions still lies beyond the scope of current scientific and technological capabilities.

Although the administration of certain hormones like oxytocin can increase prosocial attitudes, or the chemical manipulation of serotonin and testosterone levels helps reduce aggressiveness, or also other substances that assist in inhibit violent sexual behaviour (cf. Lavazza & Reichlin, 2019, 2), these interventions fall short of the type of moral enhancement often intended and debated in the literature. And of course, the focus of the research on these substances and techniques is not primarily oriented to ascertain what their effects on morality are but are rather conducted to different clinical purposes (cf. Lavazza & Reichlin, 2019, 2-3). An associated difficulty Andrea Lavazza and Massimo Reichlin identify is that of recognising with precision "what brain/mental functions underlie moral dispositions and moral behavior, so that there may be a truly targeted and effective intervention" (3), but this is not the purpose of the current research being done.

Consequently, this suggests that moral bioenhancement could not be feasible in the foreseeable future. But even if it was, would it be desirable? There are two strong arguments to support that it wouldn't. One concerns its value, which I'll develop in the second objection to the augmentative approach, while the other reason is more straightforward. As Harris has previously argued, we already have an extensive moral endowment to cope with thorny moral challenges (cf. 2011, 103-104). If we wish to augment our morality in the sense of having *more*, or *enhanced*, moral motives to act, it is advisable to do it by making use of effective and safe traditional methods. Among these we find "education, parental and peer group guidance, social and personal example, and indeed reflection on what's right, namely ethics" (Harris, 2016, 117; cf. Harris, 2011, 104).

This argument is also thoroughly developed by Buchanan and Russell Powell. In the book *The Evolution of Moral Progress* (2018), they argue that Persson and Savulescu may be right in claiming that we are morally unfit to address the challenges and existential threats imperilling humankind. But while rejecting the viability of moral enhancement to resolve our lack of moral fitness, they admit other bioenhancements, and cognitive bioenhancement in particular, as well as traditional methods of moral progress. The bulk of their argument concerns our evolved morality, which they claim "is not inflexible enough to frustrate traditional attempts towards moral progress" (cf. Fabiano, 2020, 407).

As a result, can moral enhancement be pursued via cognitive enhancement, as Harris and Buchanan and Powell suggest? To be sure, they're referring to cognitive bioenhancement, something Harris, for example, sees with much more optimism than its moral counterpart (cf. 2007; Greely *et al.*, 2008).

Consider now a second argument in favour of the first objection, the one dealing with feasibility. Contrary to what happens with the wide acknowledgment that no effective and safe way of morally enhancing individuals is feasible, authors seem to straightforwardly embrace the thesis that cognitive bioenhancement is possible. Research, however, contradicts the thesis that to specifically target and enhance cognition among those with normal cognitive capacities is possible. There are two presumptions supporting the idea that cognitive bioenhancement is currently unattainable or, at the very least, not sufficiently advanced to deliver the outcomes advocated by its proponents. The first presumption is that the drugs currently available, which directly aim at enhancing cognitive capacities and influencing one's performance, do not yield the intended outcomes. The second presumption is that it is impossible to differentiate between the cognitive and non-cognitive dimensions (cf. Zohny, 2015, 259-261).

Cognitive enhancement drugs are meant to augment exclusively the cognitive function, and not non-cognitive functions like mood and motivation (cf. Kipke, 2013). Are cognitive enhancement drugs in this sense available? Studies suggest that drugs utilised for addressing conditions such as Alzheimer's, ADHD, and narcolepsy, among others, grant favourable outcomes in enhancing cognitive functions among individuals without these specific disorders (cf. Greely, 2008; cf. Buchanan, 2011a; cf. Savulescu, 2011; cf. Zohny, 2015, 259). Hazem Zohny has demonstrated that the empirical support these authors present in defence of this thesis has little relation with the conclusion that the cognitive function of normal individuals is augmented by these drugs. His analysis of the conducted studies demonstrates that they are either "too small and underpowered", or that the results remain "equivocal" and more studies [are] necessary", or even that their scope is limited to the laboratory environment with no expression in everyday life (cf. 2015, 259-260). Again, as Lavazza and Reichlin have argued concerning moral enhancing drugs, cognitive enhancing drugs are also not created and tested specifically for their cognitive performance.

Modafinil has been cited as a paramount example of a cognitive enhancer (cf. Savulescu, 2011), but recent studies have concluded that the use of the drug showed no effect among healthy participants and no effects on "attention or attentional set shifting", thus discovering "no evidence overall for significant effects of modafinil among healthy participants" (Zohny, 2015, 259). Other studies on this

drug have demonstrated that not only there is no evidence that it augments cognition, but it actually decelerates reaction and hinders creative thinking (cf. Zohny, 2015, 259).

Curiously, two separate studies highlight that certain drugs can indeed yield positive effects on the cognitive function of individuals with impairments (cf. Mattaya *et al.*, 2000; cf. British Medical Association, 2014). Yet, they equally report that this impact doesn't affect normal or unimpaired individuals and that can even negatively affect their performance (cf. Zohny, 2015, 260).

Therefore, the most plausible conclusion is that we lack solid evidence that allows us to unequivocally affirm that safe and effective cognitive enhancement drugs exist. They may act to boost performance on sleep-deprived individuals (cf. Kjærsgaard, 2015), but among normal individuals and with the purpose of augmenting their cognitive capacities to "higher than normal levels", and thus helping them on their everyday tasks, there is no supporting evidence (cf. Zohny, 2015, 260).

What about the second presumption? Is it possible to augment the cognitive dimension without affecting non-cognitive, neurological dimensions of our psychologies, like mood and motivation?

Two important points should be noted with regard to this presumption. Let's start with the first. Zohny's analysis of the studies on the effects of drugs like Adderall and modafinil lead him to conclude that while not *directly* targeting and augmenting cognitive performance, these drugs induced participants who took them (as compared to when on placebo) to believe their cognitive performance was boosted (cf. 2015, 260). A study by Delia Randall and colleagues on the effects of modafinil on augmenting cognitive performance shows that "[t]here were no significant effects of modafinil on the performance of any of the cognitive tests" (2002, 168). They contend that this conclusion aligns with prior studies on the same issue, and despite "cognitive performance did not change, it is clear that treatment with modafinil was associated with significant changes during these tests in the mood of our volunteers" (169). Among these changes are the boosting of wakefulness, alertness, and anxiety among participants. Hence, and as Zohny rightly notes, this observation is in line with others who have argued that it is "the non-cognitive effects of these drugs that are actually enhancing performance" (2015, 260). The stimulant power of these drugs acts to improve mood and motivation rather than cognition *per se*. This can, of course, have a significant impact on cognitive performance; it will probably exceed the effects of a good night's sleep, a cup of coffee, or the concentration one gets from the right type of environment in which to make the most of his normal cognitive capacities. Nevertheless, it is not enough to conclude that cognition itself was enhanced.

Let's now look at the second point. Can cognitive and non-cognitive be regarded as separable or separate dimensions? This, too, seems difficult to sustain if we are to believe that both are mutually

dependent dimensions of our psychologies. How often do we find ourselves during our workdays realising that we lack the proper motivation to continue working efficiently, prompting us to grab a snack, or take a nap to rejuvenate our mood and enhance our motivation for improved productivity? We don't perceive these actions as strategies to enhance our cognitive capacities, but rather acknowledge them as methods to boost our performance. They enable us, as I mentioned earlier, to make the most of our normal cognitive capacities. The literature supports these seemingly obvious conclusions that we get from our everyday experiences. Raymond Dolan has argued that contrary to the view (common within philosophy) that a direct opposition between emotion and reason exists, "emotion-related processes can advantageously bias judgment and reason" (2002, 1194). The emotions an individual experiences influence his behaviours: "emotion infects rational thought processes such that people adhere, often with great conviction, to ideas and beliefs that have no basis in reason or reality" (Dolan, 2002, 1194). Similarly, an interesting article by Arne Öhman and colleagues reports that threatening events and stimuli (*e.g.*, sighting wild animals, blows, blood) are likely to "automatically and reflexively [...] capture attention" (2001, 466).

These examples are in line with the previous arguments. Cognitive bioenhancement is unlikely to be achieved through the targeting and augmenting of cognition alone. The view that one specific brain area corresponds to one specific functional specialisation is problematic and discredited. Luiz Pessoa has convincingly demonstrated that

> complex cognitive–emotional behaviours have their basis in dynamic coalitions of networks of brain areas, none of which should be conceptualized as specifically affective or cognitive (2008, 148).

Michael Hauskeller also suggests that the traits more often targeted to enhance do not function independently of the others, but their functioning is complex and interacts in multiple and unpredictable ways (cf. 2014).

Considering these arguments, I believe the augmentative approach to enhancement faces serious difficulties. Its attempt to justify enhancement is ultimately weakened by the unfeasibility of its methods. However, because these hypotheses may one day become feasible, the current discussion on this topic holds great value.

Let's now look at a second, more robust and important objection to the augmentative approach. This objection concerns the value of enhancements by objecting that rather than assessing them solely

based on their augmentative effects on one's life, they should be assessed in terms of their potential to enhance individual well-being and flourishing. As this is part of the argument grounding the welfarist approach and developmental morality, I'll return to it in more detail in sub-section iii) and chapter 4. For now, it suffices to present our objection as one that challenges the augmentative approach by claiming that sometimes to *diminish* is also to *enhance*.

According to the augmentative approach, enhancements are unequivocally defined in terms of augmentation of human functions and capacities. This procedure is valuable because it enables us to improve ourselves, our lives, and our experiences of the world (cf. Bostrom & Roache, 2008, 3). Bostrom is clear about this: "refraining from making use of an opportunity for enhancement can be Un-Dignified" and "[a] person who rejects a major opportunity to improve her capacities out of thoughtless conformity to fashion, prejudice, or lazy indifference to the benefits to self and others that would result, would thereby reduce her Dignity as a Quality" (2009, 15). I will explore this claim in greater depth as we continue.

So, why would we want to diminish some function or capacity if we know that when we lose an opportunity to augment them, we also reduce our human dignity? There are compelling reasons in favour of diminishing higher-order capacities[45]: to provide soldiers drugs that "*reduce* the emotional intensity of wartime memories" (Earp *et al.*, 2014, 3); to *lessen* the effects of post-traumatic stress disorder (cf. Henry *et al.*, 2007); to *reduce* the emotional attachment of a battered partner towards an abuser (cf. Earp *et al.*, 2013); to *diminish* the urges of paedophiles to abuse children (cf. Earp *et al.*, 2014, 2; cf. Zohny, 2019, 271); and to *reduce* appetite through appetite suppressants to prevent diseases or get in shape (cf. Gul *et al.*, 2014). These interventions raise issues regarding their feasibility, as we saw in the previous objection, but also important ethical and societal concerns, namely those regarding relevant values such as autonomy and freedom, and questions concerning public health, efficiency, or productivity.

Earp and colleagues argue that for a functional-augmentative framework, these are challenging cases because they shift the focus of the discussion from augmenting particular capacities or functions "to the overall *normative* goal of the modification itself" (2014, 4). On their account, interventions should be broadly defined as means of promoting well-being, and therefore, they may not always require the augmentation of capacities or functions. If reducing the harmful impact of distressing wartime memories, or crises of post-traumatic stress, or preventing the sexual urges of paedophiles and sex offenders positively contribute to their well-being and those around them, diminishments should, *prima facie*, be considered enhancements. (cf. Earp *et al.*, 2014, 4).

[45] These concern mental and psychological levels of functioning, as opposed to lower-order capacities regarding the neurobiological level.

Thus, if it were possible to target and enhance intelligence, we would have to consider if higher intelligence would promote one's well-being and increase his chances of leading a good life given his circumstances. A 2011 study conducted by Gregory Harrison and James Van Haneghan revealed that children with a higher IQ "may experience more insomnia, death anxiety, and fear of the unknown than typical students" (669). In these cases, if children could benefit from intelligence diminishment to a standard threshold this could potentially contribute to their well-being. Besides, cases such as these could imply that increased intelligence doesn't necessarily equate to possessing the skills essential for leading a fulfilling life. Also, an enhanced IQ, as Torbjörn Tännsjö has argued, is only instrumental in that process, otherwise lacking non-instrumental value (cf. 2009; cf. Earp *et al.*, 2014, 4).

Of course, one can reply that this objection is unwarranted because the augmentative advocate would not presumably defend the augmentation of capacities at the cost of individual well-being. But as we saw, Bostrom claims that when a person, out of "conformity to fashion, prejudice, or lazy indifference" doesn't enhance herself is compromising her dignity. As strong as this claim is, it seems difficult to sustain. Among the things we believe that give us dignity as human beings are our free will and moral agency. If moral bioenhancement endangers or prevents us from acting as free agents and precludes us from genuinely distinguishing right from wrong, it is also our dignity that is affected. Many believe that to have been created in God's image is the source of human dignity and generally hold that bioenhancement violates both God's will and human dignity (cf. Fukuyama, 2002, 88-90). Others may find it useless to enhance themselves if they're satisfied with their current performance at whatever craft they carry out, or out of their laziness they simply postpone the moment when they'll finally enhance themselves, and maybe some others value the fact that in a society in which a vast majority of individuals has enhanced themselves, they proudly and vainly remain unenhanced. It is difficult to see why these individuals lose or see their human dignity diminished in virtue of refusing enhancement.

But the diminishment as enhancement approach is not exclusively focused on addressing pathological states, as some examples above suggest; it has an important relation with the context of individuals as well (cf. Earp *et al.*, 2014). When faced with specific situations that augment stress and anxiety (*e.g.*, *viva voce* exam or artistic performance), diminishment can contribute to one's well-being by allowing him to effectively handle stressful situations. Additionally, it is not clear that to augment hearing to some superhuman level would benefit an individual who appreciates silence and meditation and thus would have his well-being negatively impacted. Also, appetite suppressants are not exclusively used as diminishments for therapeutic purposes, and if we recall the example mentioned above of the very pious man, we can see that reducing his altruism could act in favour of his own prudential interests if he was

in a context in which he would have to sacrifice too much of his life (perhaps even giving his own life — think of Jesus and other martyrs) in order to help others. Becoming more moral doesn't necessarily amount to an increase of well-being in one's life, provided that well-being is important for individuals. The same with becoming more intelligent, physically stronger, longer lived, or with a brightened mood all the time.

All things considered, the augmentative approach provides a clear framework to define enhancements, but it is an unsatisfactory account because it says enhancements are valuable *per se*, which we saw is a controversial claim. If anything, enhancements are instrumentally valuable, as we will see below. On this account, the quantitative overwhelms the qualitative dimension of enhancements; the purpose is to present *more* and *better* as necessarily merging dimensions, but ultimately, *more* outplays *better*. More significantly, it doesn't put sufficient weight on individual prudential interests and well-being, and compulsory enhancement is in some cases suggested when socioeconomic reforms could be more appropriate approaches. Even more problematically, it calls into question the moral dignity of those who choose to refuse enhancements. The hyper-focus on enhancements might lead to a weakened appreciation of the dignity and value of the person, as she is seen as a potential receptacle of enhancements, which might also reduce her own sense of self-worth, individuality, and uniqueness. Related to this worry, is that of the neglecting of broader ethical and societal implications for the sake of prioritising enhancements and the endless augmentation of human capacities. As this is most likely to happen as a maximisation of our capacities, it might have disruptive effects and unforeseen negative outcomes to one's personal and social life. In addition, the sole focus on augmenting capacities as an end in itself might neglect other important values (*e.g.*, social relationships, long term well-being, justice). This account seems to be too reductionist due to its narrow understanding of what human flourishing is, namely by reducing it to the augmentation of capacities and neglecting other possible dimensions that contribute to a meaningful and fulfilling life as a creative agent.

Consequently, the frequent criticism levelled against this account follows these concerns, as it is also seen as being too permissible. One way of tackling this problem is to introduce the dichotomy treatment/enhancement as well as morally loaded concepts such as naturalness and disease so that interventions are evaluated accordingly to the purposes they serve. As such, we can understand the augmentative account as a lesser version of the "not-medicine" approach, which tries to improve upon it.

ii. The "not-medicine" Account;

Allhoff and colleagues (cf. 2010) and Norman Daniels (cf. 2000) object to the permissibility of the augmentative approach and argue that there is a normatively valuable distinction between treatment and enhancement that makes the latter morally problematic in ways that the former is not (cf. Earp *et al.*, 2014, 2). In this section, I want to argue that the "not-medicine" account of enhancement faces difficult challenges to which it cannot properly answer. The first challenge is to defend that conceptual divisions such as treatment/enhancement or medicine/not-medicine are morally valuable in a way that enables the advocates of this account to sustain that interventions defined as medical treatments are morally permissible in ways that biomedical enhancements are not. As we'll see, these distinctions will prove vague and unclear, and often contradict our moral intuitions as to whether an intervention is morally permissible or not (cf. Savulescu *et al.*, 2011, 4-5; cf. Roberts, 2014). The second challenge is, again, one concerning value: even if the above-mentioned distinctions were morally valid, they would remain silent as to why interventions are important to individuals and society. By following the argument started in the previous section that the moral value of an intervention lies in it contributing to an individual's well-being and his flourishing, I'll try to demonstrate that the "not-medicine" account makes no significant contribution to that end because it neglects the potential contribute of enhancements to well-being solely in virtue of their nature as non-treatment/non-medicine.

Before starting, let me briefly present some examples that frame the discussion that follows. Take the case of a person with diabetes receiving insulin injections to manage her blood sugar levels and restore her body's normal functioning. In this case, we talk of treatment, but if this person's brother, who has no diabetes, uses insulin injections to increase his energy levels and cognitive performance beyond what is considered normal, this would be an enhancement. This is a paradigmatic case of medical treatment and non-medical enhancement.

Consider the following two different persons: one undergoes physical therapy to recover from a sports injury and regain her normal agility and strength, while the other has no physical injury but undergoes physical therapy as well to achieve strength and agility beyond the typical human abilities. In this case, we have medical therapy used to restore health, and non-medical enhancement to improve one's typical physical condition. It would be the same if a person diagnosed with attention-deficit/hyperactivity disorder (ADHD) takes medication to help her focus and manage her symptoms, while a second person who was never diagnosed with ADHD takes the same medication to enhance her focus and cognitive abilities beyond what is considered normal.

These cases share in common the idea that there is a clear dividing line between treatment and enhancement, what is medical and non-medical, what is normal/typical in our functioning as human beings and what is not. Ultimately, it will introduce the categories of naturalness and unnaturalness, which motivate discourses on normalisation and dehumanisation based on one's enhanced or unenhanced condition. As we can see, this bears similarities to what we have just discussed regarding the augmentative account.

And precisely just like the augmentative account, the "not-medicine" account is also a functionalist approach, but it is informed by an important naturalistic foundation. Eric T. Juengst defines the account as one stipulating that to *enhance* is to go beyond *treatment* as a method of restoring health: enhancements are "interventions designed to improve human form or functioning beyond what is necessary to sustain or restore good health" (1998, 29). Edmund Pellegrino adopts a similar definition according to which enhancements should be understood as augmentative in nature and as going "beyond the ends of medicine as they traditionally have been held" (2004, 4).

Therefore, in contrast with the augmentative account, the "not-medicine" account offers a morally different approach to why an intervention is permissible or not. Interventions should no longer be taken as permissible whenever their purpose is to augment some function or capacity. Instead, when their aim is to correct a particular pathology or defect, or to normalise our condition, they are characterised as therapeutic interventions, whereas when improving a subsystem "in some way other than repairing something that is broken or remedying a specific dysfunction" they are characterised as enhancements (cf. Sandberg & Bostrom, 2009, 312). Similarly, Daniels presents the treatment/enhancement distinction as one that

> draws a line between services or interventions meant to prevent or cure (or otherwise ameliorate) conditions that we view as diseases or disabilities and interventions that improve a condition that we view as a normal function or feature of members of our species (2000, 309).

Recall a previous example: is there any reason that justifies the enhancement of the cognitive capacities of the average poet so that he can write Homer-like poetry? On the grounds of the present approach, that would be an enhancement since the intervention would not be correcting any pathology or defect. However, in the case of an individual with a mild cognitive dysfunction, the intervention is therapeutic

since it would be remedying a specific dysfunction, restoring the average and normal levels of health, and bringing him back to the species-typical functioning level.

Sandel, for example, argues that

> [a]lthough medical treatment intervenes in nature, it does so for the sake of health, and so does not represent a boundless bid for mastery and dominion. [...] The reason is that medicine is governed, or at least guided, by the norm of restoring and preserving the natural human functions that constitute health (2007, 46-47).

As a result, the "not-medicine" account seems to aim at limiting interventions by resorting to three different sets of ideas: naturalness/normalcy, treatment/enhancement, and disease/health.

Let's look at the first set. Naturalness and normalcy both express the thought that nature provides some normative standard that justifies limiting interventions that tamper with the (challenging and controversial) normal order of things. Henry Greely identifies three dimensions to the naturalness idea: the first is religious, since enhancements involve playing God and going against God's plans (the charge here is that enhancement is a desecration of the given, as Glover and Sandel noticed) (cf. 2006, 63; cf. 2007); the second is evolutionary, since enhancement alters natural selection and evolution (or, in secular terms, designing life is a hubris) (cf. Glover, 2006, 63); and the third is the type of instinctive reactions represented by the "yuck factor", developed by Kass, and "moral nose" since enhancement sometimes causes visceral reactions on some people (cf. Kass, 2006, 92-93; cf. Harris, 2016, 29). For Greely, the naturalness objection to enhancement is even stronger than objections relating to safety, coercion, fairness, and integrity (cf. 2006, 93). This is a strong and contentious claim. Upon initial inspection, the naturalness objection doesn't shed light on the discussion surrounding enhancement; instead, it seems to obscure it.

Human nature has also served the purpose of providing a normative standard. As we saw, Habermas and Fukuyama claim that human enhancement can disrupt and destroy human nature as a complex and interrelated set of traits. Since enhancements may have irreversible consequences, they could potentially erode the fundamental human characteristics that form the basis of human dignity. This erosion might have disruptive effects, altering the meaning of what it means to be human, thus

dehumanising individuals or threatening their prospects to ethical freedom (cf. Fukuyama, 2002; cf. Habermas, 2003).[46]

These positions, however, seem hard to sustain. Naturalness and normalcy as normative principles are vague and socio-historically contingent. What was natural and normal in the past or in different countries and cultures is not natural and normal today. Additionally, we can think of human nature in different terms: simply because it is the result of natural evolution, human nature needs not be either good or bad. Moreover, it is also argued that human nature comprises both biology and culture, thus encompassing *natural* and *artificial* dimensions, and so it is unwarranted to claim that the latter necessarily corrupts the former (cf. Hofmann, 2017, 3). Humans have always changed their nature, deliberately or not, mainly by changing the environment around us. If we compare ourselves to our ancestors living five hundred years ago, we'll see that we "are taller, we live longer, we have more inclusive ethical codes" (Lewens, 2009, 354).[47] In the same way, among other anthropogenic alterations to our

[46] It is important to say that human nature and species-typical functioning, despite being related, report to different things. Human nature refers to the fundamental characteristics, qualities, and capacities that are distinctively and constitutively human. It includes aspects related to our human consciousness, reasoning, emotional, and social interactions. Those arguing in favour of human nature usually emphasise the importance of preserving and respecting the distinctive and constitutive traits that define us as humans. But species-typical functioning focuses on the idea that because certain capacities and functions are typical of the human species, they shouldn't be altered under the threat of disrupting our humanity. On my developmental account, the advocacy for human nature is compatible with supporting specific incremental enhancements that modify traits that, within a particular context and timeframe, might be perceived as typical of human beings. Species-typical functioning is too narrowly construed and fails to account for the potential benefits of enhancements as ways to actualise our human capacities and contribute to our flourishing.

[47] It is popular in the natural sciences to depict human nature as involving the human being as a biological kind, thus equating human nature strictly with human physiological and biological functioning. Generally, the advocates of this view claim, as part of a "biological consensus", that the idea of human nature is obscure, incoherent, mystic, and unnecessary for the debate in contemporary bioethics (cf. Lewens, 2015). David Hull (cf. 1986) and Michael Ghiselin (cf. 1997) have argued that humans, just like any other biological species on the planet, don't have natures, at least in the essentialist sense of the term. Edouard Machery, however, has argued in favour of a nomological conception of human nature: "human nature is the set of properties that humans tend to possess as a result of the evolution of their species" (2008, 323). Grant Ramsey develops what he calls the life-history trait cluster (LTC) account of human nature; this nomological variant, besides its improvement on Machery's account, aims at disputing Lewens' claim, developed in his 2012 popular article *Human Nature: The Very Idea*, against Machery that human nature has no role in informing us concerning matters of human enhancement (cf. Ramsey, 2012). To the ethical and philosophical debate that ensues, however, human nature ought to be understood normatively: human nature reports to human beings as persons or agents, not biological kinds. Moral personality or agency as the central feature of human nature belongs to a philosophical tradition that dates back to Aristotle, Stuart Mill, Kant, and T. H. Green (cf. Brink, 2019). It has served to provide answers to questions concerning the ways we should live our lives as rational and moral beings and what goods, capacities, and relations we should consider as potentially valuable to flourish as such. It's not only about the presence of perennial biological traits that define us as human beings, but rather about presenting a comprehensive ethical understanding of the person and what constitutes a meaningful and fulfilling life. Thus, the concept of human nature is better understood as a socially and politically constructed idea, subject to variation depending on time, place, and the actors involved. It necessarily functions as a sociohistorical product, shaped by particular cultural and societal influences. This dynamic perspective underlines that human nature is malleable, constantly redefined, and put to work for different ends by those seeking to promote specific understandings of it within particular social and political contexts. It is this flexibility of the concept of human nature that allows it to be wielded as a tool in shaping our current perceptions, beliefs, and behaviours on what we are and ought to be. Human nature developmentalism clearly makes use such an understanding of the concept, adopting a notion that is firmly rooted in a well-established philosophical tradition. Above all, the central aim is to establish a broad ethical understanding of the human being that we consider valuable and worth protecting and promoting with the aim of providing us with normative guidance in the discussion regarding the ethics of human enhancement.

nature, Darwin identified one which is particularly relevant: habit and reasoning help and lead to the development and broadening of the instinct of sympathy for others (cf. 1871, 86).

Another line of argument sustains that to change human nature may be what is morally required from us. This is the pervasive argument used by transhumanists and that has deep cultural and philosophical roots in Western tradition, from Greek mythology and philosophy to the Renaissance (*e.g.*, Mirandola) and the Enlightenment (*e.g.*, Rousseau, Kant, Marx). Related to this is the developmental notion of human nature: creativity is posited as our essential defining trait, and it is contingent upon the scientific and technological means of labour available at a particular time. Human nature maintains its normative value independently of the changes it suffers from the transforming of the world we inhabit, which ends up changing us through our interaction with each other and the environment (cf. Macpherson, 1973).

These alterations redefine the notions of normalcy and naturalness, questioning the belief that humans should refrain from intervening in conventionally settled normal and natural aspects.

As an example, the naturalness argument is used in relation to human excellence in sports, in the displaying of the "natural talents and gifts that are no doing of the athlete who possesses them" (Sandel, 2007, 28). On this account, human enhancement operates against what was given to us by nature, but this position is problematic as it faces the familiar additional difficulty of ascertaining how "internal" an intervention needs to be to cross the threshold of naturalness. A further difficulty arises when the natural is contingent on the individual. Bostrom and Roache mention the genius example as paradigmatic: an individual with an above average cognitive capacity who suffers an injury that reduces his capacities is *treated* so that his intelligence and his normal healthy state are restored. In contrast, an uninjured individual with cognitive capacities below average who decides to pharmacologically improve himself is *enhanced*, even if his capacities are still below average. In this situation, if the distinction between treatment and enhancement is to have any ethical significance, enhancement is not permissible, which seems counterintuitive regarding the results of both interventions (cf. 2008, 2).

The second set of ideas, the treatment/enhancement distinction, is also a constitutive feature of the "not-medicine" account. Like Pellegrino, Theodore Benditt, claims that medicine has a restorative function and that while treating a patient is part of the healing that medicine ought to provide, to enhance him is not within its scope, even if physicians have the skills to do it (cf. 2007, 17). This surely contradicts the pro-enhancement position according to which therapy and enhancement are part of a "continuum between treating dysfunction and enhancing function" (Harris, 2007, 87). Against this idea, the advocate of the "not-medicine" account presents three arguments. First, treatment enjoys priority over

enhancement because preventing and curing diseases and dysfunctions helps alleviating people's suffering and provides them the conditions to flourish and enjoy their autonomy in a way that is more decisive than enhancement. Second, treatments are usually more accurate, predictable, cheaper, and safer than enhancements. Third, distributive justice may demand that treatment ought to enjoy priority over enhancement because diseases disadvantage people in ways that the lack of enhancement don't (cf. Malmqvist, 2014; cf. Hofmann, 2017, 4). Malmqvist's argument is based on the premise that "health is a special good" (52) in ways that enhancement is not, but it seems to fall short of its purpose because the pursuing of health and enhancement need not be contradictory purposes. Research and development may work both ways and sometimes treatment and enhancement seem to collapse into the same end. Jonathan Glover, for example, argues quite convincingly that "some enhancements may add to flourishing as much as eliminating disabilities" (2006, 36). If what we care about is human well-being and flourishing, then it is difficult to find the moral justification to uphold a medical boundary to enhancement. Besides, individuals may not always assign priority to preventing disease and valuing longevity. Common day to day trade-offs include sacrificing those and favouring unhealthy but otherwise pleasurable activities (cf. Savulescu, 2001, 419).

Moreover, Malmqvist's justice-based objection rests on the doubtful (ethical, political, and economic) premise that enhancements ought to be denied unless and until the worst-off have been provided access to a basic threshold of resources, capabilities, or well-being. If this was so, many medical technologies, like vaccines, contraception, and antibiotics would have hardly become widely available and accessible (cf. Harris, 2007, 31). Analogous to the situation seen with numerous medical technologies, initial research and development can start as an expensive, risky, and exclusive enterprise, but they often become cheaper, safer, and widely available and accessible. Malmqvist's objection resembles that of Savulescu and Persson concerning the halting of scientific and technological innovations because of the high risks they carry before humans are morally equipped to properly manage those risks. In this situation, there seems to be no moral case to be made in favour of limiting the access to new technologies until the moment there's enough to go around for everyone in the planet. In the same way, from a moral point of view, the delaying of research and development of new technologies because we currently lack scientific knowledge to be able to treat existing diseases and disorders seems unjustified.

Atop of this challenge, the treatment/enhancement distinction faces another: it depends on culturally, socially, and historically contingent vague concepts such as normalcy, naturalness, and health. Besides the idea that there are interventions that classify as treatments in one case and enhancements in another, further complications challenging the "not-medicine" account come from those defending that

both treatment and enhancement serve the same purpose of improving human flourishing and well-being (cf. Glover, 2006; cf. Savulescu *et al.*, 2011). Savulescu claims that "[t]reatments are enhancements. Treatments are a subclass of enhancements. Diseases are a subclass of disabilities" (2006, 325). On this definition, enhancements comprise the medical treatment of disease as well as enhancements increase one's capacities beyond what is typical for our species. By itself, enhancement doesn't fall outside of the scope of medicine because treatments themselves enhance health. We'll look in more detail at the welfarist account below.

But to illustrate these problems, recall the case of the 80-year-old person I mentioned in the previous section. His overall capacities are no longer those of a 20-year-old and we can say he is not as healthy as a younger person. However, an intervention aimed at restoring his failing capacities and bodily functions to a level not normal to that of an 80-year-old would put him above "the natural human functions that constitute health" (Sandel, 2007, 27) for a person of his age (cf. Roberts, 2014, 3-4).

Likewise, vaccination lays bare the inadequacy of the ideas presented above. If an enhancement is any intervention that improves normal functions or features of a member of our species, as Daniels claims it is, then vaccination is clearly an enhancement and should have the same ethical implications as other less easily accepted enhancements have. Yet, it is hardly the case that we see vaccination as morally problematic as some instances of moral enhancement already discussed. One can say, however and in accordance with Sandel, that vaccines are part of medical treatment since they serve the purpose of preserving the natural functions constitutive of human health (cf. Roberts, 2014, 5).

But Sandel's attempt to render treatments permissible and enhancements impermissible is problematic and unpersuasive. He claims that treatments honour nature while implying that enhancements desecrate it (cf. 2004, 57). But then again because viruses and cancer cells are part of nature, this doesn't mean that we ought to honour them or that they're sacred. Natural and good are distinct conceptual categories: "the natural can fail to be good and the good can be unnatural" (Kamm, 2009, 103). For example, some medical treatments, like antibiotics, might be considered unnatural not only because they are manmade products, but also because they are synthetic substances. Yet, they serve the good purpose of saving lives by fighting infections. Genetically modified organisms are also seen as unnatural, but their development can improve agricultural yields, increase the nutritional content of foods, address food security issues, and assist in preventing hunger. Hence, it is not that clear that vaccination is unproblematic; at least, the distinction treatment/enhancement blurs the discussion. If we immunise ourselves, we are rejecting the openness to the unbidden, lacking humility before the mystery

of life, and not honouring nature by overriding its dictates. But these hardly qualify as plausible candidates from which to derive moral imperatives to justify medical interventions.

Sandel's argument also rests on the idea that the desire to master nature is hubristic. We saw in the previous chapter how this idea is hard to support. Medical interventions to cure or prevent illness involve a high degree of mastery and manipulation over nature. It is natural to catch a cold when we go outside during the winter, and it is difficult to argue against treating the cold based on the grounds that it represents a manifestation of our power against nature or a desecration of the natural. It seems highly doubtful that we can condemn the work of a scientist trying to find the cure for a particularly dangerous virus solely on the grounds that he is also motivated by a deeply ingrained personal desire to master nature (cf. Kamm, 2009, 95).

As was mentioned, health and disease raise equally problematic issues when used as attempts to render enhancement impermissible. These concepts are also deeply related to those of naturalness and normalcy: disease is defined as a deviation from natural and normal species-typical functioning[48], thus reflecting the naturalistic essence of this account. Christopher Boorse and Norman Daniels argued in this way. While disease "reduces species-typical normal functioning below some statistically defined level", enhancement increases it (Savulescu *et al.*, 2011, 5). Again, the idea is that the treatment of diseases enjoys priority over enhancements because medicine and society's ethical goal is to keep individuals at the statistically normal level of functioning. This naturalistic conception faces important shortcomings that are morally relevant, the first being the proper determination of the level above which we no longer tackle a disease but provide an enhancement, which Daniels calls the "normal function or feature of members of our species" (2000, 309). Savulescu and colleagues illustrate this quite clearly: an IQ below 70 is considered intellectual disability, which is treated as a disease, meaning that to raise a person's IQ above 70 is no longer a matter of treating disease, but of enhancing her intelligence (cf. 2011, 5). Other cases illustrate how an intervention is simultaneously a treatment and an enhancement, which is clearer when applying Daniels' definition. For example, had Milo of Croton suffered an injury when wrestling, his receiving treatment would also have seemed to be an enhancement. Normal people do not have Milo's physical strength and to treat him seems to fall under Daniels' definition of enhancement as "interventions

[48] There are multiple and distinctive theories of disease, and consequently they provide different lines of reasoning to restrict or ruling out enhancements. Conceptions of disease include normativistic, naturalistic, and hybrid definitions (cf. Gee, 2016; cf. Hofmann, 2017, 6-7). Normativistic conceptions tend to define disease as socially and culturally specific, thus attributing biology neutral value. Naturalistic conceptions, on the other hand, tend to classify disease as the malfunctioning of some internal biological state. In what follows, I'm mainly concerned with the naturalistic conceptions because of their predominant role in the literature on the ethics of human enhancement.

that improve a condition that we view as a normal function or feature of members of our species" (cf. 2000, 309).

Both disease and enhancement are departures from normal or species-typical functioning. While treating dysfunction is restoring normal functioning, enhancement is an interruption of it. But this line of reasoning holds only to biomedical interventions voluntarily designed to enhance function, because there are enhancements that happen unintentionally. In fact, as we also saw, to restore functioning is also to enhance the individual who's functioning below the species-typical level. Besides, for what reason do we value specific traits? The idea that we value them because they are the *normal* constitutive elements of species-typical functioning seems insufficient. We value those traits because of their non-instrumental value as components of our human flourishing. Living a longer and healthier life and having greater resistance to diseases can go against normal or species-typical functioning while contributing to one's flourishing (cf. Harris, 2007, 53). Thus, the prudential and moral value of interventions seems to lie not in the normalcy of traits with reference to normal or species-typical functioning, but in their contribution to how one is capable of developing his capacities in order to flourish, and both treatments and enhancements can contribute to this end.

In addition, categories such as "pre-disease" and "patients in waiting" are increasingly blurring the meaning of being healthy and having disease, which are states conditioned on the present circumstances of a patient who can have already been diagnosed with a molecular abnormality susceptible of developing into a symptomatic disease (cf. Hofmann, 2017, 6). In these cases, standards of normalcy seem to be inadequate to define states of health and disease: "[a] "normal" red blood cell count does not make a person "normal". It is a normalcy only within the context of specific clinical questions (cf. Barilan & Weintraub, 2001, 316; cf. Hofmann, 2017, 6). It is thus questionable the reason why there is something prudentially or morally desirable about normalcy.

Furthermore, the rapidly expanding field of the Internet of Bodies (IoB) is set to further blur the notion of normalcy. As individuals embrace and merge with technologies that allow them to monitor various aspects of their bodies and health, the boundaries of what is considered "normal", or the norm, will become difficult to determine. This could lead to a situation in which each person's state is the norm. The Internet of Bodies will promote an extremely individualised approach to health and well-being, making it difficult to define a singular norm that applies to everyone (cf. Lee, 2020, 11). The lines between normalcy and difference will become more fluid.

To further illustrate the inadequacy of health and disease (and treatment and enhancement) to provide a restrictive framework to interventions, consider the following example. A woman has all the

symptoms that fit the medical criteria for depression and is prescribed Prozac by her doctor. After treatment, she is cured of depression, but months later she claims not feeling like herself anymore, or not feeling as good and self-confident as she did during medication, and so she asks her doctor to prescribe her more medication. Lack of self-confidence or self-esteem has a negative impact on various dimensions of one's life and well-being. While society values these qualities, they do not result from the impairment of any biological function; rather, they constitute psychological traits that vary in intensity and that different individuals possess to varying degrees (cf. Gee, 2016, 51).[49] The absence or low levels of self-confidence and self-esteem are not diseases requiring treatment if they fail to meet the medical criteria for depression, for example. In this context, because the woman is already in good health, choosing to take Prozac again would be considered a form of enhancement (cf. Gee, 2016, 51-52).

Hence, health and disease are illustrative of the challenge regarding what values the "not-medicine" account promotes. It fails in providing a satisfying answer as to why health and disease (and naturalness/normalcy and treatment/enhancement) are suitable candidates to render enhancements undesirable and impermissible. So far, we've seen that all the three sets of ideas seem not to do the work properly because they fail in some relevant aspect, proving to be too vague, contingent, and unclear as to their own definition, and misplaced as to the moral justifications of their goals. Additionally, in focusing excessively in the moral and normative work these sets of concepts are expected to provide to limit enhancement, the "not-medicine" account proves morally counterintuitive in failing to acknowledge that helping people feeling better ought to be the goal of interventions, irrespectively of how each of them is classified according to the prevailing taxonomy. This is why the welfarist account seems to be superior to both this and the augmentative account.

iii. The Welfarist Account;

The welfarist account of enhancement changes the focus of the discussion from a functionalist approach to an ethical approach. Interventions are valuable because they contribute to promote or increment the goodness of one's life, or personal well-being. This account was predominantly developed by Savulescu and colleagues, who define enhancement as

> [a]ny change in the biology or psychology of a person which increases the chances of leading a good life in the relevant set of circumstances (2011, 7).

[49] Catherine Gee (cf. 2016) develops a modified account of Jerome Wakefield's hybrid theory of disease. Her account is a clear-cut example of a not-medicine approach to enhancement.

In this sense, an enhanced state corresponds to one in which a person's biology or psychology increases the chances of leading a good life in one's specific set of personal and social circumstances, while an unenhanced state decreases those chances (cf. Savulescu *et al.*, 2011, 7). This account of enhancement directly derives its normative value from what is prudentially valuable to the person, *i.e.*, the value of well-being. Savulescu and Kahane further explain that "[i]f something leads to a reduction in someone's wellbeing, then that thing is bad for that person. This means that if something is a disability in our sense, then it is also by definition a condition that makes life worse" (2011, 46). According to the welfarist definition, disability is "[a]ny state of a person's biology or psychology which decreases the chances of leading a good life in the relevant set of circumstances" (Savulescu *et al.*, 2011, 12).

For that reason, enhancements ought to be broadly understood as comprising virtually *all* interventions that increase one's well-being. On the other hand, disabilities are equally broadly defined as encompassing diseases and disadvantageous states (cf. Savulescu *et al.*, 2011, 7). Reliance on supposedly normative valuable concepts such as the ones we saw in the previous sections, like health, disease, treatment, normalcy, and naturalness is outside of the scope of the advocate of this account. His aim is to conceptually reframe enhancement so it is exclusively related to the value of well-being, but at the same time being able to distinguish in what ways the value of enhancement contributes to one's well-being when compared to other values, like justice (cf. Earp *et al.*, 2014, 3).[50]

To use a previous example, if an average poet decides to use a performance-enhancing drug to write as brilliantly and delightfully as Homer, solely because that brings genuine happiness to his life, this would be considered an enhancement. But it is possible that another individual who takes the same performance-enhancing drug and surpasses his colleague's poetic abilities may not find any contribution to his personal well-being from being such a brilliant poet. Instead, what contributes to his well-being is to be as good a wrestler as was Milo of Croton. In this case, taking the drug wouldn't qualify as an enhancement since it didn't contribute to his well-being or to his leading a good life in a relevant sense; in other words, it is not prudentially good for him. Thus, a person is enhanced or disabled relative to how his "life could possibly go given certain bodily and mental states" (Zohny, 2016, 606).

[50] Concerning this relation with other values, in a recent defence of this account, a group of authors argued that "the goal of HETs [human enhancement technologies] should be to enhance quality of life and well-being, not just for individuals but also for the communities they participate in, applying principles of equity and social cohesion" (Bavelier *et al.*, 2019, 204). This doesn't entail that enhancements, understood as genetic, biomedical, or pharmaceutical interventions, are always the preferable or right procedure just because they increase one's well-being. Considerations regarding other values might suggest that, all things considered, there are other safer, more cost-effective, and socially inclusive possible alternatives. This is the reason why my developmental approach will require counselling to ensure a balanced consideration of these values.

There are some counterintuitive and problematic features of this account that are worth considering. As for its counterintuitive aspects, the first stems from the conceptual framework that guides the current debate on enhancement. The debate on the ethics of human enhancement is still too heavily influenced by the augmentative and "not-medicine" accounts' conceptual frameworks, which emphasise dubious moral distinctions and fail to grasp the value of well-being and ground the morality of interventions on it. As such, the functionalist critic, using standard transhumanist arguments regarding human nature, may object that on the welfarist account, individuals are always disabled to the extent that their current human bodily and mental capacities prevent them from leading better lives. This objection, however, seems misguided. First, what the welfarist account does is to reframe the ethical debate by rejecting the moral relevance of concepts like health, disease, naturalness, normalcy, treatment, and enhancement and focusing on whether any particular genetic, biomedical, or pharmaceutical intervention contributes to leading a good life. Second, it acknowledges that disability is a ubiquitous condition of one's life, which doesn't mean that one isn't leading a good life (cf. Savulescu *et al.*, 2011, 12). Lack of particular capacities or their age-related deterioration needs not affect one's ability to conduct a good life in the same way that one can lead a good life without making use of all of his capacities. The goal of the welfarist account on this matter is to avoid the moralised frameworks and terminology of its rival accounts and provide us "*prima facie* reasons to address conditions that are making an individual's life worse" (Zohny, 2016, 606). In other words, it evades morally arbitrary concepts such as species-typical functioning and normalcy and focuses on personal well-being in order to evaluate the value of interventions.

The second potential counterintuitive aspect of this account is that to enhance is not always equivalent of increasing or augmenting capacities. We saw this regarding the augmentative account: sometimes, to diminish one's capacities may be, in fact, considered an enhancement because that would be an intervention contributing to the increasing of the chances one has to lead a good life.

A third possible counterintuitive aspect of this account derives precisely from the use of the terms enhancement, therapy, and disability. Robert Sparrow has argued that to define "any increase in welfare as an enhancement loses contact with the ordinary language use of the term" (2013, 180). On his view, it would be more plausible to stick to concepts of normalcy and species-typical functioning to define enhancement. Christopher Coenen and colleagues assert something similar, claiming that this account ignores important qualitative conceptual differences so that it can render enhancement as a synonym for progress (cf. 2011, 523). But the problem is that those vague and morally arbitrary definitions are as counterintuitive as they are problematic since they provide no clear moral and ethical framework that relates interventions to prudential value.

This feature becomes problematic because it directly questions the consistency of the definition of enhancement given above. The objection here is that to define enhancement as "*any* change in the biology or psychology of a person" renders it too broad, thus turning everything into possible enhancements, from drinking coffee to college education, to neural implants. For example, Bostrom and Savulescu say that if we push this thought further, even literacy and mental algorithms as the ones we use to mentally perform basic arithmetic operations "are a kind of enhancement of our mental software" (2009, 2). Coenen and colleagues reproach this lack of a conceptual and methodological distinction between science/technology-based enhancements and conventional enhancements (cf. 2011, 523-524), but as Zohny notes, they do not provide a clear distinction either (cf. 2014, 124).

It is worth exploring what qualitative differences exist between conventional and non-conventional interventions with one aim in mind: the welfarist concern is that interventions focus on the ends (*i.e.*, increasing well-being) rather than on the means (*i.e.*, the scientific and technological tools employed).

The first difference concerns the already discussed question of how internal an intervention needs to be in order to depart from conventional enhancements. Since the integration of science and technology has always been present in human affairs, the objection here seems to be that beyond a certain threshold, science/technology-based enhancements are not permissible. But it is difficult to ascertain at what level the threshold should be placed and why these enhancements are morally problematic. The most plausible answer, as we saw from the objections of Sandel, Habermas, and Fukuyama, for example, is that these enhancements put important values at risk (*e.g.*, justice, autonomy, authenticity, safety) in a way that conventional enhancements don't. But this is hard to sustain since conventional enhancements often endanger and transform these values as well.

The research team of the SIENNA project[51] defines human enhancement as "a modification aimed at improving human performance and brought about by science-based and/or technology-based interventions in or on the human body" (Jensen *et al.*, 2018, 13). They also highlight the role of what they consider to be three relevant philosophical and conceptual distinctions framing the debate: normal/better-than-normal, treatment/enhancement, and natural/artificial. As for the welfarist account in particular, the team claims it goes beyond the scope of their work to define well-being and remain silent about it, despite referring to the value of well-being several times along their work. One of the key features of the team's definition is its reliance on the idea of science-based and/or technology-based interventions.

[51] The SIENNA project is co-ordinated by researchers of the University of Twente and the Trilateral Research (UK), and funded by the European Union Research and Innovation programme Horizon 2020 (cf. Https://www.sienna-project.eu/about-sienna/). It focuses on the ethical issues raised by three new and emerging areas of technology: human genomics, human enhancement, and AI and robotics.

The fact is that the definition of interventions the team provides offers no conceptual clarity. For example, the claim that to distinguish "between science versus technology-based interventions will most often mean separating biomedical procedures from the integration with discrete technological items" is, as they recognise "not always clear-cut" (2018, 14). But to couple science and technology so that interventions are "science-based and/or technology-based" seems insufficient to dismiss the main difficulty this idea faces, which is to keep non-scientific and/or non-technological interventions from counting as human enhancement interventions. According to the team members, the distinction would enable them to categorise something like education as a non-scientific and/or non-technological intervention (2018, 14). This is difficult to sustain, and it does no relevant moral work either.

Consider the following illustrative examples against both the bioconservative and the SIENNA team's positions. Education, progressively more intermixed with technology, stands as a fundamental human right that brings about profound and lasting transformations in a person's character and personality. We may say that education, but also the modest act of reading a book, may affect autonomy and authenticity significantly, and perhaps irreversibly. Moreover, the regulation of education is a matter of justice that impacts other important values, like equality and dignity (cf. Zohny, 2014, 125). Also, different scientific approaches within education sciences or education theory contest the idea that education can be rendered a non-scientific intervention. For example, the behaviourist theory of education has different methodologies, theories, and models than those of the functionalist theory, but both fit under the broad definition of a science-based and/or technology-based intervention provided above.

Food production is also an example of how science and technology help develop more efficient, systematised, controlled, and sustainable agricultural production, thus contributing to eradicate hunger and malnutrition, reducing food losses and waste. Good nutrition results from these developments and it has "obvious enhancing effects on our bodies and minds" (cf. Zohny, 2014, 125), which are life-changing depending on one having or lacking access to it.

Therefore, it is difficult to consider these as falling out of the category of enhancement given the non-welfarist definition provided above, since these are clear cases of science-based and/or technology-based interventions. If the idea is to restrict the concept of human enhancement, the SIENNA team would do better by abandoning the science-based and/or technology-based dichotomy because it falls short of performing the moral work intended by their authors. Instead, their definition muddles the debate because the categories of science and technology broaden the scope so that virtually any modification improving human performance can be defined as an enhancement. In addition, the reasons why the science-based and/or technology-based dichotomy is prudentially and morally relevant are not clear.

The second and most significant difference is the one presenting genetic, biomedical, or pharmaceutical interventions as temporary and effortless. While conventional enhancements have "stable and long lasting" (Zohny, 2014, 124) effects resulting from reiterated practise, as it seems to be the case with education and training, biomedical enhancements are only temporary and perceived as demanding little or no effort. Moreover, they are problematic because they attribute special moral value to individual effort, hard-work, and the continuous or even permanent effects of conventional enhancements. Effortlessness and transience are less or no valuable in this sense. These assumptions are hard to sustain. For example, it is expected that if enhancement drugs come to exist that promise to deliver its anticipated effects, they'll be more and more powerful, effective, and long lasting (cf. Zohny, 2014, 125). Transcranial random noise stimulation has been tested and successfully induced "long-term enhancement of cognitive and brain functions", revealing long-lasting effects up to six months (Snowball *et al.*, 2013, 987). Cosmetic surgery, transplants, and prosthetic enhancements are examples of interventions meant to last longer than enhancement drugs, while gene editing promises to change our human constitution permanently and irreversibly. In the same way, it is questionable that conventional enhancements are always the result of hard-work whose effects are long lasting or permanent. Education and training or physical endurance have these characteristics in virtue of their being continuously exercised, and despite being often acquired with great effort and hard work, they end up fading or disappearing as well. We are frequently unable to remember many of the things we learned during our lives and if we disregard regular physical training, we'll lost endurance and fitness (cf. Zohny, 2014, 125). Equally counterintuitive is the idea that enhancements necessarily lead to effortlessness. A great athlete who takes steroids will necessarily have to practise and train hard if he wants to wrestle as well as Milo of Croton. Similarly, to take a cognitive pill doesn't mean that an intelligent person instantaneously becomes more intelligent, but only that the pill boosts her wakefulness and alertness momentarily, not cognition as such. In fact, it can even suggest that one is putting extra effort in the task at hand by seeking to boost his focus and performance to study more. Also, to watch an entertaining documentary, to visit a museum, or to assist and participate in animate debates might be quite pleasant and require little or no hard work (cf. Zohny, 2014, 124). As such, the critic faces difficult challenges because if both types of enhancement share the same morally valuable features, biomedical enhancements are also valuable.

Another problematic feature of the welfarist account according to its critics is that it too quickly dismisses the treatment/enhancement distinction. Coenen and colleagues argue that this distinction is particularly useful for policy-making purposes, to decide how to legislate and determine the research, funding, and allocation of limited resources (cf. 2011, 523). In fact, the three approaches proposed by

the research group to a European policy on human enhancement[52] are all centred on the normatively valuable therapeutic/non-therapeutic distinction. Among other equally valuable principles, policymakers ought to decide on whether an intervention is permissible based on it being therapeutic or not. What's at stake is the already explored problem of prioritising therapy over enhancement because: a) the type of resources for therapy and enhancement are typically scarce and expensive, and b) disabilities (from which diseases are a subclass) severely limit one's chances of leading a good life. We saw how this is problematic in the context of the "not-medicine" approach. The welfarist approach offers a different answer. Because the value of well-being is the prudentially and morally relevant standard to judge whether an intervention is desirable, it sidesteps this objection. However, due to the scarcity and expensiveness of the resources, the welfarist is left with the hard task of answering the distributive challenge and to clarify how these resources will be distributed. Presumably, there will be interventions more pressing than others, and some will contribute more to well-being than others. Savulescu and colleagues say little about this, save that "the welfarist approach distinguishes ways in which some treatment might benefit a person from other relevant values, such as justice" (2011, 7). It can thus be said that the welfarist account is a value pluralist account. While presenting well-being as its starting point to think about enhancement and disability, well-being doesn't trump other values when it comes to the moral, ethical, and political decision making (cf. Zohny, 2016, 608). Plus, as Zohny argues, "the welfarist account is not a stance on the permissibility of enhancement", but aims simply at defining the concept" (2016, 608). Consequently, there can be other relevant reasons why interventions ought to be permissible or impermissible other than well-being. I plan to delve into this subject in the final chapter of my thesis, where I will introduce the concept of developmental counselling.

In addition, Patrick Lin and Fritz Allhoff note that if no distinction is made between therapeutic and non-therapeutic interventions, "all forms of human enhancement are morally permissible given that the

[52] These are "a reasoned pro-enhancement approach", "a reasoned restrictive approach", and "a systematic case-by-case approach". In the end, they propose their own alternative, which places great emphasis on values such as autonomy, fairness, and physical integrity, and asks for a democratic decision-making procedure that involves either the creation of a committee by the European Parliament, or a working group by the Commission (cf. 2011, 532-533). During a 2016 European Parliament Science and Technology Options Assessment (STOA) Working Breakfast, discussions were held to explore a European approach to human enhancement. Distinctions such as restorative/preventive and therapeutic/non-therapeutic were assigned significant normative weight to guide policy decisions. The authors recognised the existence of a large variety of definitions of human enhancement and thus propose the following: "any 'modification aimed at improving individual human performance and brought about by science-based or technology-based interventions in the human body'" (6). This definition resembles that of Alberto Giubilini and Sagar Sanyal presented earlier but makes no reference to specific values other than performance. It is a comprehensive definition of enhancement and as such we are left with no answers to what kinds of interventions are non-enhancing or in what ways can it provide policymakers with conceptual clearance and guidance. Science/technology-based interventions comprise virtually every known voluntary and involuntary, desirable and undesirable modification to the human body. The definition of enhancement given by the research team of the SIENNA project is similar to this one, with some slight modifications (cf. Jensen *et al.*, 2018, 13).

things we count as therapy are permissible" (2008, 254). But sometimes there is no reason to assume that therapy is always necessarily permissible or desirable because it is sometimes conditional on one's personal circumstances. For example, the choice between two treatments takes into account which one has less adverse effects on patients, and often some patients invoke informed refusal in order to reject recommended medical treatment on other basis rather than the safeguarding and extension of health and life. There is also discussion regarding the non-consensual psychiatric treatment, which may be impermissible even if it promotes autonomy, health, and life (cf. Cherry, 2010). So, on the welfarist account, the morally relevant distinction to be made is one ascertaining whether an intervention to the body and/or mind tends to contribute to well-being or not. Typically, conventionally branded therapeutic interventions contribute more to one's chances of leading a good life than non-therapeutic interventions. Where the welfarist account contributes to the debate is in the fact of assessing interventions of both kinds regarding the ways in which they can contribute to one's well-being without the need for puzzling and arbitrary conceptual distinctions that muddle the debate and do no relevant moral work.

At this point, the critic may object with the fetishising of well-being and, more importantly, with what is well-being and what is its nature. He can also contend that the welfarist account, due to its exclusive focus on a descriptive understanding of enhancement based on subjective individual well-being, lacks the capacity to address significant ethical concerns within the debate on human enhancement. Here, there are two specific challenges pressing the welfarist to which he cannot provide suitable answers.

The first concerns the fact that his account is excessively individually focused. The welfarist account is predominantly based on subjectivist theories of well-being, namely hedonism and desire-fulfilment. Although these accounts of well-being converge in providing an account of goods that are valuable to individuals (cf. Savulescu *et al.*, 2011, 10), they face difficult problems. For example, the hedonist claims that *all* and *only* pleasure is intrinsically valuable. However, pleasure is not just the *only* value that contributes to well-being, since our well-being also depends on other things besides our hedonic levels, as the paradigmatic experience machine demonstrates. Also, base pleasures (*e.g.*, immoral, trivial, or undignifying) demonstrate that not *all* pleasures contribute positively to our well-being (cf. Fletcher, 2016). On the other hand, the desire-fulfilment theory states that what is of prudential value to an agent is the satisfaction of his desires. But not all the things we desire are valuable and good for us, even if we're truly convinced about their possible goodness. Likewise, some things are good even if one doesn't desire them at all (cf. Fletcher, 2016).

Thus, by relying on these problematic theories of well-being, the welfarist account faces similar challenges. Its descriptive definition and understanding of enhancement, which is too closely tied to

subjective definitions of well-being and the good life, will as a result direct us towards unreliable ideas of what enhancement should be all about. This is the problem of fallibilism: individuals are fallible and may not be certain of what is good for them (cf. Zohny, 2014, 126). For example, individuals looking to maximise their pleasures and desires may seek to enhance traits conducive to those ends, even if they're not inherently valuable.[53] On the comprehensive welfarist definition according to which *any* change in a person's biology or psychology is an enhancement, an intervention that maximises instrumentally valuable goods, or goods that don't serve a general purpose (*e.g.*, height, eye colour, sex), is also an enhancement.[54] As such, there are subjective pleasures and desires that can contribute to well-being but that can end up serving ordinary individual whims. This is because some or perhaps most of the things that maximise one's pleasure and satisfy one's desires are not always non-instrumentally valuable (*e.g.*, some unhealthy and base activities can be pleasant and satisfy our momentary desires). If too much normative weight is placed on subjective desires and enhancement is exclusively tied to individual biddings, it is possible that traits that contribute to (subjective) well-being but that are, all things considered, detrimental to human individual and societal flourishing, are also deemed as enhancements.

This requires us to elaborate on what sorts of goods we need to put together to define human flourishing and what we understand as a life that goes well, *i.e.*, a good life, since these are highly controversial and contested concepts. Recall the already mentioned example of Sharon Duchesneau and Candy McCullough, the deaf lesbian couple who wanted to have a deaf child and used donated sperm from a friend who had hereditary deafness (cf. Spriggs, 2002). While, according to their perspective, deafness is not considered a disability, others argue that the couple's decision to deliberately select a deaf child poses a significant threat to her autonomy. They claim that it violates the child's rights to an open future by impairing her capacities for flourishing and leading a good life (cf. Glover, 2006). My aim

[53] Inherent value differs from intrinsic value. Material possessions, activities, and traits can hardly qualify as valuable in any meaningful way "if the experiences they make possible are not in some way enjoyable or good in themselves" (Frankena, 1963, 82). Inherently valuable things make contemplating or experiencing them intrinsically valuable (cf. Audi, 1997, 139). In his work on perfectionism, George Sher mentions the distinction but makes little use of it. He acknowledges that some perfectionists distinguish between intrinsically valuable capacities and inherently valuable activities and traits: "some [...] do not believe that any activities or traits are *intrinsically* valuable" (1997, 9), and thus prefer to define them as inherently valuable. In the context of my developmental account of well-being, I'll always refer whether to instrumental or non-instrumental value (*e.g.*, valuable goods and activities). Instrumental valuable goods and activities are those whose value resides in their serving as a means to achieve some other desired end. They are valued for the purpose they serve rather than for their inherent nature or qualities. Like money, enhancements are also a good example of one of these goods. On the other hand, non-instrumental valuable goods and activities report to those whose value lies in their own inherent nature or qualities, they don't have any ulterior purpose other than their fruition. Engaging in creative activities and developing and enjoying meaningful relationships are non-instrumentally valuable activities (*i.e.*, they are valued for the direct experience and fulfilment they provide). I'll develop this further in chapter 4.

[54] General-purpose means or goods are those Buchanan and colleagues identify as being "useful and valuable in carrying out nearly any plan of life or set of aims that humans typically have" (2000, 167). They can also be called natural primary goods and are analogous to Rawls' social primary goods (cf. Buchanan *et al.*, 2000, 167-168).

here is solely to demonstrate the shortcomings of the welfarist account, arising from its dependence on subjective theories of well-being. I won't delve into reproductive ethics at this point but will revisit this topic at length in later chapters.

Despite the couple's claim that to be deaf is to take part in a cultural identity and to use signing as a sophisticated and unique form of communication (cf. Savulescu, 2002, 773), it is hard not to see deafness as an obstructing condition under certain circumstances. For example, according to Glover, deafness, like blindness, is an important obstacle to human flourishing since it

> impairs safe navigation through the world. But there is also the loss of a whole dimension of enriching experience: the sounds of rivers and waterfalls, of male and female voices, of laughter, of tractors and birds, of coffee bubbling, of the baby's first cry, of the whole of music (2006, 23).

On the welfarist account of enhancement, deafness can be classified as a disability (cf. Savulescu *et al.*, 2011, 12). At first sight, this might indicate that, under some circumstances, the child's prospects of leading a good life will not be impaired (*e.g.*, if she is living among a community where signing is largely used), while under different circumstances it will most probably affect her well-being (*e.g.*, if traveling to somewhere where signing is not as ostensibly used). As we saw, the reason for this is that a person becomes disabled or enhanced "relative to how well their life could possibly go given certain bodily or mental capacities" (Zohny, 2016, 606). The welfarist account of disability faces two problems at this point: first, it loses contact with our intuitions and everyday language as to what a disabled state is. The same happens with the term enhancement, as we saw above. An individual who is discriminated against because of his ethnicity, sex, or religion can be said to be disabled under this account. He cannot lead a good life under these particular circumstances. But we usually don't say that someone who suffers from social discrimination is in any way disabled. The second problem is that while the welfarist argues that this is social discrimination and should not count as a disability, he concedes that social prejudice is a relevant circumstance that decreases one's well-being (cf. Savulescu & Kahane, 2011, 46). Savulescu and Kahane wish not to count social prejudice as disability, but in doing so the welfarist account becomes as moralised as the accounts it criticises. By taking this step, the account no longer captures

> the fact that disability can arise from how, both, discriminatory and non-discriminatory circumstances interact with our biological and psychological states to impact our well-being (Zohny, 2016, 609).

Here, Zohny's alternative to overcome this difficulty is to refocus on the main goal of the welfarist account, which is to capture the nature of advantageous and disadvantageous biological or psychology states (cf. 2016, 609). So, while a discriminated person is not disabled under certain detrimental circumstances to her well-being, she is nonetheless disadvantaged. But this, too, seems counterintuitive and morally problematic. It would entail that when having black skin, or being Christian, or homosexual under certain circumstances that reduce one's well-being and his chances of leading a good life, those traits make him disadvantaged. Hence, biomedical interventions become a way of enhancing one's biological or psychological states to overcome disadvantage. As counterintuitive and morally problematic as it may seem, according to the welfarist account, a black person who undergoes an intervention to have paler skin is an enhanced person (cf. Zohny, 2016, 609).

Consequently, both the welfarist definition of well-being and the nature of well-being itself seem to be problematic on the welfarist account. What this suggests is that we would do better by looking elsewhere to determine what it is that really constitutes one's well-being and a good life. In other words, we need to understand what goods are non-instrumentally good (and bad) for human beings and what their nature is. Another important and perhaps most decisive way in which the welfarist account provides no guidance respects the combined use of gene editing and reprogenetic technologies to determine the genetic makeup of future children. Parents' rights to reproductive freedom conflict here with the child's rights to autonomy and an open future. For example, Savulescu claims that no value judgments should be imposed on parents in order to restrict their reproductive freedom (cf. 2002, 772). His argument is that

> [r]eproduction should be about having children who have the best prospects. But to discover what are the best prospects, we must give individual couples the freedom to act on their own value judgment of what constitutes a life of prospect (772).

This, too, seems to be an excessively individual approach to assess on what grounds enhancement ought to be used. It places too much weight on parents' right to procreative liberty *vis-à-vis* the interests of the child. Let's return to Sharon Duchesneau and Candy McCullough's case. They made the decision to have

a deaf child, which, according to the welfarist account, is considered a disability, or, on Zohny's version, a disadvantageous state that on specific circumstances negatively impacts one's well-being. The paramount question here is "what do we owe to our children?" I believe its right to assume that under the welfarist account, what we owe to future children are the biological and psychological states that will increase their chances of leading a good life in the relevant set of circumstances. But this is problematic because not only future circumstances are unknown, but it can potentially perpetuate social stigma and injustice through the competitive pursuit of genetic positional goods (cf. Glover, 2006, 103). What's more, it says nothing about what a good life is beyond what the parents think it constitutes the prospects of a good life, thus sanctioning procreative decisions like those of Duchesneau and McCullough. Consequently, germline genetic interventions and the enhancement of unborn children could benefit from the existence of a well-defined list of goods that are always and at all times non-instrumentally valuable to human beings. This could be a possible way to go, but it is absent from the scope of the subjectivist account of well-being given by the welfarist account. Although its advocates claim that some all-purpose goods (*e.g.*, general intelligence, autonomy, memory, empathy) "are valuable regardless of which kind of life a person chooses to live" (Savulescu *et al.*, 2011, 11), these goods are presented without any reference to specific kinds of a life worth living. They're also not integrated into a hypothetical objective list capable of providing a meaning to the dispersed ideas on what it means to be human that pervade the debate on transhumanism and the ethics of human enhancement. Ultimately, a significant shortcoming lies in the absence of a coherent notion of human nature that can provide the groundings and direction for identifying and understanding the concept of a flourishing life.

Despite this, the welfarist argues that some goods are more valuable than others. All-purpose goods are more valuable than positional goods. For example, "memory, self-discipline, patience, empathy, a sense of humor, optimism, and just having a sunny temperament" (Savulescu *et al.*, 2011, 11) are examples of all-purpose goods. Contrary to positional goods, such as increased height or larger biceps, "whose goodness for those who have them depends on other subjects not possessing them" (Bostrom & Savulescu, 2009, 11), all-purpose goods are not competitive in their essence, thus benefiting the person who possesses them while not imposing losses on people who lack them (cf. Anomaly, 2014, 185). But in the case of rendering the selection of positional goods morally impermissible, that seems to undermine the parents' right to procreative liberty and the right to search for the best possible prospects of leading a good life under the relevant set of circumstances, which may require the pursuit of positional goods for children not to be deemed disabled or disadvantaged. In a society in which men's height is highly valuable

and has a correlation to personal and professional success, parents might think it will be prudentially good for their children to be tall.

But this is not to say that the pursuit of positional goods ought to be morally permissible since their general pursuit through a genetic competition in a genetic supermarket would ultimately prove self-defeating. It merely stresses the fact that the welfarist account needs further elaboration so it can resolve the various contradictions at work within it. The account gives no clear answer as to how the balancing between extended parental rights to procreative liberty and limiting the pursuing of positional goods should be done. It appears to endorse an imbalance between procreative liberty and the interests of the child. Its reliance on subjectivism emphasises the individual promotion of the values of pleasure and satisfaction of desires, but it remains fairly silent as to what a good life is or how human beings flourish *qua* humans. And while welfarists recognise that different theories of well-being, including objective list theories, converge to a great extent on what goods contribute to a good life, hedonism and desire-fulfilment don't seem to be good candidates to accommodate the discussion on the moral and ethical permissibility of human enhancement. The reason for this is that pleasure and desires, although important, are elusive goods for the purpose of defining a coherent welfarist theory to frame the permissibility of enhancements. The welfarist recognises this and introduces the clause that positional goods ought not to be enhanced.[55] Furthermore, if the welfarist were to say that we should adopt an objective account of well-being and select a specific list of non-positional, all-purpose goods, he would be faced with the further difficulty of justifying why to choose that particular list and not a different one (*i.e.*, each good on the list must prove to be non-instrumentally valuable). Additionally, he would need to put forward an explanatory theory justifying why and in what ways those particular goods are prudentially good for humans. From this challenge emerges another related to paternalism and elitism; any list faces the charge of being alienating (cf. Fletcher, 2016). Perhaps these reasons suffice to justify the absence of a welfarist list of objective goods in the literature.[56]

The welfarist position on how relevant social circumstances impact one's well-being is highly problematic as well. The semantic sleight-of-hand aimed at avoiding references to the morally dubious concepts of ability and disability leads to the equally morally dubious and moralising concepts of advantageous and disadvantageous states, which maintain the counterintuitive implications of the account.

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[55] As we'll see ahead, positional goods introduce additional complexities, as it might be possible that a positional good is positional but non-instrumentally valuable at the same time.

[56] Jonathan Glover, however, gives credit to Martha Nussbaum's objective list of goods as being one that "gives an account of what is recognizably a good life for us rather than for Martians" (2006, 89).

Therefore, well-being is presented as an excessively all-encompassing, indeterminate, and descriptive value, with no tangible contribution to ascertaining whether an enhancement is ethically permissible, and so offering little guidance for policymaking. This is clearer in the pluralistic framework adopted that puts well-being as one value among other equally important values. This is not to say that well-being is not an appropriate value to evaluate human enhancement and ground value judgments on it, only that we need a different rationale on which to ground it so that we can overcome the difficulties with which the subjectivism of the welfarist account saturates the debate.

The second challenge to which the welfarist cannot provide a suitable answer concerns its failure in accounting for the problems resulting from the tension between the personal and the collective outcomes of enhancement. In specifying that enhancements ought to increase one's chances of leading a good life in the relevant set of circumstances, but because it is simply focused on defining enhancement in individual terms, it eschews from the far-reaching examination of individuals' socioeconomic context and the broader societal and collective repercussions of enhancement. Also, it seems to fail to acknowledge that what is good for individuals may undermine the well-being of groups of individuals or society in general; all things considered, to treat well-being as something exclusive to individuals may not make the world a better place (cf. Bjorn Hofmann, 2017, 7). For example, a society that is structured around inegalitarian social relationships and excessively values competitiveness, selfishness, and acquisitiveness may end up compelling its citizens to enhance traits compatible with these values. Again, this is not to say that the welfarist account has nothing to say about the social repercussions of enhancement. However, to achieve this effectively, it needs substantial revision to overcome the confining boundaries of its descriptive framework.

In his defence of the welfarist account, Zohny, following Savulescu and colleagues, insists on the idea that issues regarding the ethical permissibility of enhancements are beyond the scope of the account because its goal is simply one of conceptual explanation. The value of well-being as the prudential good that better explains why interventions are good or bad for individuals may not be the only decisive value to consider when pondering on the permissibility of interventions (cf. 2014, 127). Values like justice, equality, and friendship are equally valuable in setting normative limits on interventions that promote one's well-being. But how they interact with well-being is not clear. Presumably, in the case of justice, the increasing of individual well-being through the permissibility of a biomedical intervention is conditioned on whether the relevant resources are available to that end. How to measure justice will provide a clearer answer to understand how resources are to be allocated, but the welfarist provides no definitive answer to what theories of justice are the most likely to increase one's chances of leading a good life. What is

clear is that the state is to be a neutral agent between different conceptions of the good life and interfere only when preventing harm is needed (cf. Savulescu *et al.*, 2011, 15).

But the kind of resources that are most likely used in biomedical interventions aimed at incrementing well-being are limited, expensive, and require severe regulation due to the risks they carry and the complexity in administering them. Most likely, their promotion will depend on state sponsored public policies. While some of these goods are all-purpose and neutral goods that a neutral state ought to promote, others are non-neutral goods, but they still contribute to human flourishing and are in equal need of collective and public support. For example, goods such as food, housing, health care, and basic education are fairly neutral concerning human flourishing, and their provision doesn't require individuals to develop specific personal capacities to engage with them. But relational, cultural, and political goods are non-neutral goods as their significance is highly contextual and oriented towards specific types of life in particular backgrounds. They require individuals to develop particular capacities in order to engage with very specific activities, like personal and civic relationships, and social, cultural, and political participation. These are constitutive elements only to some conceptions of the good life. A monk living a highly ascetic life in an isolated religious community will hardly find these capacities useful and will most probably assign no value to a life of political engagement or aesthetic and intellectual fruition. In this way, non-neutral goods require personal, institutional, environmental, social, cultural, and political conditions that go beyond the distributive scope of a neutral state in many relevant ways. I will return to this problem in later chapters to understand how to distribute relevant goods to human flourishing. The point here is simply to reveal how the welfarist promotion of the value of well-being as the main drive to evaluate interventions is heavily dependent on other values. This entails that considerations on individual well-being will often be dependent on other considerations (namely justice) and on value judgements regarding what neutral and non-neutral goods are and on what basis they are to be allocated. In this way, once more, it becomes crucial to enquire whether the welfarist understanding of well-being is sufficient or requires further enquiry. We need to enquire the broader nature of well-being and what characteristics render it a prudential good. We should ask: in what ways does well-being contribute to one's life?

This problem is connected to another. Not only does it fail to acknowledge that what is good for individuals may undermine the well-being of groups of individuals or society in general, but the welfarist account seems to fall short of taking into consideration broader societal and collective factors that contribute to determine individual well-being. In other words, all things considered, to treat well-being as something exclusive to individuals may not make the world a better place. Part of the enquiry regarding the nature of well-being as a prudential value concerns the social conditions under which some

interventions are constitutive of a good life. Again, the welfarist eschews this discussion shielding himself behind his primary goal, which is to define enhancements in welfarist terms. This position is clear in Zohny's defence of welfarism (cf. 2014, 127). But well-being is context dependent. Different social and indeed cultural circumstances need to be considered as defining features of what well-being and a good life are. There are examples in the literature aiming at proving how social pressures redefine these categories and, consequently, enhancements. Above, I mentioned the cases of competitiveness, selfishness, and acquisitiveness, which are traits common to contemporary capitalist market societies. In these societies, direct and indirect pressure exist that end up defining well-being in terms of interventions that promote changes in the biology or psychology of a person which increase the chances of leading a good life in their relevant set of circumstances. Individuals who choose to not undergo such interventions or who lack the resources to pursue them privately will presumably live less good lives than their enhanced peers. Zohny sidesteps this problem by pointing out to the concurrence of other values besides well-being, which will end up limiting the ways in which interventions will result in causing harm to others (cf. 2014, 127). But this result is likely to be the case with virtually all interventions promoting important non-neutral goods such as social and political activities that are limited in their availability. While competition for these positions may require the enhancement of particular human capacities, not all individuals will have access to them and thus their well-being may be less than optimal. Moreover, in defining well-being in relation to other values operating under a broader basic structure, well-being enjoys no special priority when it comes to deciding the permissibility of enhancements because other considerations trump individual well-being. Consequently, pressures to maintain productivity, competitiveness, and selfishness might lead to a situation where enhancements are viewed as instrumentally valuable, but not connected to any prudential value, and still be permissible. Conversely, in a highly egalitarian society, interventions that promote such traits may be deemed impermissible on grounds other than well-being. For example, Zohny argues that hyper-capitalist societies can end up redefining well-being into something impoverished: "it is difficult to imagine how it can be called a vision of well-being to begin with" (2014, 128). I agree with Zohny in that some conceptions of well-being are more impoverished than others. However, this seems to subvert the non-moralised conception of well-being that the welfarist account aims at delivering. For instance, a society that greatly values patriotism, frugality, and a very strict work ethics may find it useful to promote values like individualism, competitiveness, and efficiency. Societies valuing highly spiritual and contemplative conceptions of the good life may find the latter to be an impoverished conception of well-being.

Whatever the case may be, the descriptive welfarist account, focused only in defining enhancements as interventions that increase well-being, falls short of providing further guidance concerning the moral and ethical permissibility of enhancements. While it succeeds in tying the concept of well-being to enhancement and thus avoiding the morally dubious distinctions that render its competitive accounts inadequate, its concept of well-being is still too vague and individually focused, rendering enhancement too broad and too dependent on concurrent values to have any tangible influence for purposes of policymaking. If anything, we now know that we need to enquire further about what makes goods and activities non-instrumentally valuable for human beings. This suggests that we look into human nature as the possible unifying framework of these goods, which might give us a plausible explanation for why and what enhancements are worth pursuing. This is the task for the next chapter.

c. Conclusion

The aim of the present chapter was to examine the three main accounts of enhancement present in the literature. The first two functionalist accounts proved to be inadequate to discuss human enhancement. The augmentative approach provides a clear framework to define enhancements, but it is unsatisfactory because it says enhancements are valuable *per se*, which we saw is a controversial claim. The account is too permissible and equates *more* and *better* as necessarily merging dimensions, but it doesn't give a satisfactory answer to the question of why enhancements are prudentially valuable.

The "not-medicine" account, too, fails in providing a satisfying answer as to why health and disease, naturalness and normalcy, and treatment and enhancement are suitable candidates to judge the permissibility of enhancements. These categories do little moral work and prove to be too vague, contingent, and unclear. In focusing excessively in the moral and normative work these sets of concepts are expected to provide to limit enhancement, the account proves to be morally counterintuitive and fails to acknowledge that helping people feeling better ought to be the goal of interventions, irrespectively of how each of them is classified according to the prevailing taxonomy.

Finally, the welfarist account is useful because it refocuses the debate on what human enhancement should be all about: promoting individual and societal well-being and one's chances of leading a good life. But the account is simply descriptive and offers no normative guidance regarding the permissibility of interventions. While it answers successfully to relevant objections put forward against it, namely those referring to the morally dubious categories like the ones grounding the not-medicine account, it ultimately proves sterile because it eschews the debate on the ethical permissibility of enhancements. First, I argued that the welfarist account is too individually focused and grounded upon

subjectivist accounts of well-being which render enhancement too broad, undetermined, and subjective, thus failing in accommodating the dispersed ideas on what it means to be human that pervade the debate on transhumanism and the ethics of human enhancement. Second, I argued that it fails in accounting for the problems resulting from the tension between the personal and the collective outcomes of enhancement and gives the value of well-being no real ethical significance in defining the permissibility of enhancement and the outlining of public policies *vis-à-vis* other relevant values.

I believe well-being to be the most relevant value to ground our discussion on human enhancement, but we need to reframe the conversation by seeking what the nature of well-being is and what makes it prudentially good. In other words, we need to understand in what ways well-being contributes to human flourishing and to a person leading a good life. In the next chapters, I'll explore the idea that the good life or well-being of human beings is determined by human nature and its constitutive specific set of capacities whose exercise and development constitute human flourishing.

CHAPTER 3

The Developmental Account of Human Nature

a. Introduction

In the two previous chapters, I explored and discussed the philosophy of transhumanism and the ethics of human enhancement. In chapter 1, I claimed that transhumanism is best understood as a comprehensive worldview built on top of all-encompassing and pervasive conceptions of what it means to be human and what a good life is. It is true that we struggle to find a comprehensive, coherent, and transversal conception of human nature that permeates — and much less one that unifies — the various transhumanist contributions to the debate on human enhancement. In effect, we are repeatedly invited to rely on the validity of certain essential human traits that, in the end, are only superficially problematised and after a systematic analysis end up lacking justified pretensions to universality and trans-historicity. Transhumanists agree, however, that human nature is an unfixed trait that is subject to our rational will to overcome the limits imposed on us both as a biological kind and as rational and moral agents. Therefore, human enhancement technologies ought to assist us in improving our material and immaterial nature (body and mind, respectively) according to our rational purposes.

The debate on the ethics of human enhancement follows much of the transhumanist insights on human nature and the reasons why we should enhance ourselves. Hence, in chapter 2, I discussed the implications of three different ethical accounts of human enhancement fuelled by the same underlying assumptions on what it means to be human and what a good life is. The three accounts prove to be problematic: although the welfarist account seemed promissory as to refocus the debate on human enhancement by grounding it on the value of well-being, it offered no normative guidance regarding the permissibility of interventions. In focusing too closely on subjectivist accounts of well-being, the welfarist account rendered enhancement too broad, undetermined, and subjective, failing in accommodating the dispersed ideas on what it means to be human that pervade the debate on transhumanism and the ethics of human enhancement. Ultimately, subjective well-being enjoys no real ethical significance in defining the permissibility of enhancement and the outlining of public policies *vis-à-vis* other relevant values like justice or fairness. Alternatively, I concluded that perhaps a different assessment of the value of well-being is needed in order to understand how it can contribute to the debate on the ethics of human enhancement.

The present chapter is the first step in that direction. In it, I want to lay down one of the key elements necessary to put forward a developmental theory of well-being: human nature. The main

premise of the developmental theory of well-being I'm outlining in this and the next chapter is that human well-being consists in flourishing, which is the same as saying that what is good for a human being is that he flourishes *qua* a human being. To argue for such a theory and to make any statement regarding what is good for human beings, it is of paramount importance that we start enquiring about the nature of human beings (*i.e.*, about our human nature). Perfectionist theories of well-being have made significant contributions to this debate and many of them, though distinctive and often contradicting each other, provide relevant insights as to what human nature might consist of. So, the ultimate goal of this chapter is the following: to formulate a conception of human nature capable of grounding an objective account of well-being that will serve as the corner stone to discuss why and in what ways can human enhancement help us flourishing *qua* human beings.

b. Objective Well-Being and Human Nature Developmentalism

One problem identified in the previous chapter was that subjective accounts of well-being do not appeal to ideas about flourishing and let alone to human nature.[57] They do not claim that a person who greatly exercises, develops, and enjoys her capacities is a flourishing human being. What these theories hold is that a particular good or activity is good for us if that is something we desire or want to pursue. One's rational and properly informed ends and desires are what one deems good for oneself, and that's the ultimate justificatory reason supporting why one should fulfil them. Here, "individuals are the ultimate authorities concerning their own welfare" (Sumner, 1996, 171). In this sense, well-being is entirely dependent on subjective concerns and, regarding human enhancement, it gives us no real ethical guidance nor does it provide any framework to accommodate the dispersed ideas on what it means to be human that pervade the debate on transhumanism and the ethics of human enhancement.

Objective accounts follow a different strategy: they associate our good or well-being with the engagement with a set of goods and activities through which we develop our human capacities

[57] Once again, it is important to note that human nature is here understood not as the nature of human beings as a biological kind, but as human nature of a normative kind that reports to human beings as persons and moral agents. Regarding the former understanding of human nature, Thomas Hurka's perfectionism is conceivably the most relevant instance of how human nature is essentially biological: the only relevant human capacities that are essential for us *qua* human beings are conditioned on us being living things (cf. Hurka, 1993). On this account, it is our biological essence that justifies the perfectionist goods and the reasons we must exercise and develop them. There are other biological conceptions of human nature, as we saw, but what is problematic with these views is that, for the most part, the identified biological traits lack normative significance. Consider David Brink's example: the instinctive psychological predisposition to discriminate against outsiders in the small homogeneous communities our ancestors lived in was an adaptive and hereditable trait that resulted from natural selection (cf. 2019, 4). The manifest link between these traits and racism and xenophobia renders it problematic to ascribe them any normative significance today solely in virtue of their biological basis. These views are too narrowly focused on a descriptive analysis of human nature as the unifying trait or set of traits of the species *Homo sapiens* as "units of evolution" (cf. Roughley, 2021) rather than with human beings as moral persons or rational agents.

independently of what our subjective desires may be. Typically, objective accounts of well-being come in the form of objective lists or human nature perfectionism. For reasons explained below, I wish to follow the latter approach to well-being based on the idea that some goods and activities are good in themselves (non-instrumentally good), and not because some individuals desire or endorse them.

Among the various perfectionist theories, two of the more compelling strategies to argue for an objective account of human nature are normative perfectionism and developmentalism. Here, I use the term perfectionism as an umbrella under which we find multiple sub-sets of perfectionist strategies, all of them sharing important features. But here, perfectionism should be understood as a theory of well-being and not as a political doctrine as we often conceive it, especially after the influential writings of John Rawls, that inscribed the term in the vocabulary of contemporary moral philosophy. Perfectionist theories of well-being aim at the achievement of excellence usually through the highest possible development of the constitutive elements of our human nature. One possible formulation is the following: human nature determines what a good life for a human being is; human nature is constituted by a specific set of capacities; to exercise and develop these capacities is good for human beings (cf. Fletcher, 2016, 78).

On what follows, I'm not elaborating on normative perfectionism. A recent and detailed account of this view was developed by David Brink (cf. 2003; cf. 2019). Brink's normative perfectionism is grounded on two central ideas: the first is that rational agency is the defining feature of our human nature and that there are some things that are good for human beings independently of their desires, no matter how informed they are. The second idea derives from the first: an objective list of goods should include "the reflective pursuit and realization of agents' reasonable projects and certain personal and social relationships" (Couto, 2014, 38). But as Alexandra Couto rightly observed, this is a parsimonious and non-contentious list which is both too sparse and too abstract and general to offer us any significant guidance regarding specific goods with which we should engage (cf. 2014, 38). Additionally, this account offers a very thin concept of human nature: rational agency alone is far from capturing the type of beings human beings are, as we will see below.

What I wish to do is to elaborate on developmentalism, which I believe conveys important assumptions both about the type of beings we are and the meaning of well-being. In this chapter, I'm paving the way towards a developmental account of well-being that is grounded on a particular conception of human nature. This is a thicker conception *vis-à-vis* the one presented by normative perfectionism and goes beyond the goal of presenting an objective list theory of well-being. Developmentalism ties well-being to the notion of flourishing: a flourishing human being exercises, develops, and enjoys the use of a set of cognitive, affective, sensory, social, and physical capacities (cf. Kraut, 2007, 137). These are the

components of human flourishing, or well-being, and the process of flourishing ties well-being to the growth and development triggered by the engagement with the multiple goods and activities that enable us to exercise, develop, and enjoy those components.

So, why not just use the broad term perfectionism if the goal is to put forward a view of human nature perfectionism (*i.e.*, a view that is perfectionist about human well-being and simultaneously provides a unifying account of human nature)? There are some compelling reasons to prefer the term developmentalism over perfectionism. These are essentially conceptual reasons, but I think there is something more to them than simply their conceptual significance, since they point us towards a way of framing the fundamental question of our well-being and how it is realised that sometimes is not fully disclosed in the use of the term perfectionism. This becomes particularly evident when we contemplate the ontological and sociohistorical makeup of our human nature, as I will outline below.

It is true that perfectionists, in general, emphasise that our flourishing consists in the exercise and development of our constitutive human capacities, not on being *perfect* human beings of some sort. The colloquial or restrictive understanding of perfectionism shares little in common with perfectionism understood as a theory of well-being (cf. Bradford, 2015, ch. 10). We can surely associate our good with the striving to perfect ourselves in some relevant way, in order to become better at something that is important for us. But value is not absent from things that are not perfect or whenever perfection is not achieved, whereby there might be value in engaging with *imperfect* goods or activities. Our interpersonal relationships are often not as perfect as we would like them to be, but we still value them irrespective of their flaws. Also, one might not be perfect at performing his job but still find value and personal realisation in doing it. To avoid this colloquial and limited interpretation, some proponents of perfectionism opt for alternative terms such as developmentalism or eudaimonism (cf. Bradford, 2015, ch. 10).

One might also ask what things are perfect. Can there be something that is perfect? Where is perfection? Kraut argues that "[n]othing can be perfect" (2007, 136, n. 4) and that a perfectionist ethical theory aligned with a different view would have to entail "that we should strive to make either ourselves or others perfect human beings or perfect persons" (2007, 136, n. 4), with the associated risk of it urging us to become perfect in a varying and increasingly higher number of areas in our lives. If this is not a plausible objection, it is, at least, a *prima facie* reason to avoid making references to perfection. Does it make sense to talk about perfect human beings or persons? And in what ways should we conceive our relationship towards human enhancement if we take as its chief goal the perfection of human beings in this very narrow understanding (cf. Roduit *et al.*, 2013)? Additionally, it conveys and insists on the old idea that humans, created in the image of God, are in a permanent strife to become perfect or flawless

creatures. The semantics of developmentalism seems to provide a conceptual and philosophical richness that is not immediately grasped in the currency of perfectionism. Kraut compellingly argues that when applied to a theory, the term perfectionism implies that it is the idea of the highest or maximum possible excellence (*i.e.*, perfection) that gives it a structuring meaning (cf. 2007, 136, n. 4). He also posits that detaching perfectionism from its colloquial, excessively demanding, unrealistic, and frequently contemptuous connotation is extremely challenging. Ultimately, this renders the concept of perfection an incomprehensible ideal. Understood in this way, the term suggests that the true aim of the ethical theory is to make ourselves and others perfect human beings (cf. Kraut, 2007, 136, n. 4). As a result, it may be difficult to dissociate the notion of perfection from its restrictive meaning.

In contrast, developmentalism, as Kraut explains, "belongs to the same family of terms as "powers, capacities, growth, flourishing" and the like" (2007, 136, n. 4), and these maintain an intimate and immediately recognisable relation with what we consider good things for living beings. The term flourishing means to blossom, bloom, or prosper. It has the same etymological origin as the word flower, which is by itself indicative of its biological nature and the important idea of a maturing, gradual process of growth and development: only living things flourish; their entire existence consists of a continuous process of growth and development, and they mature and make use of the capacities and faculties they have and permanently develop along the course of their lives. What impedes this process of maturing and flourishing (*e.g.*, diseases, injuries) is non-instrumentally bad for the living thing whose maturing and flourishing are curtailed (cf. Kraut, 2007, 131-132).[58] For example, an acorn flourishes by growing into a healthy and full-bodied oak tree, thus realising all its potentialities. If infected with Armillaria root rot or cut down by a lumberjack, its flourishing is curtailed and an impediment to its flourishing is thereby identified. The term flourishing associated with nature-fulfilment conceptions of well-being tries to capture the idea that what is vital to any living creature is that it realises its potential (cf. Haybron, 2019, 33).

A developmental concept of human nature emphasises the idea that the growth and development towards flourishing is a continuous and open-ended process through the active engagement with relevant goods and activities. The main contribution of developmentalism is to put the focus on the question "what is good *for* human beings?", and to recognise that it is not possible to answer this question without searching for what the nature of human beings is. This resembles Stuart Mill's own ideas about human nature, which he also closely associates with the notions of growth, development, and flourishing:

[58] Transhumanists and pro-enhancement advocates argue that the range of limiting factors to human flourishing is much more comprehensive. Transhumanists in particular extend these to include the ageing process and death among the causes of our unflourishing; ultimately, it is our own biological and organic constitution that limits our possibilities of flourishing. As a result, it is the enhancement of our natural functions that will enable us to flourish much beyond what our natural capacities allow.

> [h]uman nature is not a machine to be built after a model, and set to do exactly the work prescribed for it, but a tree, which requires to grow and develope itself on all sides, according to the tendency of the inward forces which make it a living thing (2003, 124).

Even though the fundamental theoretical commitments of both perfectionism and developmentalism remain largely identical[59], it appears that it is more advantageous to move from the semantics of perfectionism towards that of developmentalism. The latter succeeds in establishing a relation of meaning between the exercise and development of human nature with human flourishing as a continuous and inclusive process.

Judgements on the type of beings we are and what our nature *qua* human beings is are pivotal when we aim at enquiring on what is good for us. Following the tradition that dates to Plato and Aristotle, we too have to question what we're aiming at when we ask what the most advantageous or beneficial social ordering for citizens to flourish in is. Such a commonwealth is only advantageous and beneficial *for* someone, not independently or absolutely advantageous and beneficial. As Kraut claims, "[t]here is no such thing as being advantageous, but advantageous for no one" (2007, 71).[60] Developmentalism as a theory of well-being states that what is good for someone is that one's well-being is pursued and enhanced; that is how one's flourishing is attained. The aim of social institutions is to provide the conditions so that one's life projects can be construed, aiming at the realisation of one's goodness. This entails the removal of impediments to flourishing or the delivery of the conditions to flourishing. On this account, because what we should be aiming at is our well-being, what is good for us is the central reference point of practical reasoning (cf. Kraut, 2007, 15). And whether something is good for a human being, or any other living creature, depends on facts about their nature. For example, according to Aristotle, because human beings are rational, social, and political animals (cf. 1998, 1253a), we flourish by leading lives of virtuous, rational, and social and political activity. Note that Aristotle is more concerned with the idea of the *zoon politikon*[61] as a rational being than as a member of a particular kind. Similarly, in his work, *Groundwork of the Metaphysics of Morals*, Kant expresses an analogous concern, focusing

[59] It is worth mentioning that Thomas Hurka's perfectionism, for example, is best understood as a theory of a good life rather than a theory of well-being, while Kraut's developmentalism is clearly a perfectionist theory of well-being. This doesn't disprove the claim about the identical commitments of perfectionism, it simply clarifies that it can be construed as a theory of different things (cf. Bradford, 2017, 3).

[60] Kraut's chief argument is that it makes no sense to conceive well-being as absolutely good, or good "sans phrase", thus rejecting William Ross' thesis that some things are absolutely good (*e.g.*, pleasure, knowledge, virtue) (cf. 2007, 67-71).

[61] Strictly, as Marx noted in his *Capital*, Aristotle's notion of the human being as a *polis* citizen was so characteristic a trait of Ancient Classical society as the notion of the human being as a tool-making animal was typical of Benjamin Franklin's time (cf. Marx, 1996, 331, n. 4).

not on humans as mere biological specimens belonging to the species *Homo sapiens* and genus *Homo*, but rather on us being rational beings, on our rationality (cf. Roughley, 2021). Naturally, both are concerned with a philosophical and ethical task that is above and beyond the kind of biological task we increasingly find in much of the contemporary debate on human nature (*e.g.*, cf. Kronfeldner, 2018).

Developmentalism also acknowledges an important pragmatic dimension of human well-being that has to do with what we generally take to be a normal human development. It recognises that human beings as such have a set of faculties that are permanently displayed over the course of our lives through our engagement with the world. These cognitive, affective, sensory, social, and physical faculties are of a varied, dynamic, and interdependent nature and our common-sense dictates that it is better to have them than to live without them. When faced with a choice of which of these we would prefer to live without (*e.g.*, our sight, our hearing, our mobility), we'd recognise that the loss of any of these would be equally hampering on our possibilities of flourishing (*i.e.*, of realising our potentialities). Likewise, we have also a normative conception of how our lives should be like if we are to flourish as human beings. For example, no one will eat a poisonous mushroom knowing it will cause permanent blindness just to taste its exquisite flavour. The ephemeral gustatory pleasure would not compensate for the loss of sight and the enjoyments it brings us (cf. Kraut, 2007, 140). In the same way, a person who loses her faculties due to illness or accident is in a bad position and her flourishing is reduced. So, the decline in powers that comes with ageing inevitably represents a loss of well-being because when our life is prolonged beyond a certain point, it is only natural that we experience the progressive loss of the capacities that enable us to flourish. The deterioration and loss of physical, social, and intellectual skills are some of the burdening obstacles to flourishing and their malfunctioning and progressive absence is non-instrumentally bad for us. Of course, one can argue on the basis of the naturalness of the biological process, appealing to ideas like the wisdom of repugnance defended by Leon Kass (cf. 1997), and claim that we should have the humility to accept that process as part of our lives as organic agents. Nevertheless, the progressive loss of sight, mobility, memory, and other faculties, critically affects the well-being of those losing these capacities as well as that of those who are close to them. Arguments of naturalness seem to miss the point in the face of a welfarist approach. On Kraut's developmental account, this position culminates in the idea that "death is bad" because it permanently dismisses any possibility of flourishing (cf. 2007, 139). Indeed, this position finds a close familiarity with those exposed in chapter 1 regarding the transhumanist stands on ageing and death and how they curtail our flourishing. Elsewhere, Kraut also sustains that "the *point* of social institutions, social interactions, and individual projects should be to enhance someone's well-being or to eliminate impediments to well-being" (2007, 15). These statements on developmentalism are

challenging because they tie the goodness of flourishing to the existing technological possibilities to maximise it as much as we can. If we already had the means to overcome the ultimate barrier to flourishing (*i.e.*, death) and prolonging a flourishing life indefinitely, it is difficult to see what other reasons would form a stumbling block to the value of flourishing conceived as our good.

This is particularly relevant given the normative strength flourishing enjoys on developmentalism and the relation it maintains to technology. To sanction the use of the full existing technological apparatus to assist our flourishing might have important consequences. For example, environmental, economic, societal, and anthropological consequences are clearly discernible from the continuous integration of technology within our lives, and particularly over the last few decades. Anyway, at the first glance, this idea seems to collide with the very essence of developmentalism as a process that conceives life at a naturalistic light. The future possibility of technologically preventing death raises the question of whether death is a natural part of the process of human development, like it is for all other living things. This ultimately raises the question of whether we might have some moral obligation towards other living beings and, when possible, whether we should strive to prevent their decay and death. If death is non-instrumentally bad because it impedes our flourishing, we must admit that it is non-instrumentally good to live as long as possible, which makes it our duty to provide the necessary means so that every person can live forever. We can imagine normative limits to this argument. For example, it might be conditioned on the levels of flourishing a human being can attain past a certain biological threshold. A justice-based argument can also be presented by invoking the anticipated inequality widening gap between rich and poor countries. While reasonable objections can easily be conceived to expose such an argument and its limitations (cf. Pijnenburg & Leget, 2007), bioethics should take considerations of justice seriously. As Martien Pijnenburg and Carlo Leget claim, whether new scientific developments contribute to a more just world needs to be one of the concerns of contemporary bioethics (cf. 2007, 585). In the same way, philosophical and religious arguments that focus on the meaning of life, health, and one's relations towards the world and other persons are also eligible as arguments against the idea that a long life entails more flourishing than a short life. Even so, death is the absolute negation of flourishing, and therefore, any level of flourishing, no matter how low, seems to be better than no flourishing at all. Also, a minimal level of flourishing doesn't remove the possibility of a future upsurge of the possibilities of flourishing, namely through the biomedical enhancement of capacities. A "restoration to normal levels of functioning" (Schermer & Bolt, 2011, 186) capable of reversing a state of unflourishing (*e.g.*, coma) would vindicate the idea that death is non-instrumentally bad in the context of developmentalism. Additionally, if the transhumanist *in silica* ontological existence comes to reality, this would mean that the developmental

process would endure beyond its naturalistic limits, making it permanent. To challenge this position, the developmentalist would have to outweigh the normative strength he attributes to flourishing by balancing it with other possible values. These would entail that there are other things beyond well-being that are equally valuable and whose value would justify the goodness of a permanent state of unflourishing.

Put this way, developmentalism immediately raises two interrelated problems. The first has to do with the nature of our capacities and implies that, for the developmentalist, it is always better for one's powers to be fully exercised rather than for them to be simply honoured, lost, or to atrophy. The second has to do with what seems to be the far-reaching scope of developmentalism, namely its proximity and latent acknowledgement of our Promethean heritage, discernible in the familiarity between the developmental ideal and the desire to always become better by any means.

Regarding the first problem, it is interesting to notice that flourishing as a natural process of growth and maturing of human capacities seems to have a *prima facie* argument in favour of the promotion of human capacities that normative perfectionists have difficulties to establish. The normative perfectionist who defends that it is our rational agency that makes us humans needs to justify why it is better for rational agency to be improved or promoted rather than simply kept at a particular level of functioning. While the argument not to contravene our rational agency seems well-grounded in the fact that our own rational agency doesn't sanction plans aiming at its own destruction (cf. Brink, 2019), it is difficult to support the claim that it also gives us authoritative reasons to pursue its cultivation and promotion. Gwen Bradford, in particular, disputes the idea that authoritative reasons exist that, when confronted with two options, compel us to always choose the one that leads to the promotion of our rational agency instead of leaving it stagnant (cf. 2017, 16-19). This stems from a previous difficulty faced by the normative perfectionist, namely the justification of the goodness of rational agency. If rational agency is in fact good, there is no rational reason to choose less good over more. Also, even if the goodness of rational agency was established, its promotion would not provide the same kind of authoritative reasons to promote other relevant perfectionist goods like our physical and emotional capacities. As Bradford puts it, "[t]his is a particularly disappointing drawback since a central appeal of perfectionism is that it grounds the value of a plurality of goods such as achievement, knowledge and friendship" (2017, 18). Ultimately, the normative perfectionist makes a strong case in favour of not contravening rationality, but it is unsuccessful in making an equally strong case in favour of its active promotion *vis-à-vis* its honouring. In other words, it succeeds in demonstrating the ways in which the destruction of our rational agency is bad for us, but it doesn't establish — like it is expected from perfectionism —, that it is better for human beings as rational agents to pursue and develop their capacities rather than simply letting them stay undeveloped: "*i.e.*, that

there is something *better* in pursuing the intellectual richness of Montaigne and Homer over a diet of soap operas and gossip magazines" (Bradford, 2017, 19).

At any rate, the normative perfectionist gives part of an answer for an ethical theory that gives us reasons to shape our lives in ways that don't damage or contravene rationality. Avigail Ferdman pushes this idea further to claim that normative perfectionism has social and spatial implications conducive to a perfectionist basic structure (cf. 2019). However, to make this argument she needs to go beyond rational agency as the core feature of our human nature and accept Kraut's comprehensive notion of what the components of human well-being are. While not conceding it, to make her argument, Ferdman needs to go beyond the narrowness of rational agency as our nature. She needs to broaden the understanding of what human beings are like if she is to defend that our capacities are worth promoting through a perfectionist basic structure rather than simply honoured or kept at a minimal functioning threshold. Only by acknowledging this can she make a successful case in favour of well-roundedness. To live well-rounded lives, she argues, "we need to develop and exercise our physical, sensory, affective, social and cognitive capacities" (2019, 4). To recognise this wide range of capacities as the components of human flourishing requires Ferdman to go beyond the assumption that we are essentially rational agents, and therefore the social and spatial implications she identifies as necessary stem from a developmental more than a normative perfectionist conception of the human being.

Ferdman's notion of well-roundedness is important for the comprehensiveness of developmentalism. A well-rounded life is a life of flourishing in which we engage with multiple goods and activities and develop and enjoy the exercise of our plural capacities in numerous combined ways. It contrasts with the idea of narrowness and specialised lives structured around the exercise and development of a few or one single capacity (cf. Ferdman, 2019, 3). Instead, it recognises the richness and complexity that come from the interrelated exercise of our capacities and the triggering of the components of well-being. For example, a life that allows a person (*e.g.*, a farmer) to develop his physical capacities and his practical rationality is, predictably, a richer life when compared to that of a person (*e.g.*, a theoretical physicist) who can only develop his rational capacities (cf. Ferdman, 2019, 8).

It is also when we put forward the idea of a well-rounded life as one that makes full and combined use of the extended range of our capacities that we envisage what our authoritative duties towards others might be. These stem from the notion that what we owe to each other are the opportunities for them to perfect themselves. This idea is already present in the normative perfectionist Kantian appeal to the perfection of others (cf. Brink, 2019, 12-19). Put simply, rational agents have interpersonal moral and ethical duties: there are normative reasons to promote one's own rational nature as well as to *help* other

rational agents to promote theirs. This is compatible with Kant's humanity formula of the categorical imperative: "[s]o act that you use humanity, whether in your own person or in the person of any other, always at the same time as an end, never merely as a means" (Kant, 1998, G4:429). Provided we do not try to perfect others, which would violate their autonomy and undermine their agency, we can nevertheless help them developing their rational agency, at least so that it functions at a basic level since its promotion beyond that is problematic for the normative perfectionist. The interpersonal positive duties to help promote and develop the capacities for practical reason would involve deliberating with other agents and helping them access the opportunities and activities conducive to their exercise of rational agency and pursuit of their life plans (cf. Ferdman, 2019, 4). If each agent's end is his own perfection and the promotion of his rational agency, for each agent to act in accordance with that imperative also entails that agents share as a common end the promotion of their mutual ends. The perfection of the other agent ought to be one's end as well: "I should make his [the other agent's] perfection my end" (Brink, 2019, 13). For this reason, our action towards the promotion of other agents' perfection is thus constrained by its very nature: "[g]iven the role of one's own agency in one's perfection, I can't perfect others any more than I can win competitive races for them" (Brink, 2019, 14). Of course, developmentalism needs to argue further because it goes beyond rational agency as our nature. Yet again, if a flourishing human being is one who exercises, develops, and enjoys his cognitive, affective, sensory, social, and physical capacities, we are one step closer of providing a normative justification to the need for a perfectionist basic structure.

There is another dimension to the first of the two interrelated problems raised by developmentalism that has to do with our nature as human beings. While the ways in which we flourish are multiple and diversified, varying from time to place, we are flourishing beings irrespective of any sociohistorical contingencies. We naturally have potentialities, capacities, and faculties that we develop from the early stages of our existence if favourable conditions are met (cf. Kraut, 2007, 131). This means that we have the means to flourish within us, and our potentialities, capacities, and faculties, either dormant or not yet fully disclosed, are in a permanent process of becoming. In the presence of certain external material conditions, our capacities manifest themselves and come to fruition through action. This is an important feature of C. B. Macpherson's developmental theory of human nature. According to this approach, human beings are essentially doers, creators, and enjoyers of their distinctively human capacities (cf. 1973, 4). Like Kraut's developmental theory, Macpherson's developmentalism also begins by enquiring into what we humans are. One of the most distinctive features of Macpherson's thought is that we need to know what sort of beings humans are if we are to build any theory on what the political constitution of society

is. On his view, theorists who ignore this fall into ontological neglect: "[a]ny political theory has to have some concept of human essence" (1977a, 26).

Before looking at Macpherson's developmentalism more closely, I want to focus on the second problem raised by developmentalism and that has to do with its familiarity with what transhumanists take to be our Promethean nature. The developmental conception provides a normative framework from which to start developing a more specific picture of what is good for us. What is good for us is a life of flourishing, but while that life differs greatly from one person to another, what flourishing means also differs from time to time. We flourish differently in different times and places because the components of human flourishing change over time. Consider intellectual reflection or aesthetic creation. These are capacities we now value and want our children to develop and enjoy their exercise as much as possible. But the development of these mental capacities is still not present in all cultures and its fruition is still recent in the history of our species. However, the belief that these are capacities that we ought to use, exercise, and develop generates transformations of their own: "those who think of the imagination as a faculty to be cultivated will of course try to cultivate it — their theory about what a healthy mind is will alter their minds and those of their children" (Kraut, 2007, 141). In other words, flourishing is sociohistorically contingent, it varies in function of the socioeconomic and technological development of societies and certain capacities can only be fully developed when particular conditions are met. Consider the following two examples from Kraut. Our mathematical capacities were dormant before we could use numbers, and in a time when the use of language as we know it today was still not present, to be non-linguistic would not produce the severe diminution of well-being that it would today (cf. 2007, 140-141). Therefore, we can develop some capacities at certain times and places but not others because we might not yet have the material conditions to bring about the realisation of our potentialities, capacities, and faculties.

The idea here is that we need to have as good a knowledge of our nature as possible if we are to say something substantial about our well-being. Let's recall Marx and his argument against Bentham's utility principle. Marx's idea is that our human nature is not an abstract idea, nor is it solely a spatiotemporal consolidated expression of the human being, as Bentham seems to believe by assuming that the modern English shopkeeper is the model of what human nature is, was, and will always be. Instead, human nature reports to our transhistorical essence, which manifests differently throughout our historical existence. Says Marx

> [t]o know what is useful for a dog, one must study dog-nature. This nature itself is not to be deduced from the principle of utility. Applying this to man, he that would criticise all human

> acts, movements, relations, etc., by the principle of utility, must first deal with human nature in general, and then with human nature as modified in each historical epoch (1996, 605, n. 4).[62]

Human nature in general comprises the invariable, fixed, or constant constitutive traits of our essence as human beings, whereas human nature as modified in each historical epoch corresponds to the provisional or sociohistorically contingent traits resulting from particular economic, social, and cultural institutions and relations of production (*e.g.*, the needs produced by the existing relations of production in possessive capitalist market societies). As we'll see in more detail the next section, this already hints at the human being as the subject of necessary change and transformation through history. Actually, in Marxian terms, he is really the product of history, continuously crafted and transformed by himself through the labour relations in which he engages with the world (cf. Marx, 1977, 72-73).

Such a view is not incompatible with the idea (also held by transhumanists) that there are multiple capacities that we cannot yet use because our internal limitations are too great or because we are not yet able to enhance them. This is where the developmental theories of Kraut and Macpherson converge. Kraut clearly states that "[i]nventions, discoveries, and technology are also engines of change in our conception of what it is to flourish" (2007, 141). Macpherson upholds a similar idea: the realisation of one's truly ontological essence (*i.e.*, as a doer and creator) depends on the technological levels of productivity available at a particular historical moment (cf. 1977a, 26-35). This is perhaps one of the most interesting points of contact between developmentalism and transhumanism. The nature of the developmental process, which is grounded on the idea that flourishing is the source of human well-being, seems to sanction the idea that technological development comes about in a continuum. It closely resembles the transhumanist and techno-optimistic idea of scientific and technological development as a process of permanent and progressive gaining of control over the world and an exertion of power through multiple techniques whose purpose is, desirably, to support human well-being. Kraut's statement about the badness of death serves as an illustration, suggesting that the ultimate harm humans can suffer is the absence of well-being.

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[62] Note that Macpherson's argument in his *The Political Theory of Possessive Individualism* is precisely that Hobbes and Locke assumed that the "market model of man", of individuals immersed in a structure of capitalist property relations of production and acting as self-interested, free, and rational individuals seeking to preserve their own life and property and protect their natural rights, represented the true essence of the human being. They ontologised socially and historically contingent human traits and derived the best model of society from what they thought to be our true human nature. Therefore, it appears that, like Bentham, they observed the dog's behaviour within its specific and contingent environment and inferred that its behaviour and dispositions reflected the dog's true, inherent, and inalterable nature.

At first sight, it could be more difficult to grasp any reasons to limit flourishing on Kraut's developmental framework comparatively to Macpherson's ontological theory. But this is only apparent. Both authors seem committed to a broad understanding of flourishing that sanctions the use of available technology to bring about the greatest possible amount of well-being. In this way, any technological means that can assist the developmental process, or increment our developmental power, ought to be used. This line of reasoning, however, needs to be fully and critically examined. For example, Macpherson's ontological theory combined with his theory of property place important constraints on the ways in which technology is to be used. But the idea of property that is central to Macpherson (*i.e.*, property as a right to live a fully human life once scarcity is overcome) is challenging as well. It is a technically and politically constructed concept of property that needs to be articulated with the normative prescriptions of what a fully human life requires. Property as a right to a kind of life has economic, social, environmental, and other costs. For example, although our lives may be longer, this doesn't necessarily entail that we are living healthier lives, and the correlation between an ageing population and the increasing pressures on healthcare costs have been consistently demonstrated (cf. Ferguson & Belloni, 2018; cf. Li *et al.*, 2020). Additionally, the scientific and technological conquest of scarcity may also entail significantly high environmental costs. For example, our progressively low-carbon economy based on lithium-ion technology used on batteries for laptops, smartphones, and electric vehicles requires large amounts of energy and water to extract these raw materials[63], and in some places child labour as well as unsafe working conditions are widespread (cf. Weidenkaff *et al.*, 2021). So, as we'll see below, the technical and democratic arrangement of property involves costs and Macpherson's broad conception of property as a right to a kind of life needs to address these problems.

With these two interrelated problems raised by developmentalism, we now have a clearer understanding of what its purpose is. It essentially aims at putting forward a developmental conception of human well-being by enquiring into what it means for something to be good for human beings and what these things might be. Its answer is that what is good for human beings is that they flourish through a process of maturing, growth, and development that involves the exercise and enjoyment of specific human capacities. It is in this sense that developmentalism lies behind our common-sense and our assumptions about what goods and activities out there in the world are good or bad for us. We understand our well-being as being tied to our nature as cognitive, affective, sensory, social, and physical beings, and

[63] Plausibly, because technologies often result in deep ecological footprints that have to do with energy consumption, production of waste, and potential harm to natural ecosystems, the kind of life one has a right to is conditioned on the usage of renewable energy sources and the adoption of environmental regulations and sustainability practices. This is an example of how Macpherson's techno-optimism can still be coupled with his defence of property as a right to a kind of life.

it is part of our common-sense framework that we identify and avoid the goods and activities that prevent us from flourishing by making us suffer, causing us pain, impeding us from freely expressing our thoughts, emotions, and physical capacities. On the other hand, we seek to engage with the goods and activities that we expect will increase our well-being in a meaningful way. For example, jobs that somehow reduce our daily activity to mindless, dangerous, repetitive, isolating, debilitating, and emotionally stifling tasks devoid of anything that we can enjoy are bad for our flourishing and fail to contribute to one's well-being (cf. Kraut, 2007, 142). To make an argument like this entails that socioeconomic institutions ought to be arranged in certain ways and not others. This is Ferdman's main contribution to the present debate: authoritative reasons to perfect ourselves and to help others perfect themselves converge in the need for "a perfectionist basic structure that enables material and epistemic access to opportunities for developing and exercising our human capacities" (2019, 17). But the picture of our nature as flourishing beings is still embryonic. So far, I've only outlined the contours from which a developmental theory of objective well-being might emerge. What's missing from this picture is the content of human nature in general, as Marx called it, and what our essential and defining fixed trait is.

To provide a proper response to this challenge, I'll look to Macpherson's developmental conception of human nature. On his account, which shares many insights with Kraut's, human beings are essentially doers, creators, and enjoyers of their distinctively human capacities (cf. 1973, 4). Equally decisive are Macpherson's thoughts against ontological neglect. The idea is that our thoughts about what humans are, about what our needs and capacities are, cannot be ignored when we aim at discussing human well-being, and much less when well-being consists in human flourishing. I've already mentioned Bunge's insightful comment regarding this same topic: "a philosophy without ontology is spineless" (2010, 3). In a way, this summarises part of Macpherson's liberal democratic project, namely his effort to show that individuals have ontological priority over society, and since they are the point of reference for his theory, or its moral centre, it is only natural that particular "facts about our natures lead to inescapable conclusions about what human society should look like" (Lindsay, 1996, 50). But this reports to the normative conclusions derived from the type of beings we are.

Subsequently, and according to the developmental theory of well-being I'm trying to put forward, to argue that well-being consists in flourishing, we need to know in what ways human beings flourish, and this entails an enquiry concerning what are the constitutive capacities of our human nature. As we saw, rational agency falls short of providing a comprehensive explanation on this matter, and that is why the developmentalist recommends a more comprehensive answer according to which human flourishing entails the exercise, development, and enjoyment of a range of physical, cognitive, affective, sensory, and

social capacities. This is also Macpherson's approach. In a constructive way, this theory elaborates on Kraut's formula of the components of well-being: it is presented to give us a non-exhaustive list of human capacities that provides us greater detail on how the physical, cognitive, affective, sensory, and social components of well-being are realised. The list includes the capacities for rational understanding, for moral judgment and action, for aesthetic creation and contemplation, for the emotional activities of friendship and love, for religious experience, for transforming what is given by nature (including labour), for wonder or curiosity, for laughter, for controlled physical/mental/aesthetic activity, among others (cf. Macpherson, 1973, 53-54). The exertion and development of these capacities "are seen as ends in themselves" (Macpherson, 1973, 5) and our flourishing depends on whether we can exercise, develop, and enjoy them. In due time, the most relevant problem for Macpherson is whether we have access to enough developmental power to flourish or not, which raises once more the problem of the normative and political implications of a developmental notion of human nature.

Finally, as I mentioned earlier, objective accounts of well-being come in the form of objective lists or human nature perfectionism. The reason why I believe the latter is more compelling is because perfectionism improves the account presented by objective list theories. According to these, there is a plurality of goods that have intrinsic value to agents, even if they don't desire to pursue and engage with these goods. Usually, objective lists include prudentially and morally valuable goods as knowledge, friendship, and achievements, and a good life is one that involves the agent engaging with these goods in some meaningful way. There is a variety of such lists. Martha Nussbaum's is an example of a comprehensive objective list; it includes basic human goods like life, bodily health and integrity, senses, imagination, thought, emotions, practical reason, affiliation, play, control over one's environment, and to live in contact with the natural world (cf. 1998, 135-156). Although objective list theories of well-being are intuitively appealing to those compromised with an objective approach to well-being and to the systematisation of the goods that constitute a good life, perfectionists tend to find them disappointing and accompanied by mysteries about how we ended up with that list and not another (cf. Haybron, 2019, 33). They recognise that the engagement with the goods on the list requires the exercise of important human capacities (*e.g.*, rationality, creativity, morality, physical activity), but claim that objective list theories fail in providing a unifying justification or rationale for putting those particular goods together. For this reason, Gwen Bradford contends that objective lists can hardly qualify as theories *stricto sensu* (cf. 2017, 2). The perfectionist take on this matter is that what justifies the presence of each particular good on the list and what they share in common is the special relationship they maintain to human nature (cf. Bradford, 2015, 1). Instead of randomly and subjectively selected, the relevant human goods and

activities "flow naturally from the varied dimensions of human nature" (Haybron, 2019, 33). For example, perfectionists sanction the presence of knowledge and achievement on the list because they are instances of the exercise of theoretical and practical rationality, and rationality is a paramount human capacity, one that defines our nature *qua* human beings and agents. The perfectionist argument, thus, is that what ultimately justifies presence on the list (or what is prudentially good for humans), are those things whose exercise constitutes the development and enjoyment of our human nature as rational, social, and emotional beings.

c. Human Nature: Ontology and History

I will root my conception of human nature on Kraut's developmentalism and what Macpherson upholds as the ontological foundation of developmental democracy. Both accounts owe a great deal, among others, to Aristotle, Stuart Mill, and Karl Marx and they are chiefly focused on determining what the constitutive human needs and capacities are and how these relate to what is good and bad for human beings.

Let's start by recalling a chief transversal element to the various transhumanist conceptions of human nature, namely that human nature is plastic, rather than a fixed trait. As we saw in chapter 1, Bostrom asserts that human nature is a "work-in-progress", a "half-baked beginning" to be shaped according to our desires (cf. 2003a, 493). Elsewhere, he also states that "[w]hat we are is not a function solely of our DNA but also of our technological and social context", meaning that human nature is "dynamic, partially human-made, and improvable" (2005a, 213). The Promethean conception also emphasises the idea that humans are designed to overcome any boundaries and to control nature primarily by seizing "control of our evolutionary future" (Stock, 2003, 2). Equally influential and widely shared is Andy Clark's view of humans as toolmaking and tool-user animals. On this account, what defines us as human beings is our eternal drive to create, adapt, incorporate, and utilise nonbiological tools and structures. We are different from other organisms because of our distinctive ability to leverage our deep neural plasticity and thus integrate and reliably align our tools with it. What Clark is suggesting is that our minds are naturally inclined towards collaboration and the synthesis of ideas, implying that our cognitive capabilities are optimised for the merging of knowledge, skills, and resources (cf. 2003, 6-7). Plasticity is, thus, an enduring aspect of our human nature. And new technologies, while appearing novel, essentially amplify and highlight fundamental challenges that have always existed for humanity. Clark gives some examples: prosthetics and telepresence can be seen as modern versions of aids for mobility and communication, respectively, while cyberspace is viewed as another realm or environment to inhabit

(cf. 2003, 8).[64] Finally, some, like Savulescu, Foddy, and Clayton, argue that human nature is all about choosing to be better (cf. 2004, 670), suggesting that there is an essential drive to human perfectibility through the enhancement of our constitutive capacities.

More recently, Gregory Kaebnick, writing on the status of human nature in the context of the gene editing debate, resumed the argument that "[h]uman nature is not fixed. It always *takes form*, and the form it takes is a function to some extent of human creativity [...] Part of human nature is to engage in such creativity" (2019, 94). In other words, this essential human creativity explains why we constantly engage in the individual and social transformation of ourselves. Individually, as self-enhancing animals, we consciously act upon our nature seeking to change and make ourselves better, which means that we choose to be better; collectively, we put in place the social institutions that better direct and shape our human nature according to our conceptions of what we are, how we ought to be, and how we flourish *qua* human beings.[65]

Before moving on, let's just focus on the concept of perfectibility for a moment. Indeed, when considering the choice between the terms developmentalism and perfectionism, the concept of perfectibility naturally emerges as a relevant aspect to be discussed. Rousseau uses this notion to describe our distinctively essential human capacity to improve ourselves, to progress morally, intellectually, and socially over time. He writes that the faculty of perfecting oneself distinguishes us from all other animals and enables us to develop all our other capacities in succession (cf. Rousseau, 1997, 141). There was already a distinctively human feature that singularised us from other animals, namely freedom, the "property of being a free agent" (Rousseau, 1997, 141), understood as the capacity to transcend plain appetite-driven self-governance. Rousseau's reasoning here concerning humans and animals is familiar to us already: "Nature alone does everything in the operations of the Beast, whereas man contributes to his operations in his capacity as a free agent" (1997, 140). Animals act conditioned by their instincts, but humans can choose how to act. Here, too, nature appears as determinacy, while

[64] There is much to Clark's work that would be interesting to explore here. A particular aspect I'd like to mention is how Clark's thesis aligns well with Timothy Taylor's idea of human beings as artificial apes. Clark's thesis explores the idea that human cognition and reasoning emerge through intricate interactions between our material brains, physical bodies, and the complex cultural and technological environments we create. This highlights the interdependence between humans and our external framework, emphasising that our existence as thinking beings is intricately tied to the dynamic interaction between our biological, organic makeup (primarily our flesh) and the cultural and technological tools we utilise to act upon the world. Taylor's thesis resonates with this idea in that our cognitive capabilities are deeply intertwined with the symbiotic relationship we have with our cultural and technological surroundings. The development of tools and technologies throughout human history, Taylor argues, has played a key role in shaping our cognitive abilities, social structures, and overall evolutionary trajectory. His argument can be summarised in the idea that the tools we create end up creating us (cf. 2010, 77).

[65] For example, according to Marx and Engels, this institutional framework will necessarily have to involve the abolition of private property over the means of production and the emancipation of labour through the radical transformation of the structure of property relations. These conditions are essential for the complete and meaningful development of our human capacities.

human beings are essentially undetermined beings.[66] But if this understanding of free will is purely metaphysical, Rousseau's understanding of perfectibility is compatible with the materialist science of his day. And both concepts are not opposite or working separately from each other; quite the contrary. Perfectibility requires and depends upon the exercise of our free will because our capacities as perfectible beings are exercised and developed when we *freely decide* to interact with the external world. Lee MacLean has argued that the notion of free will is fundamental to Rousseau so he can demonstrate that the problems or shortcomings of society are not caused by nature but result from the ill or negligent uses of human freedom (cf. 2013, 58). Hence, both our free will and perfectibility work towards the development and actualisation of all our other human capacities.

There are significant parallels to be made between Rousseau's idea of the perfectibility of human beings and the current aspirations to technologically change and enhance humanity. On Rousseau's account, human beings are perfectible, we can change our nature over time. This actualisation of our nature is independent of our desires, and it also reveals our frailty and vulnerability. For example, due to ageing or disease, the things we have gained through our efforts and perfectibility may disappear. If we have the potential for progress, we are also captives of the potential for regression that's inherent to our human condition. Consider the following passage from Rousseau:

> [w]hy is man alone liable to becoming imbecile? Is it not that he thus returns to his primitive state and that, whereas the Beast, which has acquired nothing and also has nothing to lose, always keeps its instinct, man again losing through old age or other accidents all that his *perfectibility* had made him acquire, thus relapses lower than the Beast himself? It would be sad for us to be forced to agree that this distinctive and almost unlimited faculty, is the source of all of man's mysteries; that is the faculty which, by dint of time, draws him out of that original condition in which he would spend tranquil and innocent days; that it is the faculty which, over the centuries, causing his enlightenment and his errors, his vices and his virtues to bloom, eventually makes him his own and Nature's tyrant (1997, 141).

Once we lose all that we have acquired by means of our capacity for self-improvement (*e.g.*, skills, knowledge, possessions) we fall into a state lower than that of a beast. This existential human vulnerability

[66] As we saw, this is a fundamental transhumanist claim. We are in a perpetual struggle to progressively become more and more undetermined beings, and this is understood as freedom from nature. Recall Hauskeller's words: "it is not the human as he or she is today who is undetermined, but it is the radically *enhanced* human who is, or will be, and it is precisely the expected decrease in determinacy that makes him an enhanced human, that is, a *better* human" (2016, 78).

is much in line with the extensive transhumanist literature. It is also, and again, part of Taylor's hypothesis on how humans, the weakest apes, became the dominant ape because of the technological apparatus they created and with which we symbiotically interacted to become artificial apes. Part of this hypothesis sheds light on Rousseau's words: were we to lose our current technologies, we would experience a significant loss or decline and regress even further than beasts since we would have lost the innovations that made us humans in the first place.

But perfectibility encompasses an additional philosophically venturesome aspect. It entails that we are creatures without a fixed nature, or at least, that our nature is plastic enough to keep us changing and moving whenever we face the spaciotemporal circumstances, thus acting upon the world. This isn't simply the establishing of an ontological difference between humans and animals (note Rousseau's dualism), but the introduction of a radical possibility, namely that of humans as ontological agents endowed with agency and rational intentionality, capable of exerting causal influence and purposefully engendering historical processes through our engagement with the world. It is the plasticity of our nature that enables us to emerge as creators of history and culture. If so, this notion of human nature is well aligned with those we saw above.

Hence, the challenge here is the following: can human enhancement technologies assist us in recreating the conditions of freedom that Rousseau believed marked the "youth of the World", prior to progress propelled the human species into a state of decrepitude (cf. 1997, 167)? Isn't this, at least in part, the project transhumanists so deeply yearn for: to *fix the human animal*? The plausible approach here is that these technologies can work as useful means to promote well-being and contribute to individual and societal improvement. Even so, Rousseau's notion of perfectibility seems to be more in tune with a kind of moral and social development that avoids interventions through technological means. It would sound more plausible to affiliate him under those suspicious of our excessive reliance on technology and who advocate for preserving certain natural qualities and virtues believed to be integral to our human well-being and authentic existence.[67] While these technologies may not contribute to structure society in the way Rousseau seemed to envision it, they can contribute to the ultimate human end, which is that of flourishing as purposeful creative agents.

Certainly, as exposed in the preceding two chapters, we encountered a number of issues and concerns associated with these conceptions of enhancement. But these remarks already hint at what I take to be two important constitutive fundamentals of a developmental conception of human nature. First, human nature is not a permanently fixed trait that is unvarying and immutable. Instead, it is dynamic and

[67] Leon Kass, for example, belongs to the group of those who interpret Rousseau in such a manner (cf. 2002, 46-47; 215).

exists in a permanent relation to the particular spatiotemporal conditions under which it subsists in a continuous process of becoming. Second, human beings have an ontological need to create. Creativity is posited as the essential, fixed, and trans-historical distinctive trait of human beings, which enables them to shape and transform the external world and, along that process, to shape and transform themselves as well.

At first, this might seem contradictory: we first reject fixity to sanction creativity as a fixed trait right after. But both these ideas are complementary and need a comprehensive explanation and a justification for their relevance on the debate on human enhancement. While developmentalism sets us on the right track to understand the realising of our nature in terms of flourishing, it says little about the effective substance of our nature. I believe Macpherson's work is fundamental to complement developmentalism on this matter. When we ask what our human nature is, on Macpherson's terms the answer is that human beings are creators. More specifically, human beings are active purposive agents that exert their energies and shape and transform the world around them according to some rational purpose (cf. 1973, 5). Rational, intentional, and controlled action is the structuring conception of Macpherson's ontological framework. It translates the Aristotelian idea of purposefulness (*i.e.*, rational purposeful activity) and expresses the concern that one's life and the exercise and development of one's capacities is done according to one's rational deliberation regarding his ultimate ends. Elsewhere, Macpherson also defines the concept of purposefulness as "activity in pursuit of conscious rational purpose" (1965, 54), which he takes to be the basic condition to develop our human nature: "a human being, to be human, must be able to use his strength and skill for purposes he has consciously formed" (1965, 43). This represents the first building block of a developmental notion of human nature: human beings have an ontological need to create, and creative purposive action is the fixed and unvarying core trait of our human nature.

Such a claim, though too thin and formal, is not entirely empty. It is defined enough to allow us to see human agency develop from the intentional, conscious, and rational will to act upon the external world. If this is not actively performed, it is so at least passively, as in Rousseau's case, in which perfectibility was understood, most of all, as a development of our capacities through our *reaction* against external circumstances more than our *action*. Likewise, it is sufficiently open-ended to display the possible manifold purposes of the agent, or at least to depict it as not being entirely conformed to a preordained cosmic order or dictated by other qualities of the mind (cf. Lindsay, 1996, 23). More decisively, however, Macpherson's ideological intention is to contend that "[m]an is not a bundle of appetites seeking

satisfaction, but a bundle of conscious energies seeking to be exerted" (1973, 5).[68] In other words, human beings are not passive reactors, unlimited desirers, consumers of utilities, and beings who are acted upon. These are the traits that Macpherson identifies as being consistent with the (false) ontological value postulate that grounds the modern liberal thinking of Hobbes and Locke and that match the ethos of the capitalist market society and its extractive power relations. Here, we see something different than Rousseau's passive conception, but a similar diagnostic as to the results of our industrious nature. These traits correspond to both the psychological traits of individuals and the social conditions and relations in which they engage with each other. Yet, though Hobbes and Locke have successfully managed to grasp the contours of the possessive market society of their times, its social structure and specific relations, they've failed to "reach far enough into the natural man" (Kontos, 1979, 29). It was the contingent and particular facts of human existence and behaviour under a specific type of society that were "ontologised" in their works. Though this could fit the ethical needs of the developing capitalist market society, it also placed as essential traits of the individual what were in fact socially acquired qualities under particular societal and historical circumstances. The "natural man" in Hobbes' state of nature is but a projection of the civilised individual immersed in social relations typical to the possessive market society of the seventeenth century (cf. Macpherson, 1962, 29). The liberal individualist portrayal of individuals as infinite and insatiable desirers was required to justify the type of society in which consumption and maximisation of wealth and utilities are at the centre of social life. The result is that individuals emerge as consumers whose appetitive essence is now not only an open assumption, but also morally sanctioned (cf. 1973, 27).

Macpherson's argument on Hobbes and Locke's false ontology is important for a major reason. Their understanding of individuals may propel the market economy, but the ontological postulate behind it is unhistorical for it offers a fixed image of human nature. As Phillip Hansen notices, "[h]umans as infinitely desirous creations of a market social order are assumed to be humans as such, as we would find them in all times and places" (2015, 105). As the possessive individualist ontological claim made here presupposes that the human essence remains the same even outside of the particular socio-historical conditions of the possessive market society, ontology itself is rendered obsolete. Ontology, on this view, is as fixed as it is spatiotemporally absolute or immutable, and this is not what ontology is. Regarding this, it is worth quoting Alkis Kontos at length:

[68] Peter Lindsay draws our attention to the use of "*man* as a generic pronoun" in Macpherson's early writings, a tendency which disappears in his later writings (1996, 38, n. 27). Like Lindsay, Virginia Held didn't draw any special conclusions "from the exclusive use of the masculine pronouns" (1993, 152, n. 2). It represents an adherence to the writing style of Macpherson's times and even to that of the works of Hobbes, Locke, and other seventeenth- and eighteenth-century writers. In his latter writings, Macpherson adapts his style.

> [o]ntology is empirically manifested, or rather, suggested. It does not disclose itself fully for it is always in a process, an historical process of becoming. I take ontology to be a set of essential attributes which disclose the essential human being in his/her membership in the species. [...] The attributes we name as ontological are potentialities, capacities, in the expression of which the human essence is manifested and realised. This essence is not a fixed immutable quality of certain quantity (1979, 32).

So, it seems that our nature is both fixed and unfixed, permanent and variable. There is truth to this claim. But while our fixed trait remains so, its actualisation is contingent upon the socioeconomic and technological conditions on which we are immersed. In other words, our creative agency coexists with the permanent process of becoming that enables it to take form and to manifest itself in the engagement with the external world. What we are is indeed a function of our technological and social context, as well as of our DNA, as Bostrom remarks. This sheds light on why Macpherson had to reject the ontological value postulate of possessive individualism. The chief idea at work here is, following Kontos, that "[o]ntology suggests an orientation, a propensity or proclivity of a certain quality" (1979, 33). Ontological capacities are

> inherent and dynamic, in constant dialectical relation with historical time and its emergent structures, material and mental. It is this dialectic which discloses ontology and renders it simultaneously empirically inferable and intellectually-imaginatively visible (Kontos, 1979, 33-34).

Along these lines, ontology is not offering us an essence that is permanently fixed and existing independently of particular spatiotemporal conditions. It is the opposite: ontology and history dynamically interact to shape human nature. The defined and open-ended image described above is that of an agent whose potentialities and capacities are qualitatively realised and actualised upon the continuous development of both the mental and material conditions. On the one hand, the agent is ontologically constituted because purposive creativity is posited as its essential, fixed, and trans-historical essence. This way, as doers and creators "humans have acquired a substance, one which exists prior to any form which they may actually invent for themselves" (Lindsay, 1996, 17). Human beings are doers and creators in all times and places. On the other hand, agents are equipped with the means that enable

them to interact with the external world, namely through labour. On Macpherson's account, labour is understood as the rational exertion of energies and defined as the "creative transformation of nature and of oneself and one's relations with one's fellows" (1977a, 34). It is what Peter Lindsay called "the agent of creation" (1996, 68) without which we could not be doers and creators. As a result, the person appears both as an ontologically and socially constituted agent. Accordingly, our fixed human nature exists and manifests itself in the permanent dialectical relation it maintains with the external world through the self-creative activity of labour. For that reason, ontology is not set apart from history and its particular spatiotemporal conditions.

On this, it is interesting to look at Marx and Engels' work. They presented labour as an anthropological category best understood as *activity*, or self-creative activity, because, like Hegel, Marx and Engels understood labour as the act by means of which the human being is self-created. In this sense, labour is the expression of the human being himself, and the process of labour, defined as the transformation of the external, natural world and the human at the same time, involves all the physical effort, energies, and conscious engagement with the purpose of his activity (cf. Marx, 1996, 187-188). Labour is thus the expression of the vital physical and mental human energies and capacities consciously exerted towards an end, a purpose. Note that Marx, in his *Capital*, is clear in this regard: during the transformative process of labour, one is consonant with the purpose one previously formed in his mind. But "[t]he less he is attracted by the nature of the work, and the mode in which it is carried on, and the less, therefore, he enjoys it as something which gives play to his bodily and mental powers, the more close his attention is forced to be" (1996, 188). Here, Marx implicitly denounces the perverted nature labour assumes under capitalist relations of production. If the labour one performs is detached from one's consciously devised purposes (which make labour a distinctively human activity, as opposed to animal or mechanical activity), if one is not deriving enjoyment and fulfilment from the exertion of his physical and mental activity, his attention becomes more narrowly focused on the task he performs. One can understand labour in this sense simply as a *means* of maintaining productivity and meeting the demands of capitalist production. Yet, labour is not simply an economic activity or a means to the ends determined by the marketplace. This also carries an implicit critique of specialisation, that demands the person to devote her life to one market-oriented task, requiring her to narrow her attention and focus on a specific area of expertise or a particular task within her work. Naturally, the constraining aspect of specialisation within a capitalist structure of property relations is a cause for concern, as it prevents the comprehensive and universal development of the person. It is in this context that Marx addresses the necessity of emancipating human beings from labour. This gives significance to his well-known and nostalgic

statement about us as hunters, fishermen, shepherds, or critics after dinner (cf. Marx & Engels, 1975, 47). It is labour as pure purposeful activity, as an end, and not labour as market-oriented production subordinated to capital as a set of social relationships and power dynamics. Hence, labour is much more than a transformative category. Labour is also us; it is our self-creative process, us creating ourselves.

At first, it might seem odd to choose labour as the category that gives a proper substance to human nature. What Macpherson is suggesting is that our realisation of human nature, or the pursuit of flourishing, occurs through the voluntary exertion of our energies in plans that we consciously conceive. The notion of labour as an integral part of the person is thus to be understood in a self-reflexive manner: labour is not a commodity that individuals possess and have the liberty and power to alienate. It is not narrowly defined as estranged labour, but broadly conceived as something embedded in each person. Defined in this way, labour is a constitutive part of the person; these are two categories that can't be conceived as alienated from each other: labour is *me*, not *mine* (cf. Lindsay, 1996, 25). The means to do and create exist *in* us as doers and creators, which is the basic condition to provide any consistence to the ontological assumption that we are doers and creators.

The closer we look to the concept of labour that Macpherson adopts and defines as an exertion of our energy and skill, the more we have to understand it broadly, as nothing more than our natural capacities (cf. 1962, 48). This explains why Macpherson associates the idea of developmental power to the idea of labour: it simply translates the concern that each person needs to have the power or the *de facto* ability to exert and develop her labour, *i.e.*, her capacities. It is worth noting that there exists a close relationship between labour and needs, which holds significant interest. The labour that is required to do and create (or, in other words, the ability to fully use and develop our human capacities), is considered a human need (cf. Macpherson, 1979, 47). He further argues that these needs change in accordance with the technological changes. In this way, it becomes clearer how technology and the social context give a substance to our nature. But it also becomes clearer how our creativity enters that process. It's the entirety of the social relations of production that limit and transform our needs as the things that are absolutely necessary for us to live a fully human life (cf. Hansen, 2015, 104-105). In the same way, the social relations of production in which individuals are immersed are also responsible for the ways in which our skills and energy (*i.e.*, our labour) are exercised. To put it differently, the nature of our labour is shaped by technology and the prevailing social context, rendering it contingent upon the specific sociohistorical circumstances and the established social relations of production. Ultimately, this is an ontological but also sociohistorical constitution of the agent, illustrating why our needs possess both a historical and ontological dimension. The things that are absolutely necessary for us to live a fully human

life vary from time to time as well as from place to place, and our creative self-realisation is only attained if we have sufficient developmental power to engage with those particular things. This is how we understand the connection between the historical and ontological dimensions: it is labour that serves as the link between the ontological category of creativity and the social and historical particular picture of the person as a creator. This also clarifies the idea of labour as an "individuating agent", or the agent of creation (cf. Lindsay, 1996, 68): it is through labour as a means of self-creation that the agent comes to gain a particular identity of his own when he engages with the world. Jules Townshend, one of Macpherson's sharpest critics, argues that this is an important philosophical move on the conception of the agent. Both essence and existence display an interdependent relation according to which "[d]ialectically, how human beings exist may tell us something about their essence, and conversely, what is essential about a human being [...] may tell us something about human existence" (2000, 113).

So, to arrive at a second building block of a possible developmental conception of human nature, we have to accept the following premise: although we have a fixed and unchanging essential trait that defines us *qua* human beings (*i.e.*, creativity), its realisation becomes contingent upon the particular socio-historical material relations on which it acts. Macpherson addresses this problem directly:

> [i]f you start from the assumption that there is a permanent unchanging nature of man, then you are forced to subsume all changes, such as increases of desires under his innate nature. If you drop that assumption, and assume instead that man changes his nature by changing his relation to other men and the material environment, the difficulty disappears (1973, 34).

In commenting on how our values are historically contingent and why this fact doesn't discredit them, Jonathan Glover concluded that the ultimate question is always about what we think is worth preserving by critically reflecting and, if needed, by changing our values (2006, 97). We can say something quite similar about Macpherson's developmental account.

The ontological assumptions at work in Macpherson's writings, and especially his developmental ontology, are a "complex combination of fact and value" (Hansen, 2015, 120). As Hansen notes, although labour comes in the form of empirical observations about the nature of human beings, it is intrinsically linked to value concepts and the idea not that human beings behave in certain ways, but that the realisation of their potential (their essence) can only be attained by a particular behaviour. This means that ontological value postulates can be discarded and replaced by new ones as new value judgments about what is possible and desirable emerge. With these, new conceptions of what it means to be human

emerge as well (cf. 2015, 120). The question Macpherson is asking us from the beginning is whether the ontological value postulates of human beings as essentially desirous creatures, consumers, and appropriators of utilities is worth preserving, or whether we can find a morally preferable concept of the human being. It is a fact that Macpherson offers little support in favour of a justification for the validity of ontological postulates. His use of ontology is almost purely methodological. There is no objective verification concerning their epistemological validity nor is it claimed that they can be proven. The ultimate justification for the reliance in favour of ontology is, as Lindsay remarked, that ontology, like morality, is but a conviction that cannot be empirically or logically provable (cf. 1996, 18). Macpherson relies more on the test of time and on a sort of reflective equilibrium to defend his postulate. First, he claims that the idea of creative purposive action belongs to a philosophical and humanist tradition of thought that goes as far back as Aristotle and is championed by Millian ethical liberalism, which Macpherson espouses. The same doesn't happen with possessive individualism, which is a modern creation. This holds little, if any, scientific significance.

But there is a second justification for the validity of ontological value postulates. The value of the *alternative* idea of creative purposive action lies in the appeal to our own intuitions, judgement, and deliberation concerning what we understand to be acceptable and coherent principles and values that can guide our actions. It asks us to revise our conceptions at the light of this new concept. Ultimately, and because Macpherson is still limiting himself to the bounds of liberal democracy and to the two competing, self-excluding ontologies within it, his reliance on ontology is as thin as possible for the reason that he wages on what he believes to be a morally preferable concept to ground a democratic theory. On this account, Macpherson is only inviting us to accept what we already know about ourselves and what we think is worth preserving the most about our nature. This happened from Modernity on, wherein an image of human nature as infinitely acquisitive emerged alongside the ascent of possessive market society. This perception underwent alterations with the emergence of a developmental image of human nature, serving as a response to capitalism and as a precondition for liberal democracy (cf. Hansen, 2015, 119).

An important dimension of labour that these considerations bring forth is its social nature, to which I've been referring to along with its historical nature. The technological and social contexts are structuring dimensions of what we are. In fact, to claim that labour has a social dimension is nothing more than affirming that our human capacities are inseparable of their social milieu. The exercise and development of our capacities that come in the form of a conscious exertion of our energy and skill normally require social, institutional, environmental, and cultural conditions to take place. For example, the social and

affective capacity for friendship and love requires, first, personal abilities for interacting and engaging with others and sustaining meaningful relationships. Second, it requires conditions such as free time, access to public and shared spaces like libraries, theatres, and cafes, to sporting facilities, or to cultural events like fairs and concerts. Ferdman calls these open-minded spaces[69] and environments (cf. 2019). Not only do they provide us with opportunities for various activities, but also encourage and stimulate us to engage with others in a shared and relational way. These spaces are central for "the creation of a social and cultural ethos that takes human flourishing and perfection to be central to human life" (Ferdman, 2019, 13). So, on this case as in others, social interaction is vital to the proper exercise and development of our capacities (*e.g.*, capacities for aesthetic creation and contemplation, religious experience, labour in the strict sense of transforming what is given by nature, physical and mental activity, etc.). This is one of the fundamental arguments against those, like Virginia Held and Steven Lukes, charging Macpherson's view of being atomist and excessively individualistic. It is quite the contrary, however. It is in the societal roots of labour that Macpherson insists the most throughout his writings on the nature of our capacities. His argument asserts that, in contrast to the negative ontological presumption of humans as mere consumers and infinite appropriators, human beings as developers of their capacities rely on a community of equals for their personal and social flourishing. It is through this community that they can actively participate in the mutually transformative process of self-development. In his *The Life and Times of Liberal Democracy* (1977b), Macpherson clearly affirms that "the enjoyment and development of one's capacities is to be done for the most part in conjunction with others, in some relation of community" (99), thus emphasising the social nature of labour. Later, in 1985, in *The Rise and Fall of Economic Justice*, he writes that it needs to be recognised "that the individual can be fully human only as a member of a community" (33). So, once labour is included within the person, we have a fairly holistic understanding of the person since

[69] As opposed to single-minded spaces, which are usually designed by planners and entrepreneurs with few other prospects in mind other than their functionality and transience. These spaces are usually used by people who are in a hurry and include spaces like the "the government centre, medical centre, cultural centre, shopping centre, the department store or supermarket, the highway, the greenbelt" (Ferdman, 2019, 13). This depiction of single-minded spaces shares much with Marc Augé's "non-places" (*non-lieu*, as opposed to anthropological places, or *lieu anthropologique*), which people regard as having little significance to them and where they remain anonymous agents (cf. Augé, 2009). An archaeology of place would probably show that Augé's notion of non-places depends on several cultural and generational factors. Shopping malls, for example, are the utmost example of non-places because of their standardised architecture, consumer-oriented atmosphere, and temporary nature of social interactions within them. However, for many young people today, shopping malls have become meaningful places. Marco Lazzari has shown that, at least in Italy, "the shopping mall is a meeting place of choice" for adolescents, where they "gather not by chance, nor only in order to buy something, but also to socialize, meet friends and have fun" (2012, 13). And yet, in non-places, individuals are constrained to predefined paths, our movements, gestures, and bodily action are constantly and permanently subject to surveillance and control. Often, access is controlled, identity checks are required, there are different clearance levels, and some people are excluded from access or liable to expulsion. The very essence of these non-places perfectly aligns with the lifestyles of what some have called hypermodernity (cf. Lipovetsky & Charles, 2005), which exhibits a growing fixation on panoptic control and security, accompanied by an incessant need for haste and the hyper acceleration of life (cf. Harmansah, 2009).

this embedment movement contemplates the social relations that make labour possible (cf. Lindsay, 1996, 27; cf. Townshend, 2000, 136-143).

To focus again on labour's social nature, it is worth looking at how the term changes over time in Macpherson's writings. Macpherson's lexicon often confuses us: his vocabulary is distinctive, and a sign of what Townshend called a "Marxist by stealth" in his own time and place (cf. 2000, 12). For example, the Marxist notions of capitalist production relations, productive forces, and exploitation are rebranded as possessive market society, transfer of powers, extractive power, and so on, thus adapting them and making them more appealing to a Western, liberal audience during the Cold War period (cf. Townshend, 2000, 12). The notion of labour is equally puzzling in its definition, as is clear by now. Throughout his writings, the concept of "labour" encompasses multiple potential definitions. For example, at times it is defined as exertion of energy and skills, or simply as our human capacities, which resembles Hobbes' materialism. But it is also defined as "the capacity for materially productive labour" (1973, 54), or the capacity for transforming what is given by nature.

But Macpherson's intention in providing such a comprehensive definition of labour is of course to claim that we are much more than what a (negative) possessive ontology claims we are. In his positive ontology, the notion of labour aims at de-commodifying the idea of labour, at showing that it is our market mentality that conceives it as something estranged from us and towards which we have some distance (*i.e.*, labour is not *me*). The self-reflexive understanding of labour aims at stressing that our creative existence needs to be under our rational and conscious control if we are to flourish. A fundamental prerequisite here is that we *need* to have control over the means of life and labour if we are to achieve any flourishing. It is from this background that I hope to derive the general principle that we ought to have access to *sufficient* developmental power and that human enhancement technologies can be instrumentally valuable to that end.

To insist in the idea of control over our labour might tempt us to look at labour as a possession over which we exert some degree of authority and have the freedom to apportion as we see fit. The apparent distance between the subject and the object might be sympathetic to the idea of commodification. However, the idea of control points towards a different direction, as I believe Macpherson's theory of property entails. To realise our potentialities, we need to have access to the means and opportunities to flourish as the type of beings we are. The determinant factor here, according to Macpherson, but also following Ferdman's idea of a perfectionist basic structure (that I would rename as a developmental basic structure), is that the property relations that are in place enable us to do and create freely, consciously, and harmoniously as members of a community of equals. The idea, then, is to

look at control neither as a process of withdrawal from social relations (which is impossible, as we don't exist as pre-social beings to make such a decision (cf. Lindsay, 1996, 80, n. 85)), nor to understand labour as a commodity. Instead, we need to focus on the social nature of labour, which provides the contextual framework that helps explaining how our social constitution comes to occur. The notion of control must be comprehended as control over the means through which our capacities are exercised, as labour itself is integral to our being, encompassing our energy and skill. Moreover, labour is an inherent aspect that precedes our existence, as our essence inherently presupposes it.

There is a further fundamental aspect of labour's social nature worth mentioning here. At some point, Macpherson declares that "essentially human capacities are only those which can be exercised without denying or impeding other human being's exercise of theirs" (1973, 55). Positively, this is the same as saying not only that all labour is socially derived, but also that capacities that have a contentious nature are not to be counted among our human capacities. This is a strong claim and one of vital importance. According to Macpherson, a fundamental postulate of a fully democratic theory needs to state that "the rights and freedoms men need in order to be fully human are not mutually destructive" (1973, 55). So, morally justifiable rights on the context of an egalitarian theory can only be those that allow all other individuals to have the same bundle of rights, and those rights are enough for a person to be fully human (cf. Macpherson, 1973, 55). One of the purposes of this position is to dispense with subjectivity: the rights one has *and needs* to be fully human are something different from the rights one might think he needs to that same end. The talk of rights, however, is better understood if we talk of power and, again, of the ultimate conditions of our control over the means of labour. The power that a democratic society needs to increment is our developmental power, which is the one we need to secure our human needs. Our developmental power is the ability we have to use and develop the capacities whose use and development is non-contentious or non-exclusive, since these non-destructive capacities are all those we need to be fully human. As Townshend notes, Macpherson's resolution not to include inhuman, contentious capacities among his list is only natural since "this offered the possibility of some human being flourishing at other's expense, thereby not maximising the potentials of everyone" (2000, 142).[70] More decisively, I believe this displays the importance of what we think is worth preserving about what we know about our own nature and the type of beings we are. When confronted with the question of what our essential human capacities might be, and why one should increment his developmental

[70] Below, I'll focus more closely on why I prefer the notion of incrementing instead of that of maximising. Macpherson insists on the idea of maximising our developmental power, but I believe we should prefer the idea of small, gradual increments to our power, especially in the context of biomedical interventions that have a disruptive potential to change our capacities radically and irreversibly. Hence, it is advisable to take precautionary steps to avoid pursuing swift and hasty maximisations, opting instead for gradual and reasonable increments of our power.

power, it is morally preferable to choose to act upon those capacities that we recognise as important to ourselves and that don't misrepresent what we are or the type of beings we judge we ought to be. These judgments intertwine complex factual and evaluative elements that shape our understanding of both our essence and existence. Whether it is possible to single out one single capacity is debatable, as are the motives and reasons to submit to interventions. Hence, in chapter 5, I suggest that engaging in a thorough counselling process becomes imperative to grasp the true nature of enhancements, to comprehend their personal significance, and to ascertain how they can meaningfully contribute to our overall well-being. At the core of this process lies our reflection regarding our social nature, as well as our thorough comprehension of our capacities and how they interrelate with our holistic flourishing.

All this reinforces the social nature of our human capacities and the idea that we are socially constituted individuals.[71] It also stresses the nature of the relation between the moral and ethical framework under which we should consider our capacities and the role a democratic society is to play on this framework. Regarding the first, Macpherson's starting point is the liberal democratic assumption that society should aim at the flourishing of its citizens. From here stems "a minimal ethical requirement of a democratic society" (Townshend, 2000, 142) guided by a principle of reciprocal freedom that recognises a universal and equal right of all individuals to harmoniously exercise and develop their capacities. As long as this ethical framework is in place, there are no constraints on how individuals are to use and develop their capacities.[72] Regarding the role of a democratic society and the problem of impediments to flourishing, I'll look at it in the next section.

As a result, labour appears as a broadly defined concept that is best captured when we conceive it as an integral part of the person and as being identified with the full range of our essential capacities. But we should also think of it as more than the harmonious set of human capacities whose exercise, development, and enjoyment can only be conceived in the context of egalitarian social relations. It is labour's social nature that ultimately enables us to understand human beings as both historically and socially constituted beings whose flourishing a democratic society is responsible, as a positive agent and a kind of society, to promote.

[71] This is an idea that Macpherson gladly promoted on his later writings and in the context of his debate with critics like Alasdair MacIntyre and Steven Lukes (cf. 1977b; cf. 1985).

[72] Of course, such a claim is not without problems. Macpherson's main guiding assumption here is that the market or possessive mentality is already discarded at this time. It seems overly optimistic to rule any social interference with individual autonomy if that assumption doesn't hold (cf. Townshend, 2000, 157, n. 32).

d. Impediments to Flourishing

So far, this picture is helpful in explaining what it might be that Bostrom is hinting at when he claims that human nature is a "work-in-progress" and a "half-baked beginning" that we can actively shape. Our creative agency acts upon the external world, and we transform ourselves as we transform the world through our labour, which explains why what we are is also a function of our technological and social context (cf. Bostrom, 2005a, 213). In this way, we are in part human-made and improvable beings and, following Kaebnick, it is our human nature that sets us in the process of permanently transforming ourselves. Should this be the case, we have to agree with Macpherson when he states that in this dynamic relation, technology assists ontology (cf. 1973, 37). It is the historically and socially contingent nature of the process of labour that explains how human nature is partly "human-baked" and open to permanent change. Labour is, truly, the ultimate creative and transformative agent. Given the picture of humans as creative agents that flourish through the exercise, development, and enjoyment of their characteristically human capacities, it is correct to point out, as Daniel Haybron does, that "[i]t would not be quite accurate to say that the person's nature serves as a fixed point, as it may well evolve significantly over time" (2019, 33). This, however, requires some precision: our purposive creative agency is a fixed point, but our other capacities are permanently actualised as we purposefully engage with the world through labour (*i.e.*, it is our labour, as exertion of energies or as capacities that is actualised). As Haybron also acknowledges regarding the particular value of authenticity, what's vital with the use of gene editing is that whatever changes are made to human nature is that these stay true to one's nature and don't diminish our flourishing (cf. Haybron, 2019, 33). In other words, regarding the significance of authenticity, it is crucial to consider that when we use gene editing technologies, any alterations made must remain aligned with our true essence as purposive creative agents and should not undermine or diminish our overall ability to flourish. This implies that we should exercise utmost caution to prevent interventions from diminishing our developmental power. The emphasis is placed on ensuring that the modifications made possible through gene editing, are in harmony with our authentic nature and do not compromise our flourishing.

The convergence on the non-fixity and sociohistorically contingent character of human nature is one of the few aspects uniting Macpherson with enhancement advocates. There is another important dimension in which they converge, but its scope is not as far reaching as the former. Macpherson is a techno-optimist; his work is pervaded by the idea that the human relationship towards the world is predominantly one of unceasing techno-scientific domination of nature. But when it comes to considering what factors hamper human flourishing, Macpherson focuses entirely on socially constructed and variable impediments such as the lack of access to the means of life (food, shelter, clothing, basic education, and

medical care, etc.) and labour (capital and material resources) and the proper social and relational conditions to exert one's labour. Unlike enhancement advocates who argue that internal impediments like the lack of self-esteem, disabilities, diseases, ageing, and death are some of the paramount factors obstructing our flourishing, Macpherson claims that internal impediments are secondary and engendered by external impediments, so priority should be given to the removal of the latter (cf. 1973, 76). Like liberal humanists, he adheres to the idea of human progress, rational thinking, and that the human condition is improvable through the ameliorating of the socioeconomic and cultural conditions, namely through the use of the technological apparatus by means of which it is possible to overcome scarcity. On his account, this conquest of nature translates almost exclusively the idea that socially variable external impediments such as the lack of material resources are the sole hampering factors obstructing human flourishing.

Unsurprisingly, such an account proves too narrow in countering the encumbering effects of internal impediments. The claim that all internal impediments were first external before being internalised is argumentatively meagre. Cognitive disabilities and inheritable disabilities, a poor memory, lack of concentration and empathy, or the emotional dispositions defining one's behaviour challenge Macpherson's claim. It is not clear the extent to which the lack of access to material resources motivates one's bad impulse control, lack of empathy, or general mood. Moreover, Macpherson fails to address the question of how (qualitatively and quantitatively) material resources can account for the development of capacities such as our rational understanding and moral judgment, the emotional activities of friendship and love, and religious experience, which are the ones he himself defines as characteristic of our nature as human beings (cf. Parekh, 1982, 70). While it is reasonable to agree that a number of internal impediments have in fact been internalised (*e.g.*, low self-esteem, lack of confidence, unsettled traumas, cognitive biases, deep-rooted habits, and patterns of thinking), it seems equally reasonable to maintain that a significant number of these impediments have no relation to prior external impediments.

But the neglect regarding internal impediments doesn't place constraints on Macpherson's belief that the technological transformation of the external world is worth pursuing. In fact, it is mandatory that we do so since it is through this permanent process that our creative agency is actualised and the limits to its realisation are reduced. What Macpherson questions concerning this project is simply that it needs to be re-oriented within a developmental democratic model of a power-maximising society instead of a capitalist model guided by a power-extracting imperative that impedes universal and unconditional access to the means of life and labour (cf. 1973, 120-140). His reflections on this proceed to the complete restructuring of the right of property that we need not develop here. At this point, what's worth questioning is whether Macpherson's theoretical framework and conceptual tools can help us push the argument

further to understand whether human enhancement technologies can promote human flourishing by removing internal impediments. If a case for their use to such an end can be successfully made, at the light of the developmental requirements exposed above, it is difficult to object to their use because of the normative priority flourishing enjoys.

Let's take a step back. On Macpherson's terms, the good society is necessarily one that is a "positive agent in the development of capacities" (1973, 57); it is, necessarily, a power-maximising society or a developmental democratic society with the role of assisting individuals maximising their developmental power or their *de facto* ability to enjoy and develop human capacities (cf. 1973, 41-42). Democracy as a kind of society needs to be the medium through which our human capacities are most fully exercised and developed. On Macpherson's account, a good society is one that maximises our developmental power in the sense that, not being responsible for what our capacities are, it is responsible for creating the conditions favourable to the use, development, and enjoyment of those capacities (cf. Lindsay, 1996, 55).

Here, and as I briefly mentioned above, I want to challenge the idea of maximisation and opt for the idea of incrementing our developmental power. To do so amounts to make small, incremental changes conducive to the improvement of one's capacities in ways that, if possible, are not too disruptive towards our agency. Instead of arguing for the maximisation of one's developmental power so that one can reach his highest level of potential, as a perfectionist account would recommend, the developmental account benefits from this gradual, moderate approach. There are two main reasons in its favour. First, to maximise one's capacities may require a significant degree of effort, sacrifice, and risk, and could also entail that one ought to undergo a complex, costly, and disruptive programme of radical human enhancement to achieve such a goal. Predictably, "making radical changes to our bodies undoubtedly will have surprising side-effects" (Allhoff *et al.*, 2010, 15). Such an approach is, of course, in line with those versions of transhumanism that advocate for a radical transformation of the human condition, espousing various different forms of the proactionary principle. Among the most relevant challenges here, it can be expected that radical transformations would have a significant impact on our sense of identity and authenticity. Developmentalism departs from these approaches. Second, it is most likely that for this radical transformation of the human condition to occur, a significant distributive effort must be made to ensure that every individual is guaranteed the access to the necessary resources required to maximise his capacities. While some of the most basic enhancement technologies, like pills or minor cosmetic surgeries, might be cheap, easily performed, and widely accessible, some genetic services, like gene editing, will involve a high financial burden to the clients and the state due to their technical and scientific

complexity and the quantity and quality of resources required (cf. Singer, 2009, 285). Developmentalism recommends the use of highly complex and expensive interventions, but to argue for the incrementing of our developmental power does not necessarily require the same level of resource allocation and effort as maximisation. While the incremental approach will require some level of resource control and allocation to safeguard universal access to interventions, maximisation would predictably require significant distributive efforts to the greatest maximal enhancement outcomes for everyone. Take gene editing as an example. The incremental approach focuses on gradual, moderate improvements with the aim of incrementing the developmental power of the person up to a certain threshold that corresponds to the level at which a satisfactory engagement with the components of flourishing is possible. It is not about choosing *the best* possible genes to live the "best life" possible, but to enable the person to live a flourishing life, as we saw above. The maximisation approach would be more favourable to prioritise costly and radically transformative interventions to achieve the goal of maximum growth, whereas the incremental approach considers not only the feasibility and sustainability of resource allocation in the pursuit of interventions, but also their potential disruptive effects to our agency, and this is why I'll focus on developmental counselling as a collaborative reflective process involving counsellors and patients in a holistic evaluation of what enhancements are and what their importance is for one's overall life.

In this way, Macpherson's argument is that each person needs to have control over her capacities, since conscious and rational control over one's capacities, as well as them being non-contentious, is what makes them truly human (cf. Macpherson, 1973, 56). The idea behind this rationale if, of course, to claim that socially variable impediments are the ones that should concern the social and political theorist the most because our power to develop our capacities is, above all, a social and political problem. While this is accurate, the scope of Macpherson's argument is limited because it remains too focused on external impediments (lack of access to the means of life and labour) and doesn't take internal impediments into account as part of the necessary means to live a flourishing life.[73]

There's little controversy around the claim that, to varying degrees, inheritable genetic disorders, illnesses, and disabilities reduce our developmental power by not allowing us to exercise, develop, and enjoy our capacities as we otherwise would. For instance, deafness and blindness impair human flourishing in this way by preventing us from navigating safely through the world and by precluding us

[73] Naturally, Macpherson was still working within the political landscape of the twentieth century, which was profoundly influenced by the pre-eminence of economic matters. However, biopolitics is a fundamental new area in the political landscape of the twenty-first century (cf. Hughes, 2004, 55). In its 2003 report, The President's Council on Bioethics (cf. 2003) already acknowledged the social and political importance of this debate. Of course, the academic and scientific discussion on these topics was not new at the beginning of this century (*e.g.*, cf. Glover, 1984). Speculation about the challenges raised by the pervasiveness of NBIC technologies were also always present in our cultural milieu, as in science fiction literature or cinema, for example.

from experiencing enriching experiences of our human existence such as listening the sounds around us or contemplating the sight of the stars in the night sky (cf. Glover, 2006, 23). These senses are necessary to exercise, develop, and enjoy some of our most fundamental human capacities, and although we can function without them, our flourishing is impaired in ways that are relevant to what it means to be a flourishing member of the human species. This doesn't entail the adoption of dehumanising or ugly attitudes towards disabled people or judgements regarding their value or dignity as members of the human community, nor does it entail that they are less worthy of respect. It only stresses that these conditions impair flourishing and make their lives less good than they could otherwise be. Consider particularly harmful conditions like cancer. The reason why we wish to eradicate cancer is not because we lack respect for those suffering from it or because we question their human status, but because most of the times cancer prevents them from leading flourishing lives and appreciate things that we deeply value (cf. Glover, 2006, 35). Since internal impediments reduce our developmental power to exercise, develop, and enjoy our human capacities and biomedical interventions can help us recover and increment our developmental power by (negatively) removing impediments resulting from disabilities and (positively) by enhancing our human capacities, it is hard not to see them as belonging to the category of "technological conquests of nature", to which Macpherson refers to (1973, 19), comparable to other technological tools.

The moral challenge regarding whether human enhancement technologies are part of a special tool set whose employment we should refrain from plays no particular role in Macpherson's work. What's vital is that technology is oriented towards the goal of incrementing our developmental power to exert, develop, and enjoy our human capacities under a developmental democratic framework. Here, Macpherson's project seems to aim at reconciling two fundamental views concerning technology as a neutral means. On the one hand, he seems to assume that there is an instrumental dimension to what technology is by acknowledging that human control and the neutrality of technology overlap. Such an understanding should not surprise us because Macpherson espouses a liberal democratic model of society that takes the instrumental understanding of technology as its standard paradigm. Liberal faith in progress, and the use of technology to overcome scarcity by transforming nature, is the predominant view of technology in Western liberal philosophy (cf. Feenberg, 1999, 9). On the other hand, Macpherson's entire work is pervaded by a deterministic understanding of what technology is that comes directly from the Marxist tradition. On this account, it is not completely possible for humans to control technology. Instead, technical developments fulfil our natural human needs and shape society accordingly. This also translates the idea that there is some fundamental aspect of our relationship with technology that escapes

our grasp. We are partly the product of our own technological artefacts, the same that we have progressively incorporated into our lives and shaped our cognition, physical constitution, social structures, and even our understanding of ourselves for millennia. Hence, there is an ontological choice laden with significant political implications when it comes to the design of technology (cf. Feenberg, 2002, 3). Given the exclusion of most people on these decisions, not only is this deeply undemocratic, but escapes our rational control over our very nature as autonomous agents.

This is also why Macpherson needs to argue against false ontological value postulates that fail to conceive human beings as what they really are. If our essential ontological human need is to consciously and rationally exercise our creativity, this is conducive towards a specific type of society, and not others. The way Macpherson accomplishes this is by putting together a democratic theory of property that conceives property rights broadly, as rights to be to be politically exercised. The right to property, Macpherson contends, is "the right to a share in the control of the massed productive resources" (1973, 137). At this point, however, Macpherson's broadening of the concept seems to require an additional condition. He argues that "with the conquest of scarcity [...] property must become a right to an *immaterial* revenue, a revenue of enjoyment of the quality of life" (139). What exactly is this revenue? First, it is not measurable in material quantities, and second it requires the "participation in a satisfying set of social relations" (139). Unfortunately, Macpherson does not provide further elaboration on the precise nature of a "satisfying set of social relations", nor does he delve into the extent to which the absence of participation in these relations may impede the development of our human capacities. But given labour's social nature as an activity that consists in a set of capacities that cannot be conceived separately from social relationships, the predominant relations in a power-extractive society are presumably not satisfying relations because of their contentious nature. Extractive power entails a transfer of power between individuals that leaves one or some of them without access to an adequate amount of developmental power to use, develop, and enjoy their capacities. Since "every individual's human capacities are socially derived, and [...] their development must also be social" (1973, 57), impediments to our developmental power ought to be removed. The problem, once more, is that Macpherson is here referring only to external impediments (cf. 1973, 52-59). In any case, a requirement for legitimate or satisfying social relations is that there are no power differentials between individuals regarding the access and uses of the means of labour (cf. Lindsay, 1996, 139). This argument is disputable. Legitimate and satisfying social relations occur alongside power differentials and transfers of power between persons. Also, the pervasiveness of extractive relations doesn't necessarily undermine one's possibilities of flourishing; it is possible to use, develop, and enjoy one's capacities even when one has access to little

developmental power. It is equally conceivable to formulate extractiveness progressively, justifying some level of extraction and balancing it with other important values, like justice or equality. For example, some degree of social inequality could promote the aggregate increase of developmental power through society as a whole. Macpherson rejects these possibilities based on the infinite value of the person, conceived as individuals, and their life plans. On this matter, Macpherson's liberalism is undoubtedly subsidiary of the Kantian ethics and the idea that each person, as a rational moral agent, should be treated as an end and not a means to something else. It is still disputable that the existence of some mild level of extractive power necessarily entails that one is being treated as a means rather than an end.

In any case, Macpherson is inflexible on this matter because he conceives human capacities as having a non-exclusive nature. This means that any social obstacles placed upon our power to freely exercise our creative human activity ought to be removed, independently of any moral considerations regarding the ways in which individuals use their capacities. This is conceivably where the interaction between human nature and social structure becomes clearer. Both lack of adequate access to the means of life and to the means labour configures a social (and political) impediment to our free, equal, and adequate exercise of our human capacities. The only compossible set of human capacities is that in which these are non-mutually destructive capacities. Some of them are explicitly and necessarily relational capacities, as the emotional activities of friendship, love, and even religious experience, and, ultimately and more significantly, labour as an economic and social activity. How much developmental power one should have access to is something Macpherson doesn't discuss. But it is plausible to speculate that different individuals may need varying levels of developmental power for each of these capacities, and that for each of these, different levels of developmental power will be required. This already suggests that when contemplating biomedical interventions and their potential impact on our lives, it becomes essential to conduct a case-by-case evaluation. Each case requires careful consideration of the specific personal context, circumstances, and the broader scope of the interventions involved.

Again, we are left with a picture of what kind of impediments are important to Macpherson, and internal impediments are not among those that are socially variable and whose removal is plausible through political action. And yet, internal impediments of the sort of those mentioned above have an undeniable hampering role on our developmental power and our access to the proper conditions that enable us to flourish. For example, those who are unable to engage in the emotional activities of friendship and love are not enjoying the goods of a satisfying set of social relations. People suffering from inherited genetic diseases also miss important dimensions of what a satisfying set of social relations is. And it is also reasonable to say that we could be enjoying a more satisfying set of social relations if our capacities

were enhanced. Therefore, although external impediments curtail human flourishing, internal impediments play an equally important role in preventing us from experiencing the goods resulting from egalitarian social relationships, which are the type of relations that are satisfying and necessary for us to flourish as social beings. If anything, this is sufficient reason to consider Macpherson's moral and ethical framework and evaluate the possibility of grounding on it the need for accommodating a proper approach to the problem of internal impediments as relevant obstacles to human flourishing. In the following chapters, I'll continue discussing cases in which internal impediments severely curtail our opportunities to flourishing and demonstrate that the moral permissibility of biomedical interventions lies precisely in their alignment with ethical principles and values, such as promoting our well-being and autonomy as purposive creative agents.

e. Conclusion

In the present chapter, I laid down the theoretical foundations of a possible developmental account of human nature. I started by resuming a problem addressed in chapter 2, namely that a proper understanding of well-being cannot be independent of our judgments about the type of beings we are and the type of lives that are most suitable to us according to our needs and potentialities. My starting point to address the value of well-being was to claim that we need to reckon with human nature so we can say something about what is non-instrumentally good for us *qua* human beings. I believe this relationship is best understood in terms of flourishing, and that our social existence and the individual projects we construe should be understood in their relation to our well-being. Along these lines, what is good for a person is both a central and necessary reference point of our practical reason and it should be our aim at all times during the course of our lives (cf. Kraut, 2007, 15). The assessment of whether something is good or bad for an individual is inherently linked with normative judgments about our nature as human beings. Such judgments serve as a fundamental prerequisite for determining what institutions are desirable to effectively organise our social lives. The examination of the characteristics, capacities, and needs specific to human beings give us the necessary insights into what promotes our well-being and flourishing.

The conception of human nature I put forward in this chapter, which draws heavily from Macpherson's ontological theory and Kraut's developmentalism, seeks to provide the necessary logical step towards the aim established since chapter 2, which was the construction of an objective theory of well-being grounded in a plausible theory of human nature. The developmental nature of that theory combined with the ontological and socio-historical constitution of the agent results in what I believe we

can call a human nature developmentalism. Also, as we saw, what is non-instrumentally good for human beings is determined by what it means for them to flourish, and what constitutes that flourishing is the exercise, development, and enjoyment of the cognitive, affective, sensory, social, and physical powers that are called the components of human flourishing. Labour, as our truly human need, can be identified with the exercise, development, and enjoyment of these components, whose combination we should seek in order to experience richer and more complex ways of flourishing.

An essential characteristic of the developmental theory of human nature and well-being, as I have presented it, is the recognition that we not only have motives to enhance well-being but also a moral imperative to remove impediments that hinder it. Too often were these impediments understood as socially variable impediments of an exclusively external nature (as we saw from Macpherson's case). Nevertheless, it is crucial to acknowledge that certain impediments exist which are solely internal in nature. These internal barriers can be equally or even more burdensome to our potential for flourishing than external obstacles. If human enhancement technologies have the potential to eliminate internal impediments of a genetic nature, allowing us to increment our developmental power, then they should be regarded as indispensable tools for enhancing our overall well-being. Since goodness understood as our flourishing enjoys priority over other considerations and values, human enhancement technologies ought to be evaluated accordingly: the moral permissibility involving the use of those technologies should, in all likelihood, be considered unproblematic.

Finally, it needs to be noted that a convergence exists between the developmental conception of human nature and many of the insights on human nature and the good life that pervade the debate on transhumanism and the ethics of human enhancement. This is due to the developmental character of human nature. Once we discard the erroneous and a-historical idea of a possibly atomist and permanently fixed human essence existing independently of any social and historical conditions, we have to accept that we play a creative and transformative role in the process of our creation as social and historical beings through our institutions, and especially through the self-creative process of labour. As such, we are, to a large and meaningful extent, responsible for our own creation; not simply artificial apes, but *faber hominis*, or self-created apes. The challenge here is whether we should democratise our relationship with technology with the aim of involving people in the decision-making process that is the true mechanism that shapes ourselves as the beings we are.

The developmental account of human nature is a promissory point of departure from which to derive normative judgements about human enhancement and the challenges it poses us.

CHAPTER 4

The Morality of Interventions

a. Introduction

I start this chapter stressing the deep relation between morality and human flourishing and claim that biomedical interventions are justified because they contribute to increment our developmental power. In this respect, they are instrumentally good for us. What is non-instrumentally good for us is to exercise, develop, and enjoy our human capacities in the context of a well-rounded life structured around the value of flourishing. The two guiding questions of the chapter are: 1) what prudential duties have we towards ourselves?; and 2) what moral and ethical duties have we towards each other? To answer these questions, I set out from the following general premise: we have moral reasons to promote biomedical interventions whenever they contribute to our well-being by enabling us to exercise and develop our nature and the actualisation of our human capacities by purposefully engaging with the world. I then discuss and narrow down this premise, arriving at what I call the developmental proviso, which grounds the moral permissibility of interventions in the context of the developmental framework. The proviso is a general clause that will be further developed in this and the next chapter. It runs as follows: "germline genetic interventions are morally permissible if and only if they increment our developmental power or otherwise contribute to our flourishing as creative purposive agents". To conclude, I discuss the "editing metaphor", some of its various challenges, and how the developmental account can accommodate those challenges.

b. The Moral Imperative of Interventions

In the previous chapter, I argued that we ought to remove impediments to flourishing because they prevent us from developing ourselves as the type of beings we are, *i.e.*, purposeful creative agents. Whenever illnesses, disabilities, and other internal obstacles prevent us from exercising and developing the constitutive capacities of our human nature, therefore jeopardising our well-being, we have legitimate prudential and moral reasons to act in ways that minimise their burden on our developmental power. So construed, this is a welfarist-based claim: the normative justification of interventions depends only on the value of well-being, all things considered.

To make the aim and terminology clear, here, prudential and moral reasons are normative, instead of explanatory or motivating reasons. Roger Crisp defines reasons for acting as being "properties of, or facts about, actions that count in their *favor*" (2018, 800). By prudential reasons, I refer to self-regarding or self-interested reasons that are "grounded in the agent's own well-being, good, or welfare" (Crisp,

2018, 801). In other words, the flourishing and well-being of the agent grounds and justifies his actions. The source of moral reasons is the same, but they are essentially other-regarding in nature.[74] For the sake of developmentalism, I don't think we can consider morality as being independent from prudence. To live a prudentially good life equally demands that one lives a good moral life. On this, I make Crisp's words my own: "my seeing something as finally or ultimately prudentially good requires that I see it as good for persons in general" (2018, 814). On such an account, morality and prudence stand in a relation of interpenetration (cf. Griffin, 1986). It wouldn't help us to look at the good by placing prudence and flourishing on one side and morality on the other.

Why is this important to the structure of developmentalism? Because the cornerstone of developmentalism is the idea that we are creative purposive agents whose flourishing is only possible if we exercise, develop, and enjoy those capacities that make us rational, social, embodied, and emotional beings, and that we should do so for our own good. So, on the one hand, we have self-regarding reasons (*i.e.*, prudential reasons) to strive for our own well-being. We do this by identifying those goods and activities that, once we engage with them, make our lives better according to the types of beings we are.

On the other hand, developmentalism comprises an ethical dimension that endorses a further (stronger) claim, which is moral in its essence, and that states that we have moral reasons to help other creative agents exercise, develop, and enjoy their capacities by engaging with the plurality of non-instrumentally valuable goods and activities. In fact, the promotion of these goods and activities is the morally right thing to do (cf. Couto, 2014, 18). As the argument goes, we first identify what is objectively good and why, then we state that those goods and activities are worth pursuing because of their objective goodness, and finally, we recognise that we have moral reasons to promote those goods. The first two claims are of a prudential nature, while the latter is a distinctively moral claim. Only by putting forward these two dimensions can we expect to deliver some sort of political meaning to developmentalism. Otherwise, without a moral foundation for what is right and wrong about our actions and the nature of what is good for us as creative agents, political claims regarding what the state is permitted to do would

[74] There is an overwhelmingly vast and rich literature on the nature and the articulation of prudential and moral reasons, whose further development here wouldn't advance my work. The works of Crisp (cf. 2018) and James Griffin (cf. 1986; cf. 1996) are good repositories of the contemporary discussions on whether a broader or narrower notion of moral reasons overrides, conflicts with, or engulfs prudential reasons. Unlike Crisp, I don't want to argue that the nature of moral reasons is essentially connected to moral emotions, meaning that emotions such as blame, shame, or guilt are crucial to determine whether an action is right or wrong (cf. Crisp, 2018, 801-802). Likewise, I don't think it reasonable to say that moral reasons completely override or engulf prudential reasons. Instead, it seems that both have some independent weight. The connection between these two categories of reasons implies that we consider the essence of reasons, which we know to be firmly grounded in human flourishing and objective well-being. This reasoning provides us guidance in determining the nature of self-interest, as well as in discerning which actions are morally right or wrong. For developmentalism there is a coincidence between prudential and moral reasons in the sense that what is (prudentially) better for the creative agent has some correspondence with the personal fulfilling of one's moral duties.

lack plausibility. Developmentalism authorises the state to invoke particular conceptions of the good to justify the policies it endorses. This is why these three layers (prudential, moral, political) are indispensable, mutually dependent, and supporting[75], and developmentalism necessarily integrates them all.

Given this explanation, let's return to our starting questions. To answer the interrelated enquiries "why don't we want disabilities?" and "why do we want enhancements?" we saw that we must consider the value of well-being objectively as the key value of human nature developmentalism. Because our nature as developmental beings dictates that we should live well-rounded lives structured around the value of flourishing, and since we flourish by exercising, developing, and enjoying a wide and comprehensive set of capacities in varied and combined ways, genetic enhancement as a form of "improvement of the human experience" (Allhoff, 2005, 48) ought to serve this broad purpose. It is not the means we adopt to change our nature that matter, but the ethics of doing so, and to this intent we should only be concerned with adopting the best and most reliable, efficient, and economical methods (cf. Harris, 2007, 125).

Hence, the starting point of a developmental approach that seeks to justify interventions is the value of well-being and how our human nature explains and correlates to one's level of flourishing (cf. Fletcher, 2016, 80). Accordingly, to make a distinction between a negative and positive case for enhancements is unwarranted and misguides us into the muddled debate on the therapy-enhancement distinction, which hardly captures the theoretical relevance and contribution of well-being as a normative value. That's why my current approach grounds the morality of interventions in the value of human well-being as it emerges from our conception of human nature. The following general formula tries to outline the goal of the developmental approach to interventions: we have moral reasons to promote biomedical interventions whenever they contribute to our well-being by enabling us to exercise and develop our nature and the actualisation of our human capacities by purposefully engaging with the world. This is a synthesis of the analysis done in the previous chapter, but despite this *grounding*, the *content* is still missing, so it is worth enquiring how we go from this conceptual formula to a more substantial position on 1) what prudential duties we have towards ourselves?; 2) what moral and ethical duties we have towards each other?; 3) what is the scope of enhancements and which ones are permissible?; and 4) what plausible political and institutional arrangements result from the developmental account of the good concerning

[75] These paragraphs and indeed the entire construction of this three-layered version of developmentalism owe much to Alexandra Couto's remarkable work on Liberal Perfectionism (cf. 2014).

enhancement policies? These are the questions I'll address for the rest of this thesis. The present chapter addresses the first two questions, while the following one tackles the remaining two.

i. From ground to content;

How do we go from the formula presented above to a more complete version of it? To answer this, we should look at the building block of the developmental approach: human nature. Our purposeful creative agency gives us the ground of duty by enabling us to know *a priori* that obstacles to our flourishing ought to be removed and our developmental power should be enough for us to exercise and develop our energies. In the absence of a sufficient amount of developmental power, we would lack the capacity to purposefully exert our energies. Because we are creative agents, we will make purposeful labour our end and we will value goods and activities that best express that nature. The concern for exercising and developing creative agency as our end manifests our concern not for the exercise and development of the creative agency of this or that particular agent, but creative agency as such. If this is a tenable move, we go from the initial general and universal concern regarding what agents will (*i.e.*, what a creative agent wills as such, namely acting to increment his developmental power) to the moral and ethical concern regarding other creative agent's own development.

In such a way, it becomes clearer how purposeful creative agency gives us both ground and content and how it provides at least some moral developmental guidance. We first get the ground from the understanding that we ought to have sufficient (or otherwise increment our) developmental power, and the content builds up as we realise that we have moral and ethical duties to help others increment their developmental power as well. Note that the requirement to treat our and others' creative agency as an end and not merely as a mere means imposes by itself a constraint that rules out particular kinds of lives and activities. The non-contentious or non-exclusive nature of our capacities is the basic presumption establishing that activities and lives that consist of power extractive relationships are ruled out. Accordingly, developmentalism identifies normative ideals with particular kinds of lives and activities. Hence, if content is a function of what is ruled out (cf. Brink, 2019, 20), creative agency inevitably rules out some kinds of lives and activities and privileges well-rounded lives in which we develop and exercise our physical, sensory, affective, social, and cognitive capacities.

This establishes the relationship between creative agency as our nature and the moral and ethical requirement to develop our flourishing. In addition, it conveys the crucial claim that human flourishing or well-being is the chief concern of morality. Of course, while this is not new to the debate on human

enhancement[76], to explicitly tie our flourishing to a developmental understanding of our human nature is to walk on virgin soil.

The requirement that we enhance human capacities so that we can live a well-rounded life is the reason why enhancement and the enhancement of developmental goods[77] is worth pursuing. Consequently, the following two-pronged comprehensive requirements resulting from the developmental conception of human nature constitute the basis on which the morality of interventions is grounded:

a. It is our purposeful creative agency that makes us humans, giving us our nature as persons or agents, and generates reasons to pursue its development, rendering developmentalism normative. Our individual well-being is a function of the type of beings we are and what is objectively and non-instrumentally good for us is to exercise, develop, and enjoy our capacities by making a conscious and controlled use of our faculties during the transformative and self-creative process of labour;

b. Given that being human is to act as a purposeful creative agent, the requirements of morality dictate that so long as another agent's end is their *development*[78], each one of us ought to make the development of others our end as well. Hence, because morality is about flourishing as a purposeful creative agent, we have prudential and moral reasons to promote flourishing and prevent unflourishing. This principle applies to all creative agents without exception, both to current as well as to future generations. Taking reproductive autonomy as an example of intergenerational ethics, this boils down to the following two principles: i) what we owe to our children is a decent chance to live a life of engagement

[76] John Harris has unambiguously argued that morality is all about human flourishing (cf. 2016, 17), but in no occasion does he make any explicit reference to our human nature.

[77] The enhancement of developmental goods could also be designated as an incrementation of our developmental power. We can identify these goods as functionings, thus following the current currency of ethical theories dealing with lists of objective goods. Developmentalism requires such a list, and human nature unifies the plurality of goods or functionings in it. How good a life is for a person is determined on how well that life goes, and not on how many opportunities one person has to engage with the goods. The claim I'm making regarding human nature developmentalism is that the state is permitted and indeed justified to promote, more than simply protect, relevant opportunities for citizens to meaningfully engage with the objectively and non-instrumentally valuable goods and activities listed above. This is the political conclusion of the ethical thesis I'm developing in chapters 3 and 4, which runs as follows: a) particular goods and activities are objectively and non-instrumentally valuable; b) to engage with these goods and activities determines one's well-being; c) these goods and activities provide us a relevant account of what is morally right for a person to do. It is important to clarify this point because developmentalism is compromised with both the ethical as well as the political premises just exposed, but for a neutralist, for example, it would be plausible to defend the ethical premises and to reject the political compromise to a particular conception of the good as the basis for state action.

[78] I'll stick to the term development in order to avoid the challenging perfectionist jargon that invites us to think of human beings' end being their *perfection* when, in reality, I believe that end is their *development* on the developmental terms I'm exposing here.

> with the components of human flourishing in ways that respect their identity and autonomy; and ii) to safeguard children's right to an open future and to facilitate the incrementation of her developmental power whenever feasible, provided its safe and efficient. Only thus can we treat other present and future agents in ways that reflect concern for their well-being, whose source is their creative agency.

These two claims provide substance to the abstract formula conceived above. We now know not only why we have moral reasons to promote biomedical interventions, but also how our moral and ethical duties towards each other unfold in the context of a welfarist approach to enhancement. So construed, we also address the fundamental problem of reproductive ethics concerning what our duties towards future generations are. More decisively, we now have a coherent groundwork for an objective approach to well-being that explains its relation to our nature and escapes the common difficulties of the conative approaches to well-being.

But before moving on, something must be said about the right to an open future. The notion of a future that is "open" and undefined may appear puzzling and warrants further exploration so we can gain a better understanding of what's at play here. It was Joel Feinberg who famously theorised on this idea, according to which parents and society should refrain from imposing their values and beliefs to children in ways that prevent them from discovering and developing values, talents, and propensities that will lead them to find their vocation, make choices, and shape their identities as they engage with the world (cf. 1980, 136). Of course, a child's future is as open as it can be. Certainly, there are important links between early childhood experiences and adult outcomes when it comes to socio-economic status. But it also demonstrates that it affects "brain development, with potential influences on brain plasticity throughout life" (Tooley *et al.*, 2021, 379). For instance, children who experience low levels of stress and are continuously exposed to new and positive experiences, will experience longer and more brain development, meaning they'll have more efficient connections between different parts of the brain as adults, which in turn can boost their abilities for decision-making and problem-solving (cf. Tooley *et al.*, 2021).

This might put in perspective Feinberg's idea concerning the need to keep "basic options" "natural" and "unforced" in order to secure the child's capacity for self-governance (1980, 127). The idea that the child should be "permitted to reach maturity with as many open options, opportunities and advantages as possible" (1980, 130) doesn't prevent parents and society from making decisions on behalf of the child, even without their consent, when it is possible to obtain it. Applied to reproductive

ethics, the notion of an open future translates into the idea of broadening the "chances for self-fulfilment" (1980, 135) by means of giving future people access to the set of all-purpose goods that enable them to engage with the components of flourishing in meaningful ways.

As it is conceived, the right to an open future is both negative and positive. Its negative formulation suggests parents should maintain some degree of non-interference with their children.[79] It's not full neutrality, but a sort of "approximated parental neutrality" (Lotz, 2006, 549) that is here required; in fact, only a moderate kind of neutrality is possible, as we saw from the above paragraph. On its positive formulation, parents are required to provide children the external and internal conditions to foster their development as autonomous, creative agents, including the opportunities for them to engage with the components of flourishing.

In a sense, this is also a matter of balancing the honouring and the promotion of children's capacities. Notwithstanding the parental responsibility to honour children's capacities, the most important part of the discussion revolves around our positive duties, or the promotion of capacities and how active it should be. On Feinberg's account, "the neutral state [...] would act to let all influences (...) work equally on the child, to open up *all* possibilities to him, *without itself influencing him toward one or another of these*" (1980, 136; my italics). For parents, the italicised caveat might be hard to follow. Because parents are highly motivated by the idea of their children's flourishing, they want to encourage them towards some influences rather than others. This involves providing children with opportunities to be in environments that inspire experimentation in life and preventing them from being in detrimental environments that lead to negative experiences. Stuart Mill established a solid relationship between flourishing and experiments in living (cf. Mill, 2003; Ferdman, 2019). Not all options have the same significance for us, and all of them contribute differently to our flourishing. Mianna Lotz gets this as clearly as possible: "the child's right to an open future imposes a duty on parents to seek, *within their capacity, to provide adequate conditions for a child's emerging autonomy*" (2006, 546). She equally acknowledges that while parents have a positive duty to provide children the conditions to develop themselves, "this is not a duty to maximize options" (2006, 547). To do so would be too burdensome on parents. Of course, to define exactly the limits to parental action in the promotion of children's autonomy is an overwhelming task. Here, my claim is that parents have at least a duty that is neither too thin, nor too burdensome to

[79] I firmly agree with Joseph Raz's view — which is much in line with developmentalism —, that "there is more one can do to help another person have an autonomous life than stand off and refrain from coercing or manipulating him" (1986, 407). We have a moral duty to help other agents "creating the inner capacities required for the conduct of an autonomous life" (Raz, 1986, 407). The inner capacities he mentions encompass rational, cognitive, emotional, social, psychological, imaginative, and physical skills and abilities (1986, 408). To secure the principle of autonomy, Raz argues, "yields duties which go far beyond the negative duties of non-interference" (1986, 408).

increment their children's developmental power. This means to encourage experiments in living so they have the opportunities to autonomously engage with the various components of flourishing in varied and complex ways, giving them the ability to "authentically choose one's projects, commitments and more generally one's life plan" (Lotz, 2006, 547). Such a view puts parents as the active responsible agents for the development of Raz's various "inner capacities required for the conduct of an autonomous life" (2986, 408), which amount to Kraut's components of flourishing and Macpherson's list of human capacities.

We can now look at how the principles established above help us to understand the relationship between flourishing and disability. According to these principles, disabilities curtail our power to interact comprehensively with the components of flourishing, while enhancements aim at the incrementing of our power to engage with those components more effectively. Thus, it is not simply a matter of our desires, however informed, that is central to answer the questions formulated above relative to why we *don't want* disabilities or why we *want* enhancements. If somebody acts in a way that from his action results a disability or illness that injures us, we are justified in saying that that person harmed us. Of course, there are multiple definitions of disability, as I exposed in chapter 2. I rejected functionalist definitions because they rely too heavily on problematic concepts of normalcy and species-typical functioning and claimed that welfarist definitions are superior because they conceive disability in terms of what it does to our well-being. The latter conception of disability is superior to its competitors because it focuses on our well-being, or our flourishing, which is the cornerstone value of the two-pronged formulation. Following Kraut, this is the central idea of developmentalism regarding the relation between deficiencies or disabilities and what is good for us: "something can be identified as a deficiency only by means of a theory of well-being" (2007, 178, n. 30). Such a claim would surely prove problematic were we to work with a subjective concept of well-being instead of a developmental one, or if we accepted a normalcy or species-typical functioning approach.

Whatever the case may be, no matter how vague and non-exhaustive these definitions are, we all have an idea of what injuries, disabilities, or incapacities are and what their chief effects are: they make us vulnerable, threat our health and life, prevent us from exercising and developing our capacities, and enjoying many of the things we like and consider important to our lives. For example, John Harris has defined disability as a physical or mental condition "that someone has a strong rational preference not to be in and one that is moreover in some sense a harmed condition" (2007, 91; cf. 1993, 180). Harris relates a harmed condition primarily to our rational preferences and to conditions that are harmful to us in some relevant sense *vis-à-vis* possible alternatives. Such a definition has the advantage of leaving aside

messy concepts like normalcy and species-typical functioning, while focusing on the value of what the possible alternatives we have to disability are. But Harris' position is also challenging if we believe that preferences, even informed preferences and desires, are not enough reason to provide us an appropriate account of what disabilities are and how they relate to our well-being. The developmental conception of flourishing outlined here goes beyond Harris' explicit purpose of justifying interventions by relying on a necessary rational balance between individual harms and benefits. There is at least one key reason for this: developmentalism aspires to be an objective account of well-being according to which the good life for a human being is determined by the specific set of capacities constitutive of our human nature and whose exercise is non-instrumentally good for us. In this sense, Harris' view is much more closely related to the subjective conceptions of hedonism and desire-fulfilment theories. Here, subjective states are central to the definition of disability and what a harmed condition is, thus grounding the moral imperative for interventions on the balance resulting from a hedonic calculus: the rational agent weighs benefits (pleasure) and harms (pain) and makes evaluative judgements on possible alternative courses of action that, other things being equal, he would desire to pursue. Hence Harris' claim that "[t]he overwhelming moral imperative for both therapy and enhancement is to prevent harm and confer benefit" (2007, 58).

On the other hand, as we also saw in the previous chapter, it is reasonable to agree with both Harris and Jonathan Glover that expressing a strong rational preference against disability or asserting that disabilities have a negative impact on our flourishing does not necessarily convey negative attitudes towards disabled people. Disability as a harmed condition or a condition of unflourishing doesn't undermine the moral status of the person or deems their lives not worth living. To state that disabilities prevent us from flourishing doesn't convey any moral prejudice against the disabled, otherwise the mere existence of doctors, hospitals, and pharmaceuticals would be an insult to the sick (cf. Glover, 2006, 35). In his influential 2001 article on *Procreative Beneficence*, Savulescu effectively debunked the inconsistent expressivist argument by distinguishing between individuals living with a disability and the concept of disability itself. Savulescu's argument is that embryo selection can help reduce disabilities and stays silent on the value of the life of people living with a disability (cf. 2001, 423). It is because disabilities obstruct human flourishing that we want to minimise their impact on our ability to engage with the components of flourishing. It is not disease that is important, but the negative impact is has on our flourishing. Take the case of a non-disease gene that contributes for the enhancement of some physical or mental capacity; insofar as it "impacts on a person's well-being, parents have a reason to select for it, even if inequality results" (Savulescu, 2001, 423).

So, the main reason why disabilities are bad for us is because they worsen our lives in relevant and meaningful ways. Some disabled people are capable of truly enjoying the exercise and development of many of their capacities even when knowing that they lack the power or ability to exercise and develop other capacities. Despite this limitation, we can think of their well-being as marginally affected and they flourish and live lives worth living. One of the advantages of the welfarist approach is that it is possible to prioritise the enhancement of function rather than the treatment of illness or disability precisely on these grounds. Conceivably, *therapies* such as taking a painkiller or chemotherapy contribute more to our well-being than *enhancements* like augmenting our eyesight or physical resistance when this is already enough to adequately experience life. But sometimes, therapies will not have a significant impact on our lives (*e.g.*, treating a mild eczema) when compared to enhancements that give us more self-control and happiness (cf. Zohny, 2014, 125).

Naturally, the welfarist advocate reveals special concern regarding disabilities that severely impair the person's power to exercise and develop other capacities, let alone enjoy their fruition. The good person ought to make it her goal to help others increment their developmental power "and avoid thwarting their flourishing or destroying or damaging the conditions necessary to flourishing" (Harris, 2016, 17). But in no way does he need to refer to species-typical functioning or normalcy. His concern stems from the normative value well-being enjoys in determining why it is good to reduce the incidence of disabilities in people's lives. This normativity also explains why we value those kinds of lives in which we actively, consciously, and creatively exert our energies to do the things that we find valuable and that positively contribute to our well-being. It is not simply because we have a strong rational preference to live flourishing lives that we aim at reducing the impact of disabilities in our lives, but because our flourishing is of a prior nature to our rational choices concerning how we should live during our entire lifespan. Our well-being and flourishing have a non-instrumental significance that influences our choices and decisions throughout our entire life.

For these reasons, because what we care about is the value of flourishing, there is no suitable moral distinction to be made between therapy and enhancement. The need for a therapy/enhancement distinction, or a medical barrier, turns out to be meaningless when what we are looking for is the promotion of human well-being irrespective of the means used to that end. Negatively, therapy aims at minimising or removing disability to give the person the ability to flourish; positively, enhancement aims at incrementing the person's ability to flourish. The moral imperative to justify both these interventions lies in the value of flourishing. One could claim that it lies instead in the value of health, but health is only an instrumentally valuable good that serves the all-encompassing purpose that is enjoying and living a

good life (cf. Savulescu, 2009, 522). We want to live happy, flourishing lives, not just healthy lives, and indeed sometimes we sacrifice health and even life in virtue of other comparably important values. Consequently, we have a prudential interest in not being disabled as well as in not being denied the opportunities to increment our developmental power when this can be done safely and efficiently. I say we have a prudential interest for a particular unpretentious reason: what is good for us is to engage with the components of flourishing (as well as avoiding the components of unflourishing). But as we saw, we also have moral reasons to act so that the developmental power of each person is incremented[80] (both *protected* and *promoted*). The well-being of each and every person is ethically valuable and therefore, because each person has an equal moral worth and because we have a duty to promote creative agency, we should act so that we protect and promote individual well-being. We do so by ensuring that each person is able to engage in meaningful ways with the goods and activities that are constitutive of her human nature and thus promote her well-being. By saying that each person ought to be able to engage with the valuable goods and activities, I mean that a developmentalist political community ought to provide the necessary opportunities for the flourishing of its citizens, as we will see in the next chapter.

ii. The Developmental Proviso;

According to what we just established, the developmental view presented here makes a case in favour of enhancements based on the following general premise: interventions are morally permissible whenever they contribute to increment our developmental power to a satisfactory level so that each citizen can

[80] As I argued in chapter 2, sometimes diminishment is enhancement. This means that in some particular cases, the diminishment of one's developmental power may be justified because, overall, one's flourishing is only possible if a particular capacity is reduced. The diminishment of a capacity in these situations is also an intervention that aims at incrementing one's developmental power in the sense that only through its reduction can one's flourishing be achieved. Kraut suggests something similar in various moments of his work. In certain circumstances, like when in prison, one might wish the extinction of sexual desire because the sexual life available in those circumstances is not the one that one wishes for himself. While the loss of sexual pleasure might be a *good* in these circumstances, it would be a great loss in other comparably favourable circumstances (cf. Kraut, 2007, 167-168). Clearly this claim goes beyond Kraut's more or less explicit endorsement of interventions grounded on a deep commitment to a "therapy/enhancement" dualism. While I believe the circumstantial argument of the prison is problematic (*e.g.*, racist and homophobic societies are "prisons" in a relevant sense to some of its citizens, but it wouldn't be morally permissible for a person to change her skin colour or sex based on the idea that such an intervention would promote her well-being in those societies), Kraut seems to be grounding the permissibility of interventions on the kind of welfarist approach I'm following here. Consider another of his examples:

> [i]f [...] one finds that one's sexual organs impede one's affective and social powers, one would be justified in altering them. In doing so, one transforms part of one's body (and impedes the powers one could exercise through their use) in order to enjoy the exercise of affective and social powers that one correctly judges to be central components of well-being (2007, 147, n. 11).

Again, while admitting that sometimes diminishment is enhancement, Kraut's arguments also suggest that there are situations in which the moral justification for interventions comes not from a therapeutic or restorative need to bring a person to some normal level of species-typical functioning, but that they are justified relative to the promotion of one's flourishing. Yet, I think that Kraut sits on the fence relative to whether genetic interventions should or should not be morally permissible. I'll look more closely to the reasons why this happens in section c of the present chapter.

engage with meaningful goods and activities. In fact, we have a moral duty to help others increment their developmental power. What this means is that the provision of enhancements that increment one's developmental power ought to be part of a just distributive scheme. But sometimes, the promotion of one's developmental power is not enough reason to justify interventions, namely when other comparably important values are at risk, thus making ours a conditional moral duty that is also reflected in the requirements of justice. Similarly, it may be reasonable not to pursue the incrementation of one's developmental power beyond a certain threshold. Consequently, we should improve the formula with a proviso to accommodate those situations. A possible proviso is the following: germline genetic interventions are morally permissible if and only if they increment our developmental power or otherwise contribute to our flourishing as creative purposive agents.

We have previously explored the incrementation of our developmental power and its implications for how we engage with the elements contributing to flourishing. Every human being's purpose is to engage with these components, and therefore it would be irresponsible to deny the incrementing of one's powers to engage with them. Nobody could be better off with less developmental power; less developmental power amounts to a diminished ability to engage with the components, regardless of one's life goals (cf. Allhoff, 2005, 50). As I already mentioned, these components are much like the "all-purpose goods" referred to by Buchanan and colleagues and that are useful to carry out virtually any plan of life (cf. 2000, 168). The idea at work here is that every creative agent would consent to the enhancements were he able to do so.

In the rest of this chapter, I want to look at some of the implications this proviso has in the context of human nature developmentalism. The current proviso is the outcome of ongoing and exploratory efforts to determine the most suitable formula for the developmental approach to interventions I am developing here. To put forward this proviso, I looked at other examples in the literature, namely Fritz Allhoff's Rawlsian primary goods approach, and John Harris' utilitarian approach.

Allhoff has persuasively argued that the Rawlsian notion of primary goods can be used to justify the moral permissibility of enhancements (cf. 2005). On his account, "germline genetic enhancements are morally permissible *if and only if* they augment primary goods, or create abilities that would lead to their augmentation" (50). He invokes Rawls' statement that "[i]n the original position [...] the parties want to insure for their descendants the best genetic endowment", something "earlier generations owe to later ones" (Rawls, 1999, 92).

But both Rawls and the utilitarians are committed to a conative approach to well-being according to which "what is good for someone is the satisfaction of his properly informed and rational desires"

(Kraut, 2007, 97). Allhoff's view is also too centred on conative rationality and pervaded by individualistic and subjective conceptions of the good. As we saw, the problem with these theories is that they do not make what is rational for someone depend on what is *good for* someone. For example, we can only determine what the best genetic endowment is by referring to what is *good for* us as the kind of beings we are. In the case of developmentalism, this evaluation crucially depends on the developmental concept of human nature and the idea that our notion of what is good is prior and informs our conceptions of what is right to do. Also, developmentalism rejects the idea that some things are absolutely good, or good "sans phrase". The kind of goods and activities we're dealing with regarding human flourishing are always and categorically "good for", implying a relationality, a two-place predicate, different from the one-place predicate of "simply good" (cf. Kraut, 2011, 70).[81] Hence, what the best genetic endowment is can only be determined by referring to our creative agency and the process of labour itself. Such a position seems to run against Allhoff's idea that "regardless of his conception of the good, *all rational agents would consent to augmentation of their primary goods*" (2005, 50). Our creative agency entails that we are more than mere rational agents, rationality being one of the features of our agency. As Kraut explains regarding the advocates of conative theories, "taking rational conation to be constitutive of goodness, they cannot (on pain of circularity) also take rationality to be even partly constituted by what is good for a person" (2007, 103, n. 38). If we define something as good because it involves rational desire, we cannot go and claim that rationality is influenced by what is good.

Take the following example: suppose parents can use reprogenetic technologies to increase their children's height. Height might not be a primary good, but rational parents would have valid welfarist-based reasons to increase their children's height, either to give them an advantage or to prevent that they are disadvantaged. Rational parents would thus compete in the market for taller children. Despite social and environmental costs associated with height enhancement that could probably lead to a collective

[81] There is an extensive philosophical debate on whether the idea of "good for" expresses a distinctive evaluative concept *vis-à-vis* "good *simpliciter*". G. E. Moore and W. D. Ross are the chief proponents of the latter understanding, while Richard Kraut has emerged as the latest prominent supporter of the former. Thomas Hurka has argued that "*there's no philosophically useful good-for or well-being concept that's neither merely descriptive in the sense of naturalistic nor reducible to 'simply good'*" (2021, 803). Despite the persuasiveness of Hurka's argument, it doesn't follow as clear as he makes it look that "simply good" expresses everything that is ethically evaluative important in the concept of "good for". While I don't think "simply good" and "good for" differ in kind, I take it that our duty to bring about outcomes that are "simply good" is best expressed in terms of "good for". *Contra* Hurka, I believe Kraut's case in favour of "good for" is stronger because of the ethical implications underlying it, highlighting the personal, relational content that gives substance to our moral duties toward each other. We wish to promote what's "simply good", but to say that we do it because that's what's "good for" ourselves, for our friends, family, or neighbours carries with it an important moral richness that Hurka's mysterious proclivity for a parsimonious use of words falls short of convincingly explain. So, there is more to "good for" than its descriptive or instrumental value, as Hurka suggests. It seems to me that when we consider what is "good for" persons, we naturally access their personal well-being, their desires, and aspirations. There is a psychological dimension to this framework that, once more, reinforces the idea that moral decisions are not isolated from the emotional and cognitive aspects of our psychology that also shape human behaviour and motivations.

action problem making everyone worse off, and since these costs would be borne by others, highly motivated parents would hardly be dissuaded from competing in the market for taller, happier children (cf. Gyngell & Douglas, 2015, 244). At a certain point, to increase one's height would be dangerous for one's health and well-being, and it is only in particular situations and in specific circumstances that being taller constitutes an advantage for the person, or for certain individuals (cf. Carrieri & Paola, 2012). Rational parents would have to evaluate whether their child would benefit from being taller or not, but it is not that straightforward that because height is not a primary good rational parents have not valid reasons to choose taller children. Allhoff correctly points out that "rational people easily could prefer not to be tall" (2005, 51), but the inverse is also true. In this context, uniform policies appear to present challenges for these approaches. Developmentalism needs to find a different strategy to tackle with these challenges.

The promotion of all-purpose goods cannot be done independently of our conception of the good; in fact, it is our prior conception of the good that enables us to determine their value for us. What's more, these goods are not possessions to which we are entitled to or not. Our capacities are self-reflexive, meaning that they are a constitutive part of the person, and therefore there is no distance between the subject and the object: our capacities *are* us.

For developmentalism, the idea of developmental power itself is normative, since it entails "judgements about what is right, proper, and appropriate from the vantage point of what might constitute human fulfilment" (Hansen, 2016, 93). It is true, as Hansen claims, that "all power exists in its exercise for purposes, one's own or someone else's" (2016, 92). Under one's purposeful control, power is the ability to use, develop, and enjoy one's capacities. The endorsing of positional advantage would amount to the enhancement of extractive power, which is the ability to use one's own power but also the power of other people for one's purposes due to their lack of purposeful control over their own power. Under the developmental view there is no requirement that one's power is to be maximised *ad infinitum*, but that the incrementation of power should aim at enabling each person to *sufficiently* engage with the components of flourishing. To this end, a minimum threshold of engagement is required. This will require additional revisions to the proviso. This and ascertaining what the sufficiency threshold may look like are tasks for the next chapter.

For now, with this proviso in place, it becomes easier to assess whether interventions are morally permissible or not. It summarises everything that was said about what is non-instrumentally good for human beings and why only those interventions that increment our developmental power are morally permissible. The proviso also has the advantage of evading the problem of dividing interventions between

those usually aiming at therapy and the ones that purportedly go beyond it. Whenever it is safe and efficient to improve one's cognitive and physical capacities, and to expand one's lifespan and the prospects of living well, we should sanction such interventions as instruments enabling us to exercise and develop our capacities. If these interventions facilitate one's flourishing, they are what every individual ought to pursue for himself and his descendants. In the end, the proviso translates the core of our developmental conception of human nature: both our essence as creators and enjoyers of our capacities and the idea that we all have an equal right to make the most of ourselves (cf. Macpherson, 1973, 32) are the basis for human nature developmentalism as developed here.

c. Edition

Here, I turn to the "editing metaphor" to consider not only some of the questions raised by the proviso, but also to look at other approaches to the permissibility of interventions, namely Harris'. I will also consider some of Kraut's remarks on the nature of the good and its relation to interventions, particularly because Kraut seems to sit on the fence when it comes to the possibility of admitting interventions to promote one's good.

Gene editing has replaced the old familiar idea of genetic engineering, especially since the discovery of the CRISPR-Cas9 technique of editing and altering specific parts of the human genome. The editing metaphor has often been used to suggest that the human genome, as an unfinished or imperfect product of nature, is now open for completion or correction by a more competent and skilful designer (cf. Hauskeller, 2019, 61). This idea is transversal to many of the positions adopted by those expressing hesitation and scepticism concerning human enhancement. They share Sandel's idea that we are playing God by assuming a kind of hyperagency or drive to mastery that supersedes the humility and acceptance of the given that humans should care to protect (cf. Sandel, 2007, 26-27). Gene editing is seen as if it were a hubristic attitude towards the giftedness of life and what Hauskeller calls the "voice of nature" (2019, 62) that we should listen to and whose orders we ought to comply with.

We saw already many of the reasons why these ideas are not only elusive and inconsistent but also indefensible. What is the given, and why should we be open to the unbidden, refraining from altering the natural order of things if doing so advances our well-being? In what ways is gene editing a kind of hyperagency and drive to mastery more than other forms of altering the nature around us as well as our own? It is within the framework of a theory of well-being that we should consider these questions.

What's interesting to notice is that even Kraut's developmentalism seems to look suspiciously to the possibility of genetic interventions to increment our developmental power. At the same time, it seems

to sanction interventions that minimise the impact of disabilities on our developmental power. It sanctions a negative approach to interventions, but not a positive one. It acknowledges the removal of impediments to flourishing by negatively intervening on our genetic constitution, but it refrains from endorsing interventions aimed at altering our genetic constitution to promote our flourishing. Typical traces of the therapy/enhancement dualism pervade Kraut's conception. Consider the following passages from his work in which this is clear:

> Does it follow that it would be wise for us to increase our powers if we could do so? If, for example, genetic engineering could make us, or future generations, better athletes, should we embrace such alterations? It would be pointless to make *everyone* a better competitive runner or tennis player; but it *would* be worthwhile to remedy the defects of those who are currently handicapped as runners or to improve the skills of those who cannot participate in sports. When our experience of life shows us that those who are defective in one area of human excellence do not thereby gain in some other area, we have good reason to remedy those defects when we can. But it does not follow that improving the set of skills of *all* human beings would be good for us. This allows for the possibility that in certain spheres we are *all* defective, and that the elimination of that defect would be beneficial. For example, people are generally quite bad at making intuitive probabilistic judgments. If we could genetically engineer future generations in a way that eliminates this widespread deficiency, human beings would make fewer costly mistakes. But there is no reason to increase someone's powers, unless doing so removes a deficiency; and something can be identified as a deficiency only by means of a theory of well-being (2007, 178, n. 30).

First, Kraut faces the difficulty of coherently matching his idea that "something can be identified as a deficiency only by means of a theory of well-being" (2007, 178, n. 30) with the drawing of a morally significant line between treating dysfunction and enhancing function. If such a line were to be successfully drawn, why would we halt precisely at the point in which dysfunction was corrected if to go beyond that (*i.e.*, to enhance function) we were able to add up to one's well-being? Is the remedy of the defects of the handicapped morally justified relative to a normal functioning standard or to the possible flourishing it brings to the lives of the handicapped? We already saw that what is "normal" for humanity is problematic. Normalcy is agent relative, meaning that to remedy something can also be to enhance it. I exemplified

this in chapter 2 with Milo of Croton's injury: if Milo suffers an injury but is still capable of functioning above the average of his competitors, would Kraut call this intervention therapy or enhancement?

A related problem would arise from this one if we were to consider the "normal" as the statistical average: remedying the defects of the handicapped would raise the average, thus justifying the need for more therapeutic interventions (cf. Roberts, 2014, 4). Following this reasoning, we would have to progressively increase the functionality of each person in more and more areas of human excellence as the average functioning increased. Ultimately, to function "normally" in many multiple areas of human excellence would recommend remedying that defect until the average was perfect functioning at all possible areas. Instead, it may be justified to think of one's functioning in terms of sufficient functioning, or the sufficient engagement with the components of flourishing that enables one to sufficiently exert and develop his capacities so he can flourish as a human being.

Even if Kraut is referring to deficiency as a state of non-flourishing in some of the various components of flourishing that is not compensated by some gain of flourishing in another component, we continue to encounter challenges. This would be a claim like that of Harris, according to which we have a rational preference not to be in a disabled situation. To have a deficient engagement with the components of flourishing would thus, apparently, gives us enough reason to use interventions to remedy that situation. Aside from existential threats, what other justifications could potentially prevent us from using interventions to address this imbalance in flourishing? There are certainly many plausible reasons to limit access to interventions in plenty cases. The counselling model I'm putting forward in the next chapter will serve as a framework designed to assist individuals in identifying those reasons. Could Kraut's caution be operating as a prelude to that model? I believe this would largely depend on the plasticity of the notion of deficiency. It will also depend on the assessment conducted by the counselling team for each individual case they analyse. In any case, given that we know what the prerequisites for our flourishing are, if we understand deficiency as lack of sufficient developmental power to meaningfully engage with the components of flourishing, there seem to reasons to "increase someone's powers".

Second, it is problematic to relate the claim that "it does not follow that improving the set of skills of *all* human beings would be good for us" with the idea that "[i]t would be pointless to make *everyone* a better competitive runner or tennis player". These claims are problematic in two different and yet interrelated dimensions. First, the interventions that are morally permissible according to the version of human nature developmentalism I'm defending here are only the ones that increment our developmental power: no creative agent would refuse to have them because that would amount to having less developmental power to exercise, develop, and enjoy his capacities. Second, while positional advantage

is *prima facie* morally impermissible, there are cases in which it is difficult to establish what is in fact positional advantage. For example, in some cases, non-instrumentally rewarding activities also confer a positional advantage to the agent and enable him to exert, develop, and enjoy his capacities, as I argue below.

While there might be some truth to Kraut's second claim, the first claim is surprising. Why wouldn't the improving of the set of skills of *all* human beings be good for them? Kraut is unequivocal about this: "[f]or a human being it [flourishing] consists in the maturation and exercise of certain cognitive, social, affective, and physical skills" (2007, 141). The words skills and capacities are used interchangeably. Throughout his work, Kraut correctly notes that to teach students to develop their capacities for intellectual reflection and enquiry, for autonomous judgement, and to develop their imaginations is good for them (cf. 29). Likewise, it is also good for one's flourishing that he masters the skills of social interaction (cf. 40). Equally, the perception of one's capacities (and not merely one's desires and plans) is a key factor to determine what is good for us (cf. 115). This is the reason why we prefer certain tasks, jobs, and careers over others: they allow us to exercise the cognitive, affective, sensory, social, and physical capacities we have spent so much time developing (cf. 45). In fact, in many contemporary societies, we invest much of our time and effort since early childhood to develop capacities that we think are relevant to our flourishing (regardless of the sociohistorically contingent nature of flourishing). Indeed, in doing so, we gain a positional advantage over our peers by getting more relevant degrees that potentially allow us to access more competitive and rewarding offices.

In the same way, recall the idea of accepting the given. Many of our efforts throughout history consisted in improving the given. Animal husbandry and plant breeding, architecture, and medicine (cf. Harris, 2007, 110) were all attempts to improve upon the given that were meant to improve our capacities. Our bodies and brains grew, our health and lifespan increased, we progressively acquired a more comprehensive and systematic understanding of the world and our own condition. It is difficult to imagine that the development of our capacities for rational understanding and moral judgment and action, for aesthetic creation and contemplation, or for the emotional activities of friendship and love, among others, is not good for each and every one of us, irrespective of the time and place. The reason why we consider these capacities to be non-instrumentally good is because their exercise and development are the ultimate expression of the kinds of beings we are. This is also why I claimed in the previous chapter that good lives are well-rounded lives, and that each person's flourishing is dependent on her living such a life of sufficient engagement with the goods and activities that allow her to exercise and develop her capacities.

I believe this is also Kraut's conviction, despite his puzzling first claim. So, maybe Kraut's suspicion is better understood if we look at his second claim: "[i]t would be pointless to make *everyone* a better competitive runner or tennis player". There is some truth to this idea, but it is not entirely accurate. Kraut's insistence on the problematic universal access to genetic engineering might stem from a correct intuition that positional advantage is morally problematic. However, his two examples (competitive runner or tennis player) indicate that he misses an important point about physical enhancements that I already explored: enhancements don't necessarily dispense with the need for effort. An enhanced athlete would need a great deal of effort to compete with both his unenhanced and enhanced competitors (cf. Zohny, 2014). Of course, one might also wish to be a better runner or tennis player not simply just to compete with others, but to play more competently or to appreciate the beauty of tennis or running by performing it according to some pattern of aesthetic excellence. In both these cases, we are responsible for our actions, whether they demand more or less effort to accomplish. This is important because it contradicts Sandel's idea that our excellence is something we are gifted, as if we were not responsible for it (cf. 2007, 27). Of course, his underlying drive is that there is something morally wrong with desecrating the given by artificial means (cf. Harris, 2007, 116), like steroids and other future robust enhancements. In any case, it is plausible to think that in both these cases our physical as well as other relevant capacities would still be greatly exercised and developed even if one started from a higher threshold. Eventually, when robust enhancements enable athletes to achieve all their goals without a minimum degree of effort, some could plausibly claim that the game has lost its excitement or that all competition was abolished, but, like Harris claims, this wouldn't be a concern for ethicists (cf. 2007, 111). Anyway, we have reasons to believe that to be a better runner or tennis player can be a legitimate claim and that interventions that further our physical and mental capacities to act as such are morally permissible.

If Kraut's idea is that positional advantage is morally problematic, as I think it is, he should have declared it clearly. Otherwise, it seems that some physical capacities as well as other related capacities required to play sports and perform artistic activities cannot be enhanced simply because they can be used to compete with our peers. In many spheres of life, including sports, competition is a valuable good, and it is not inseparable of our efforts to become better by means of taking the exercise and development of our capacities one step further. Sometimes, competitiveness is one of the drives to the exercise and development of our capacities, as well as its enjoyment. Of course, excessive competitiveness in sports or in some other spheres of life can be bad for us and lead to several complications, some related to our physical and mental health, others to our capacity for social interaction with others.

Overall, positional advantage can be a thorny issue. Sometimes it is difficult to completely identify and separate the positional from the non-positional. Glover illustrates this difficulty quite well. A university degree is certainly a competitive advantage when one applies to a job, but this advantage is not the only one explaining why people value having a degree (cf. 2006, 80-81). We recognise that people also value the knowledge that comes from learning multiple subjects and the stimulation of their capacities for intellectual reflection. They value the participation in the academic and public discussion as well as the capacities for social interaction and sustaining relationships with their peers. Likewise, they can value the exercise and development of their physical capacities by practising sports and appreciate and enjoy the contributions of other cultures. For sure, if everybody gets a university degree, "the competitive advantage in the job market is less" (Glover, 2006, 80) and one potential strategy to maintain a competitive edge is to continually invest more in one's education, for example. But this has the effect of prolonging an endless repetitive cycle. It is the maintenance of this endless competitive cycle involving some specific goods that I think is problematic when we discuss what kinds of enhancements we ought to promote and pass down to future generations.

By now, the reader might be considering whether introducing a non-positional clause to the proviso would be advisable. Should we support the claim that *only* non-positional interventions are morally permissible? Because of the difficulty of discerning between positional and non-positional goods, I believe the counselling teams will have to evaluate each case to discern whether a specific intervention is reasonable. There is no problem in admitting that sometimes it is hard to separate positional and non-positional goods and still hold that positional advantage is morally impermissible. Because a college degree confers a positional advantage to its holder, it would be unreasonable to claim that whenever the possibility exists, we shouldn't increment one's capacities for rational understanding, for moral judgment, and action by fear of conferring positional advantage to an agent. Remember that our capacities have a non-contentious or non-exclusive nature, meaning that whenever they are exercised and developed without preventing others from exercising and developing theirs, there is no reason to think we can limit interventions. The proviso's requirement aims only at preventing that a person flourishes at the expense of another's lack of flourishing, *i.e.*, by means of extractive power relations. Typically, these relations prevent agents from exercising, developing, and enjoying their capacities. An agent who is excluded from one position because other agent is more qualified to exercise it is not a victim of an extractive power structure that prevents him from flourishing as an agent. As long as an agent's actions remain under his rational and intentional control (*i.e.*, as long as a human being remains a purposeful creative agent), and he is capable of expressing the concern that his life and the exercise and development of his capacities

are accomplished according to his rational deliberation regarding his ultimate ends, we shouldn't be worried about the perils of a competitive structure of regulated market relations.

What we should be worried about are interventions that select traits like eye or skin colour, height, or sex since these constitute no special condition for furthering our developmental power as creative agents and therefore it would be pointless for parents to select them for their children if their aim is to give them advantage. Such enhancements "would provide no net benefit if universally applied" (Bostrom & Savulescu, 2009, 11), and as Glover noticed, "if everyone stands on tiptoe, no one sees better" (2006, 80), which is a reasonable description of the self-defeating and unfair nature of the positional goods we ought to rule out. Taking this into account, there is no reason to formulate the proviso in a way that specifically states that the moral permissibility of interventions depends on them being non-positional.

Hence, consider again Kraut's statement:

> If we could genetically engineer future generations in a way that eliminates this widespread deficiency [making intuitive probabilistic judgments], human beings would make fewer costly mistakes. But there is no reason to increase someone's powers, unless doing so removes a deficiency (2007, 178, n. 30).

As surprising as this claim may be, it plainly reflects Kraut's suspicion concerning enhancements. He adheres to the therapy/enhancement distinction and argues that there are no reasons to go beyond therapy. But "what matters is human well-being, not just treatment and prevention of disease" (Savulescu, 2009, 525), and therefore Kraut's position is challenging. Also, this claim is difficult to sustain because "to increase someone's powers" is something we highly value for its non-instrumental value for our lives. We go to the university to increase our powers, and we practise sports, train hard, follow dietary restrictions, practise yoga and meditation so that we increase these various powers as well. We also make efforts to maintain personal and social relationships because in some way these make our powers flourish and because we attribute value to the exercise and development of our set of social and affective capacities. These are ways in which we increment our developmental power. To remove deficiencies cannot be the only morally permissible reason to increase someone's powers. Most people seek to increase their powers throughout their life for several reasons other than overcoming deficiency. There are valid moral reasons to increase people's power beyond healing them when ill or treating them for trauma. If increasing someone's powers by means of particular enhancements makes one's life go better by, say, enabling him to participate in the public life because his capacities for engagement and social

interaction were improved, it is hard to insist on the normative value of the medical boundary that underlies Kraut's claim.

If, as I'm arguing here, the moral imperative presiding interventions is the incrementation of our developmental power, at least to a certain level of flourishing, we always have moral and ethical reasons to "genetically engineer future generations", or edit the genomes of future people, so they can flourish as much as possible. As a general guideline, whenever the increasing of someone's powers contributes to her flourishing, interventions are morally permissible. We have "a strong reason to enhance people in so far as the biological enhancement increases their chances of having a better life", or if they "increase people's opportunities for well-being" (Savulescu, 2009, 523). The increasing of a person's developmental power is achieved by a fair promotion and provision of *access to* interventions, not enhancements themselves (cf. Agar, 2004). But to argue that we should flourish *as much as possible* could lead us to think that we should maximise our developmental power to its highest possible level. This is not true: we have seen that we should have access to a sufficient, not a maximum, level of flourishing. So, to read Kraut at the light of this principle, it would be correct to say that there is no reason to increase someone's developmental power beyond the sufficiency threshold because this presupposes that fair and universal access to interventions was already guaranteed to all citizens. I'll look at some of the implications of this position in the next chapter.

A third problem I identify in Kraut's sceptical position concerns his idea that it is always beneficial to eliminate our personal defects in certain spheres of our lives. Hauskeller made similar remarks regarding gene editing: "[i]t is a mistake to think that our lives can always be better, irrespective of how good they may appear to us. It is also a mistake to think that limitations are *per se* bad" (Hauskeller, 2019, 65). Both these claims should serve for us to refocus on what is valuable about enhancements. We favour enhancements because they make our lives go better in meaningful ways, namely by enabling us to engage with the components of flourishing so we can live well-rounded lives. The developmental conception of flourishing follows much of Stuart Mill's well-known idea of the importance "experiments in living" have for people (cf. 2003). These are creative and new ways in which we make choices about how to live our lives that necessarily require us to rethink on how to engage with different goods and activities that we were not using or that remained dormant to our daily routine. To make these choices, Mill argues, we use the "faculties of perception, judgment, discriminative feeling, mental activity, and even moral preference" (2003, 123). The reason why experiments in living are so important is because they allow us to exercise and develop our capacities in new, original diverse ways, and this is also a process of discovery of the very ways in which we flourish. Ferdman correctly says that a person who doesn't

experiment "gains no practice neither in discerning nor desiring what is best, because our capacities are improved only by being used" (Ferdman, 2019, 5). Naturally, we cannot know what it is like to exercise our various capacities if we have never tried to do so:

> living different types of lives is expected to enhance my capacities, including my capacities to understand through revelation and discovery. By experimentation, I employ my capacities in new ways. Undergoing transformative experiences by experimenting with different lifestyles is prima facie good, because it provides a richer opportunity to develop and exercise my capacities in sophisticated ways (Ferdman, 2019, 5).

What I'm trying to highlight is that the developmental notion of flourishing necessarily recognises our multiple human limitations on the various spheres of life. Furthermore, it doesn't defend that all these limitations will be overcome by means of enhancements. Its claim is simply that interventions are morally permissible whenever they increment our developmental power to a certain level because its incrementation will predictably allow us to experiment many more different kinds of lives and increase our probabilities of doing it by exercising and developing our capacities in more complex ways. It is both the aspiration to live well-rounded lives and to experiment various and different kinds of lives that makes us look for new and different goods and activities with which to engage during our lives.

Moreover, sometimes things don't occur as we like. We get sick, our plans are frustrated by external unpredictable and uncontrollable events, and we often get tired of our routine and seek new adventures and experiences. In these moments, we think that our lives could be going better than they are, and even when we affirm that our lives are perfect, we always find something that could be ameliorated. What Kraut and Hauskeller seem to be missing is that the desirability of interventions doesn't reside in the idea that it is always beneficial to eliminate all our personal defects across all the spheres of our lives to make it perfect. This could be a defensible claim if made against bleeding-heart transhumanists. But developmentalism acknowledges that we are in fact limited beings and that there is no fundamental badness about that. It also acknowledges that we are constantly and permanently improving ourselves, and that's why it is important to experiment new ways of exercising and developing our capacities. The goodness of interventions resides simply in their contribution to our developmental power which will enable us to live better lives, not perfect or flawless lives across all its multiple spheres.

If anything, Hauskeller is correct in thinking that limitations are opportunities (cf. Hauskeller, 2019) precisely because we also flourish by challenging our limitations. Some limitations will be overcome, while

others will stand as unsurpassable. This idea follows much of the utopian thinking that pervades transhumanism, but it distracts us from the essence of developmentalism, just like the concept of perfectionism does. The core idea at work here is that our capacities are permanently exercised and developed and that we enjoy doing so in multiple and combined ways, not that we strive to achieve an elusive idea of perfection or the breaking of all discernible limits, like we saw transhumanists advocate.

But again, Hauskeller's claim that "[w]e should [...] not concern ourselves with what we are not, but with what we are" (2019, 65) is also ill-advised. We should concern ourselves with what we are not as well as with what we are because both are constitutive dimensions of our evaluations about the meaning of our lives. Part of our struggle to become better (better students, citizens, painters, musicians) stems from our dreams and aspirations to give our lives a meaning and a purpose, to achieve personal realisation in the future. I ground this claim on the idea that there is, to a significant degree, some continuity of the person (*i.e.*, between our current and future selves) that assures a meaningful connection between what our life is today and what it will be in the future. While this connectedness may vary significantly between two remote stages of a person's life (*e.g.*, her youth and her old age), there is a continuity that is more easily evaluated over the adjacent stages of a person's life in which its connectedness is more easily preserved and evaluated (*e.g.*, between her 18-year-old, 19-year-old, 20-year-old, etc.) (cf. Hershfield & Bartels, 2018). There is a parallel between this idea of continuity and the developmental process of flourishing: we have a consistent understanding concerning our identity as creative agents for whom the exercise and development of one's capacities is not independent of a relatively stable idea of the connectedness upon which we ground and unify different stages of our existence. Following this reasoning, we know we are a certain type of being whose realisation comes to fruition only by engaging with certain goods and activities, and that opportunities to exert, develop, and enjoy our capacities are what we are owed as citizens (*i.e.*, what we owe to each other). And we also know that our flourishing as creative agents is constrained whenever we have no access to a minimum or sufficient threshold of engagement with those goods and activities. Such reasoning is the corner stone of the developmental morality in the sense that the commitment to the flourishing of all requires us to create and sustain an environment that enables us and encourages us to flourish (cf. Ferdman, 2019, 15). Interventions are as part of this minimum or sufficient threshold of engagement as other socioeconomic preconditions. Subsequently, it is this morality that underlies our thinking about what we owe to our children and future people, which are the opportunities to exercise and develop the set of capacities that enables them to flourish.

We find that there is a considerable degree of consistency in the identity of a creative agent and how one comes to see himself as such. There need not to be a discontinuity in one's identity if his experiments in life are numerous and substantially different from one another in its expression. What's relevant is the exercise and development of one's capacities and the unity and meaning this uninterrupted process confers to the adjacent stages of a person's life. And the same can be said about the important degree of consistency that exists between the capacities we learn and develop in our youth and the normative judgements we make about the flourishing of our future selves and future generations. We *currently* develop certain capacities not only because this is non-instrumentally good for us now (*i.e.*, we flourish as we do it) but also because of their future non-instrumental value.

This also applies to the educational process. Josephine Johnston has questioned whether "gene editing [will] be an expected part of the cost of childrearing, much like the costs of childcare and college education" (2019, 119). We must answer positively because we make no relevant distinction between gene editing and college education regarding its general purpose which is the incrementation of developmental power and whether it contributes to our well-being or not. Naturally, this understanding of interventions contradicts Johnston's claim that

> some or all uses of gene editing technology in reproductive contexts might conflict with prospective parents' identities or values, such that using the technology would require them to act against their values or deeply held beliefs (2019, 119).

Johnston would have to argue that traditional childcare and college education have the same negative effects as gene editing on identity and draw a moral line in between both approaches that sanctions the former and rebuffs the latter. Her fundamental objection against gene editing concerns control and the relation towards the giftedness of nature. The argument is that gene editing will end up imposing burdens on parents, and especially on those belonging to minorities and the worst off. On her account, "while using gene editing technologies might benefit children and future children, doing so could negatively impact the health and well-being of parents" (2019, 120). But this argument seems to have little to no traction. With or without gene editing, parents still have the moral responsibility to make the most responsible and informed choices about their own future, the future of their children, and indeed the world in which we all live (cf. Harris, 2007, 4). The ethical responsibility to increment the children's developmental power is the same independently of the means available throughout history and in different times and places. Creative agents are choosing autonomous beings who accept the burdens of

responsibility as part of their ability to choose: "[t]he power of choice brings with it the burden of responsibility for the way we exercise choice, because choosing not to act is still a choice for which we are responsible" (Harris, 2007, 118). Hence, the burdens over the parents will exist whether they choose to enhance their children or not. To refuse to do so will not allow them to avoid the responsibility of their choices because they have the power to leave things as they are or to act in order to make them different. In cases involving disabilities and disorders that prevent us from flourishing, parents have a strong moral duty to make things different. But they also have an equally strong moral duty to make things different in the absence of these impediments to flourishing and whenever the prospects of providing a flourishing life to their children is safe and follows the developmental proviso. For instance, affluent parents will provide their children with the best opportunities that money can afford, while poorer parents will provide their children only the opportunities within their financial means. In both cases, parents acknowledge that providing their children with as many and as good opportunities as possible will meaningfully contribute to their children's flourishing. Overall, this follows the idea expressed above that we have a general prudential and moral responsibility to pursue the good.

This only confirms that both the problem of identity and parental responsibility are central to the ethics of human enhancement. In the search for a moral basis for interventions, especially in the context of germline genetic interventions, careful consideration must be given to the respect for children's identity and autonomy and the protection of her right to an open future (cf. Glover, 2006). This requirement must be part of any satisfactory answer to what we owe to our children, and it is constitutive of developmentalism as well. Equally important is the notion that what we owe to our children is a decent chance to live a life in which they can exercise, develop, and enjoy the components of human flourishing. These responsibilities extend to ourselves, the living individuals, as well.

On his *Anarchy, State, and Utopia*, Robert Nozick proposed the following thought-provoking metaphor:

> It is helpful to imagine cavemen sitting together to think up what, for all time, will be the best possible society and then setting out to institute it. Do none of the reasons that make you smile at this apply to us? (1974, 313-314).

This is an interesting metaphor in the context of reproductive autonomy. Imagine these ancestors of ours were in possession of powerful gene editing technologies and were debating what capacities would be worth enhancing and, for that purpose, which interventions would be permissible. Probably, they would

make considerations about what things are important to have if one is to flourish as a member of the cavemen society. Among other things, it would be likely that men and women were expected to play different roles and because of that, they would value different capacities. We can suppose that capacities related to hunting, leadership, communication, adaptability, and social cooperation would be among the most important skills for people to possess in that environment. As a result, for an individual's flourishing, it would be vital to exercise and develop capacities like physical strength, problem-solving, creative thinking, improved vision and hearing, empathy, navigational skills, leadership skills, and awareness. Maybe also an acute sense of obedience to the tribal hierarchy would be shared by men and women alike, with the latter being presumably more prone to take care of the progeny, the household, and gather food, thus developing their nurturing, communicative, and empathy skills (cf. Marlowe, 2007). Similarly, our medieval ancestors would predictably choose related traits to pass down to their children: they would have valued things like patriotism and nationalism, religious and civil obedience, chastity, and chivalry, among others (cf. Glover, 2006, 98).

In fact, one can smile at such prospects. But since we are many steps closer than our ancestors were to edit the genome of future generations, what are our "editorial obligations", to use Hauskeller's terms (2019, 68)? Like many others, Hauskeller himself rejects that these obligations exist, and therefore tries to evade the responsibility of acting to edit future generations. For example, Rosemarie Garland-Thomson, following Habermas, claims that persons should *grow* by "welcoming the unexpected" and not to be *made* or *fabricated* according to the will of another (cf. 2019, 23). Her argument is not new and echoes the humility of accepting the giftedness of nature, the moral priority of the natural order of our biological condition, the loss of our humanity, among the other arguments we saw in chapter 1. But she adds to her claims that what's morally objectionable with *making* people is that they are being engineered according to the will of someone else's priorities, "even if intended to be in their own best interests" (2019, 23). Then, she attaches the meaning of flourishing and liberty to accepting particular conditions like genetic and congenital traits that Nature imposed on us (cf. 23). Further bellow, Garland-Thomson claims that "[w]e need a bioethics for intentionally and ethically shaping society instead of shaping bodies" (25).

Some of these arguments are worth preserving, while others face serious difficulties, as we saw with the case for parental responsibility. Bioethics should also be concerned with how societies deal with the broad societal conditions in which our lives take place. Disability is not the only detrimental condition preventing us from flourishing. Poverty, lack of access to housing, education, and individual and civil liberties limit our flourishing as well. Also, as I claimed above, some degree of acceptance of what we are

is always required because our prospects of changing ourselves radically are limited, if not utterly intangible. But we are justified in dismissing some of Garland-Thomson's arguments based on what was previously said about how some particular genetic conditions prevent us from flourishing. Acceptance of the giftedness of nature cannot be independently evaluated as a good *per se*. It needs to be balanced with the value of a flourishing life and whether we can prevent our children to have a condition that limits her flourishing without compromising her identity, autonomy, and her right to an open future. For example, imagine that doctors tell a couple that if they conceive a child in the present winter, she will be born deaf, but if they postpone the conception of their child to the next summer, her audition will be perfectly normal. Another alternative is to genetically intervene so that the child can be conceived in the winter without losing her audition. Imagine now that this intervention is as straightforward as taking a single pill just once that proves to be highly effective, it is cheap, and has no side effects. On Garland-Thomson's perspective, the parents' decision to have a deaf child would be as morally legitimate as the decision to postpone conception. However, if the alternative was the certainty of conceiving a deaf child regardless of the timing, and the only means to prevent this outcome was through the mentioned intervention, a compelling strong moral duty would suggest that parents ought to employ such technologies. For Garland-Thomson, the value of flourishing resides in accepting the giftedness of Nature and that trumps any other consideration, even if deafness could be genetically removed on the grounds that that would be in the child's own best interests. This is a very different notion of flourishing *vis-à-vis* the developmental one. It is not reasonable on any plausible grounds to argue that the child brought into existence is a *fabricated* artefact devoid of humanity uniquely due to the reproductive decisions taken by her parents.

Garland-Thomson echoes much of C. S. Lewis' arguments that we analysed in chapter 1. But as we saw, sometimes our flourishing requires more than just humbly accepting nature's giftedness. The developmental process I've been describing along this and the previous chapter is the most appropriate way to understand what human flourishing is all about. Take the decision to postpone conception or to genetically intervene to avoid deafness. What is morally desirable is that the child's well-being is taken into account and that she has sufficient developmental power so she can lead a good life. We know that hearing is a key capacity for any creative agent to engage with the world, and therefore it would be morally impermissible to impose disability on a person for some people to reap the benefits of such conditions (cf. Harris, 2007, 106). Garland-Thomson is among those who argue that there are collective benefits resulting from maintaining disabilities. According to her, it is something that promotes "the diversity of our human communities" (2019, 25). But what is the price of the value of diversity? For the developmental

conception of well-being, the value of flourishing is the most important value, and it can only be limited when something comparably important is at stake. For example, because resources are limited, there might be justice-based reasons to allocate goods to ends that are not immediately concerned with the incrementing of our individual developmental powers. We can imagine a catastrophe scenario in which the state allocates resources to save the lives of many of its citizens while sacrificing the funding of resources to enhancement purposes. But it is doubtful that the value of diversity is comparably important to the value of flourishing and the child's rights to autonomy and an open future. To sacrifice individual flourishing for the supposedly greater good of living in a diverse society seems too great a sacrifice to make. Robert Sparrow has argued that "promoting the flourishing of the community or the species by sacrificing the welfare of individuals treats individuals as a means to secure a benefit enjoyed by others" (2019, 166). On Garland-Thomson account, other agents' flourishing is not only subordinate to social diversity, but they seem to be treated as means in order to preserve diversity. This reasoning goes against our moral duty to treat our and others' creative agency as an end and not merely as a mere means, which by itself imposes a constraint that rules out particular kinds of lives and activities, as well as the sacrificing of the value of flourishing for values that are not comparably important.

As a result, on Garland-Thomson's expansive view, it could be morally permissible to let children with some of the world's rarest and most debilitating diseases be born because this would promote genetic diversity, even if we could avoid it by means of genetic edition. Sparrow suggests a moderate approach according to which to limit individual well-being can be justified depending on the *degree* to which this is done, thus presupposing that we can find a balance between these values. Despite acknowledging the moderation of his proposal, Sparrow ends up saying that there is "not much" room to sacrifice individual well-being to collective ends like promoting genetic diversity (cf. Sparrow, 2019, 167). I align myself with Sparrow's take on this matter. To find how much room there is, the strategy of developmental counselling will probably be the best solution we can think of.

Once again, such concerns would beg the question regarding the relation between gene editing and the value of flourishing. Dorothy Roberts correctly asserts that there is a particular understanding of the meaning of flourishing that those in favour of gene editing adopt to say that "having certain genetic traits and not having others [...] increases well-being" (2019, 201). Roberts' claim is that the concept of flourishing pro-enhancement or pro-editing advocates adopt is "socially biased" because it promotes the interests of advantaged and privileged groups, thus reinforcing "socially unjust hierarchies" (cf. 201). Her claim is that some people will not be able to access gene editing due to lack of means to obtain them in the genetic supermarket or due to other structural barriers. She argues further that pro-editing advocates

operate "with a concept of human flourishing that devalues certain groups of people and diverts attention from the structural impediments to human flourishing" (208).

Regarding the latter claim, we've seen that the concept of flourishing grounding the developmental approach in no way conveys ugly attitudes towards disabled people. The moral justification to remove disabilities lies elsewhere, namely in the recognition that disabilities reduce our chances of flourishing. Moreover, according to Roberts, we should focus on social or structural change rather than individual enhancement because individuals flourish when situated in societies, and their flourishing can only be incremented by just and radically egalitarian societies (*i.e.*, without race, sex, class, and other social hierarchies) (cf. 209). There is some truth to this, but it still reflects the narrow reading that the total absence of external impediments would be sufficient to give every person the sufficient amount of developmental power so that she can engage with the components of flourishing. As I argued before, the removal of external impediments is as important as the removal of internal impediments because they both obstruct our flourishing in relevant and independent ways. If we can remove or lessen their impact simultaneously, it is questionable whether there are any moral reasons not to do so or to focus first on one category of impediments before focusing on the other. It is doubtful ethics to deny the removal of internal impediments to flourishing based on the argument that there are still external impediments whose removal is not yet accomplished. This has to do with what our priorities are. Once we acknowledge that our priority is to remove impediments to flourishing, it is difficult to find moral reasons to prioritise the removal of external over the removal of internal impediments, especially if we can do so by using safe, efficient, and economical methods. I think Harris' take on this matter is spot on:

> there is no moral case for delaying access to any treatment or technology with health benefits until we are in a position to provide equitable and universal access. The more beneficial the technology, whether it be therapeutic or enhancing, the greater the moral imperative for wide and equitable access (2007, 32).

Additionally, Roberts ignores the fact that technologies as powerful as the NBIC technologies can, and in fact change the structure of our contemporary societies (*e.g.*, healthcare and longevity, communication, education and learning, environmental impact) (cf. Savulescu, 2006, 335). For that reason, it is as justified to alter the social structure of society to deal with socially constructed disabilities as it is to use gene editing to deal with disabilities *and* to improve our possibilities of having greater chances of living a good life.

Fortunately, Roberts doesn't start from the premise that we should put a halt on the development of gene editing technologies or that these should be banned. Nevertheless, she insists on the need to deliberate on what their purposes might be. Her claim is that disadvantaged groups should be present at the deliberation's table to discuss what human flourishing is so that no one is left behind (cf. 2019, 208). It is easy to agree with Roberts on this. We need to thoroughly enquire what and in what ways do human beings flourish and what concept of flourishing we wish to adopt to understand how interventions should be allocated. We should have considerable egalitarian concerns regarding justice on this matter. Likewise, we should also think carefully on how to regulate the access to genetic edition. To leave this to the marketplace would increase the probability of privileged social groups accessing enhancements and perpetuating the genetic advantage over disadvantaged groups. Lee M. Silver has argued that this would increase the genetic diversity within the species so much that a "species splitting" would be a probable consequence of a free-market policy governing enhancements (cf. 1999). Likewise, Peter Singer has argued against the possibility of leaving enhancements solely to the marketplace and in favour of a state sponsored enhancement policy that promotes genetic enhancements (cf. 2006). His first claim is that people would first and foremost choose positional goods and this would end up being unsustainable and self-defeating. Secondly, and contrary to Silver's belief, he points that the genetic supermarket would tend to supress genetic diversity because parents would want their children to follow the "norm". Finally, and more significantly, the genetic supermarket would threat the ideal of equal opportunity by turning inequalities of wealth into genetic inequalities and perpetuating the differences between upper and lower socioeconomic strata (cf. 2006). Once again, we can begin to see why counselling can assist us in addressing challenges like these.

Many have expressed this same concern about gene editing's power to maintain and aggravate existing injustices and widen the inequality gap (cf. Savulescu, 2006). These fairness-based objections provide us good reasons to favour some combination of sufficiency and priority when it comes to the ethics of distribution, as I'll argue in the next chapter. The idea is that we should give enhancements first to those who need them the most (cf. Wolbring, 2006, 126). Savulescu adheres to a sufficientarian approach as well. He claims that "we should give as many people as possible a decent (reasonable) chance of having a decent (good) life" (2006, 332; cf. Koplin *et al.*, 2019). But he doesn't elaborate on whether we should articulate sufficiency with other principles, only that "there should be equality of access" to satisfy the legitimate claims each person has to interventions that "provides that person with reasonable chance of reasonable extension of a reasonable life and/or a reasonable improvement in its quality" (2006, 332-333).

Other distributive approaches towards enhancements favour different strategies: equality, on the grounds that we should "first ensure that everyone has secured enough and then distribute equally" (Shields, 2020, 6); equality and fairness, in order to help relieve the needs of individuals as best as possible (cf. Savulescu, 2006, 332), or to help first the worst off augmenting their primary goods (cf. Allhoff, 2005); utilitarianism, according to which interventions should maximise one's well-being while preventing harm and conferring benefit (cf. Harris, 2007, 58); and the more unpopular libertarian genetic supermarket, in which prospective parents are free to choose the genetic traits of their children in a free market without state interference (cf. Nozick, 1974, 315). In all likelihood, what we need to assure is universal and sufficient access to interventions and that these are publicly provided by a universal welfare state with high standards of democratic regulation, safety, accountability, and fairness until we have secured enough so each and every person can flourish, taking into special consideration the well-being of those who are less well-off.

d. Conclusion

So far, the present enquiry into what might be the moral imperative that justifies interventions allowed us to arrive at some interesting conclusions.

First, we established that we have moral reasons to promote biomedical interventions whenever they contribute to our well-being by enabling us to exercise and develop our nature and the actualisation of our human capacities by purposefully engaging with the world. We then saw what prudential duties we have towards ourselves and what moral and ethical duties we have towards each other in the context of the developmental account. Regarding the former, as purposeful creative agents, we have normative reasons to promote the exercise and development of our human capacities in a conscious and controlled way during the transformative and self-creative process of labour. Regarding the latter, the requirements of morality dictate that so long as another agent's end is their development, each one of us ought to make the development of others our end as well. Since morality is all about human flourishing, we have prudential and moral reasons to promote our flourishing and prevent unflourishing.

Second, we saw how this bears on reproductive ethics and our reproductive autonomy. I sought to establish that what we owe to our children is a decent chance to live a life of engagement with the components of human flourishing in ways that respect their identity and autonomy while protecting children's right to an open future and the incrementation of their developmental power whenever possible, provided its safe and efficient.

Third, and most crucially, I outlined what may be a possible proviso to guide us concerning the moral permissibility of interventions: germline genetic interventions are morally permissible if and only if they increment our developmental power or otherwise contribute to our flourishing as creative purposive agents.

Finally, I discussed some of the implications of genetic edition and how the developmental framework addresses many of these problems.

CHAPTER 5

Political Developmentalism

a. Introduction

I structured the previous chapter around two chief questions concerning the morality of biomedical interventions: 1) what prudential duties have we towards ourselves?; and 2) what moral and ethical duties have we towards each other? I argued that we have prudential and moral reasons to promote biomedical interventions whenever they contribute to our well-being by enabling us to exercise and develop our nature and the actualisation of our human capacities by purposefully engaging with the world. To this purpose, I devised the following general condition that I called the developmental proviso: "germline genetic interventions are morally permissible if and only if they increment our developmental power or otherwise contribute to our flourishing as creative purposive agents". I then cautioned that other requirements exist that might impose limits on the moral permissibility of interventions: i) non-positionality, ii) non-exclusivity, iii) balance with other relevant values (*e.g.*, equality, justice, efficiency, safety).

In the present chapter, I want to address two questions that follow from the above: 3) what is the scope of enhancements and which ones are permissible?, and 4) what plausible guidelines are obtained to rule the ways in which political and institutional arrangements cope with the developmental account of the good concerning distributive policies and the regulation of access to interventions? As it was conceived, the developmental proviso acts as a compass to offer us guidance and help answering these questions. The main challenge concerns the regulation of access to biomedical interventions. On the developmental account, the most fundamental concern is that access is only provided to interventions that increment our developmental power and are non-contentious, making them available to all under high standards of democratic regulation, safety, accountability, and fairness.

Hence, this chapter focuses on political developmentalism, or on the political implications of the ethical account of developmentalism as it was previously conceived. We saw that certain goods and activities are non-instrumentally valuable because engaging with them is constitutive of our well-being, and therefore these goods and activities are vital to determine what's the morally right thing to do. Only by setting forward this ethical grounding, the one that delivers us a fundamental account of the good that we ought to protect *and* promote, can we then argue for political developmentalism. Here, the underlying claim is that the state ought to be permitted and justified to both protect and promote the relevant opportunities so that each citizen can engage with valuable goods and activities. Concerning biomedical interventions, what is being provided is access to enhancements, not enhancements *per se*. This is done

in accordance with the proviso in the following manner: a multilevel layered structure will provide us two thresholds to adjust and balance access and needs to interventions that are complex, costly, and risky.[82] For the purpose of this discussion, the developmental proviso will have to be revised and it will take the following form: "we ought to guarantee access to germline genetic interventions until a level of sufficiency is reached, where sufficiency is defined as the point at which individuals have achieved a threshold of developmental power and capacity for overall flourishing that ensures a satisfactory quality of life and opportunities for self-determination as creative purposive agents".

b. Somatic and Germline Interventions

The proviso makes a clear reference to germline genetic interventions. These are the object of enquiry and the one's whose moral permissibility we want to determine. Further down, I want to claim that the state *ought to* protect and promote access to germline interventions on the basis of their instrumental value to our flourishing. Hence, from the ethical claim about moral permissibility, I now want to take the extra step of arguing for the state's political obligation of providing adequate access to germline interventions.

The distinctive feature of germline interventions reports to the fact that what's being altered are germ cells, like eggs and sperm, meaning that any of these interventions can impact the edited person as well as her descendants (cf. Bergman, 2019). Somatic gene editing, in turn, involves altering a person's genome with the aim of treating or curing a disease caused by a genetic mutation. Because somatic cells do not transmit any genetic information to future generations, it is heritable genome editing that has raised greater ethical concerns. One can also reasonably make a case, as Allhoff does, for a *prima facie* moral reason in favour of somatic interventions: as long as rational, autonomous agents express their consent to the alteration of their genome, these interventions can "be defended on grounds of autonomy" (2005, 43). But one's rational, autonomous decision can sometimes mislead us. A rationally informed desire to undergo a somatic intervention can overlook important aspects of our prudential and moral duties and undermine our well-being in the long term, since autonomy is only one

[82] Complex, costly, and risky: complexity refers to the very nature of our current knowledge of gene editing techniques such as CRISPR-Cas9 and the complexity of many of the genetic diseases we want to address, as well the complexity of targeting specific areas linked to the capacities we want to improve; cost refers, of course, to the financial cost of the (often scarce) resources involved in medical and scientific research required to develop new techniques and make them available (we can also think of other costs, either personal, environmental, or societal); risk refers to the unknown effects of interventions, like possible unintended mutations and mosaicism (*e.g.*, in some cases, greater risk is justified *vis-à-vis* the potential benefits, but my own developmental approach goes beyond the risk-benefit analysis to offer a holistic approach to interventions).

value among many others. In section e., I'll look more closely at how rational and informed desires may lead individuals to make prudentially bad choices.

In previous chapters, I already alluded to the distinction between therapy and enhancement, which I deemed untenable. But to illustrate the distinction just drawn and to reinforce once again why the image of a technological continuum seems to be more appealing, consider the following "traditional ethical formulation" of human genome editing corresponding to four different categories: on the somatic side, we have somatic cell gene *therapy* and somatic cell genetic *enhancement*, and on the germline side we have germline gene *therapy* and germline genetic *enhancement* (cf. Allhoff, 2005, 40; cf. Coller, 2019, 296). A given genetic intervention, say the inactivation of gene PCSK9, can work as treatment, prevention, and enhancement if performed in different individuals.[83] This is a typical somatic intervention because it doesn't affect germline cells.

On the other hand, germline mutations are responsible for a number of well-known inherited conditions, some of the most common being Huntington's disease, Tay-Sachs disease, or cystic fibrosis. Germline gene editing would allow parents who carry a defective gene to prevent it from being passed on to their offspring. There are two technical ways of proceeding here: either the germ cells of one of the progenitors (eggs or sperm) is edited and IVF is used afterwards to create an embryo whose genetic composition doesn't carry the defective gene, or the early embryo is edited, and its few, edited cells will thereafter divide and result in a child whose edited cells lack the genetic mutation parents wanted to eliminate in the first place (cf. Hongyi *et al.*, 2020).[84;85]

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[83] I take the following example from Barry Coller's article in which he discusses the inactivation of gene PCSK9:

> [b]ased on both the reduced risk of cardiovascular disease in association with reduced cholesterol levels in individuals heterozygous for inactivating variants in the gene *PCSK9* and the demonstrated risk reduction afforded by drugs that antagonize the enzymatic activity of *PCSK9*, I suspect that most people would consider inactivating one *PCSK9* gene in a patient with a history of several heart attacks and elevated cholesterol levels refractory to currently available drugs a treatment. Performing the same genetic modification in the patient's younger brother, who has not yet had a heart attack but has an elevated cholesterol level, would probably be considered an act of prevention. But what about performing the same intervention on the patient's 21-year-old healthy son, who does not have an elevated cholesterol level, in order to decrease his future risk of cardiovascular disease? Is that prevention, enhancement, or both? (2019, 297).

[84] It is important to mention that in most countries, human genome-editing is legally forbidden. In 2019, the Chinese scientist He Jiankui was trialled and sentenced to a 3 million Yuan fine and 3 years in jail for "illegal medical practice". He used genome-editing technology (CRISPR) to edit the germ cells of two future babies whose father was HIV positive with the aim of removing a specific gene, CCR5, and thus making the babies resistant to HIV. In June 2023, a little more than a year after his release from jail, He is working on his new lab, in Beijing, with the hope of starting clinical trials on humans in 2025 (cf. Ruwitch, 2023). I'll discuss this case at length below.

[85] The "Genetic Literacy Project" website provides an up-to-date comparative database with very insightful information on the legal status of human and agriculture gene editing across the world. Its "Gene Editing Index" represents the current status of gene editing legislation and very accurately tracks the different regulatory frameworks in different countries (cf. Gene Editing Index, 2023, https://crispr-gene-editing-regs-tracker.geneticliteracyproject.org/).

We saw before how dull a task it is to try to qualify these interventions as treatment, prevention, or enhancement. The moral imperative that justifies interventions is whether they contribute to our flourishing as creative agents along the lines we already devised. The conditionality accompanying the proviso accounts for situations in which we might have reasons not to sanction an intervention *even if* it contributes to our flourishing, namely when different relevant values collide. For instance, if one's developmental power is incremented in a manner that the developmental power of others is reduced in ways detrimental to their well-being, access to interventions might need to be limited. Hazem Zohny has already argued for a similar balanced position for his own defence of the welfarist account of enhancement (cf. 2014).

Hence, what we should be looking at for the purpose of our ethical debate on germline gene editing and developmentalism, are three key challenges that in no way can be seen as taking place independently from each other and whose outcomes are hardly predictable. First, gene editing can be used to address the transmission of genetic diseases unequivocally known to drastically reduce one's developmental power. Tay-Sachs disease progressively impairs the child's mental and physical development in severe ways, resulting in blindness, paralysis, and death (cf. Ramani & Sankaran, 2023). The same is true for other comparable genetic conditions. Where assisted reproductive techniques like preimplantation genetic diagnosis (PGD) and *in vitro* fertilization (IVF) are not available or lack regulation[86], this can mean that prospective parents will have children to whom they'll pass a genetic condition or will have to relinquish the option of having (biological) children. If access is made available, these couples will have the option of having children that will not inherit their faulty genes. But we equally face the challenge of clinics offering PGD and IVF to parents for them to select the sex of their children or to select for a disability like deafness (cf. Wallis, 2020). Ultimately, the worry extends to more complex interventions that can result in the selection of traits like hair colour, height, and other desired physical and mental capacities.

There is a second end to which germline gene editing can be used, namely, to reduce the probability of a person developing a condition or illness that somewhat reduces her developmental power. Take the two following examples: in one case, we can predict that parents will pass a genetic variant liable of increasing the risk of the future child suffering from breast cancer associated with BRCA1 gene, and in the other case, we can inactivate the PCSK9 gene and thus lower both cholesterol levels and blood pressure associated with cardiovascular diseases (cf. Coller, 2019). Here, germline gene editing can be

[86] For a very instructive comparative study between the legal and regulatory frameworks in the United States and Europe, cf. Bayefsky, 2017, pp. 41-47. Bayefsky's article, however, is already outdated in many of its results as legislation and regulation over the world changed drastically since 2017. The Gene Editing Index of the "Genetic Literacy Project", mentioned above, is useful to obtain updated information.

used to reduce possible risks of future diseases or disabilities that will obstruct our developmental power. Note that we are no longer dealing solely with treatment but with prevention *and*, to a very significant extent, with enhancement (if we were working within the scope of the traditional ethical formulation). The inactivation of gene PCSK9 in an individual that has no history of cardiovascular problems, as Coller correctly argues, would fall beyond the strict field of treatment and expand to prevention and enhancement. The reader will surely find numerous examples like this one.

Finally, the third, more controversial, way in which germline gene editing can be used aims, as we just saw, at the enhancement or augmentation of human capacities. I said above these are complex interventions. In part, their complexity derives from the fact that the intended results are not dependent on the edition of one single gene, but possibly of multiple genes that are mutually dependent and whose interactions we don't yet fully understand (cf. Allhoff, 2005, 43). He Jiankui's case is paradigmatic, not only for the technical or scientific aspect of the edition, but especially for its moral implications: what would've happened if the wrong gene was targeted in place of CCR5? Also, off-target effects can happen parallel to the targeting of the correct gene and result in short-term and long-term largely unknown side effects (cf. Wang & Wang, 2019). There is also the additional challenge of mosaicism; take the second strategy to edit the genome, the one that edits the embryo because it has very few cells that will later divide into more cells. It can happen that at the two-cell stage one of the cells is edited in one way and the other ends up with a different edition or no edition at all. If this happens, the genetic disease that we wanted to prevent can still occur or new and unknown diseases can appear (cf. Aluri & Cooper, 2021; cf. Parens & Jonhston, 2019, 2).

Besides off-target effects and mosaicism, there are many other concerns about germline gene editing. For now, I just want to make it clear how porous these areas are and how an intervention can count as enhancement, prevention, and treatment at the same time. The benefit of utilising this schematisation lies in its ability to effectively demonstrate the advantages of embracing the concept of a technological continuum, but also how developmentalism relates to these interventions independently of their possible status as enhancements, preventions, and treatments.

c. Some concerns

I think it is useful to list some concerns other than off-target effects and mosaicism. In previous chapters we looked at many of these concerns and how people like C. S. Lewis, Habermas, Sandel, Hauskeller, Garland-Thomson, Josephine Johnston, or Dorothy Roberts argued against the project of genetic edition. Most of the arguments presented by these authors were directed towards overarching concerns that apply

to both heritable and non-heritable genetic interventions. Paradigmatic arguments such as "playing God", hyperagency, the bondage of the living to the dead, the disrespect for our genome as a common human heritage, the disrespect for the disabled, the lack of consent from future generations, and general justice-based claims steered much of the discussion.

For now, I will just briefly refer to concerns specifically related to germline gene editing that were not mentioned yet and highlight some of their consequences, relating them to developmentalism. As I did so far, I hereby assume that many of the existing technical and scientific difficulties will be overcome in the future and therefore my concern is with the moral and ethical challenges that we will have to deal with.

The discussion of these concerns is pervaded by the developmental morality and the conditions that the proviso presumes, namely that interventions ought to increment our developmental power and shouldn't be positional, exclusive, or significantly jeopardise other relevant values. In the next section, two paradigmatic cases (limb lengthening and He Jiankui's genetic edition of the twins) will shed light on this relationship.

A common concern raised by germline gene editing is that children, instead of being gifts, will become commodities (cf. Scully, 2019). Leon Kass, as chairman of the President's Council on Bioethics, made a case against stem cell research on basis that it commodifies embryos and dehumanises our human life (cf. PCBE, 2002). This is also part of the reasoning behind the bondage of the living to the death and disrespect for the autonomy and open future of our descendants. It equally voices C. S. Lewis' idea of humans being tailored by Conditioners, whose humanity is robbed of its status, thus reducing us to fabricated artefacts (cf. 2009, 64). There are also concerns with hyperparenting (cf. Sandel, 2007, 52-57) and the way parents wish to select the genetic makeup of their children according to their own values, priorities, and expectations.

When it comes to considering designer babies as commodities, two concerns arise. The first respects the meaning of commodification. I've already addressed this: are we turning a child into a commodity if we edit an embryo to prevent Tay-Sachs disease? What if we can edit the germ cells to confer the future children increased rational capacities or make it resistant to cancer? The second, related, issue has to do with the moral status of the natural/the given. Is it any different to try to give children increased capacities by means of education and training than by means of genetic edition? From a developmental perspective, there is no relevant moral difference other than the concern for the balance between other values (*e.g.*, to perform the edition to make the future person cancer resistant would imperil her future identity). Children will not be ordered at will, but access to more reproductive autonomy

and choices will enable parents to give their offspring increased opportunities to engage with the components of flourishing and greater chances of living more flourishing lives. With or without reproductive autonomy, bad parents will still treat their children as *commodities*, as Sandel argues and as we'll see below.

Besides unknown and unpredictable risks, like mosaicism and the unintended effects of off-target mutations, there is the potential risk of a genetic edition whose harm can extend to the next generations (cf. Coller, 2019, 299). In turn, this might restrict future people's reproductive autonomy due to the fear of heritable harm. If PGD and IVF could not correct the previous harmful edition, individual well-being is put at risk.

Associated concerns arise from the possibility of bioterrorism, biohacking, and the misuse of these technologies and other edited synthetic pathogens to alter human biology for criminal purposes and inadvertently result in events like pandemic crisis (cf. Ahteensuu, 2017). Biosecurity considerations would then recommend a tough trade-off between allocating scarce resources to put in place pre-emptive and precautionary measures to tackle the *possible* risks instead of allocating them to *better-known* existing risks (cf. Ahteensuu, 2017, 1558).

A related, perhaps more familiar misuse of these technologies comes from the willingness of some states to enact eugenic policies and to actively condition reproductive autonomy. If states can use germline genetic edition to create "supersoldiers" and gain important military advantages over other states, why would they refrain from doing so? China has been actively engaging in research and investment programs involving CRISPR, human-machine collaboration techniques, and bionic robotics. These efforts are aligned with their national strategy of military-civil fusion (cf. Kania & VornDick, 2019). Similarly, the US Defense Advanced Research Projects Agency (DARPA) has established a Biological Technologies Office and allocated a significant budget of 65 million US dollars to their "Safe Genes" program. This program focuses on exploring genetic solutions and acknowledges the increasing significance of genome technology in military research (cf. DARPA, 2017).[87]

Beyond state-imposed eugenics and growing investment in biotechnologies for military purposes, social, corporate, and industrial pressures will be likely to spread and produce a "global shift in bioenterprise" resulting from a larger "demand for personalized medicine, genetically modified crops, and environmentally sustainable biofuels" (Brinegar *et al.*, 2017, 924). The same pressure parents will

[87] The Internet of Bodies is an equally promising field of studies and raises significant worries. It aims at creating a network of integrated human bodies "whose integrity and functionality rely at least in part on the Internet and related technologies, such as artificial intelligence" (Matwyshyn, 2019, 77). A 2020 RAND Corporation report provides an introductory discussion to the topic and discusses some of its ethical, political, and societal implications, with interesting references to its possible military applications (cf. Lee *et al.*, 2020, 8).

feel to edit and *enhance* their offspring will likely be replicated in society to increase workers' productivity and creativity to gain competitive advantages and create new products. State or company policies might also be driven by a desire to "reduce healthcare costs by requiring heritable genome editing to reduce blood pressure, cholesterol levels, and the risk of HIV infection, all of which can be achieved by inactivating currently known genes" (Coller, 2019, 299).

Finally, possibly one the most pressing challenges concerns the aggravation of social inequalities resulting from unfair access to opportunities to use germline edition. Access to reproductive genetic technologies (RGTs) will be an increasingly important dimension of prospective parents' reproductive autonomy. By using them, parents will have to decide what genetic predispositions will their offspring have or lack. A possible answer is that we leave the distribution of access to these technologies to the genetic supermarket, with "no centralized decision fixing the future of human type(s)" (Nozick, 1974, 315) and that parents are free to select whatever traits they wish to bestow to their children.

Of course, developmentalism doesn't endorse a purely libertarian genetic supermarket, neither does it support excessive bans and moratoria, and much less the prohibition of genetic technologies. It belongs instead to the liberal eugenic tradition that accepts that "there should be some limits placed on parental use of RGTs" (cf. Gyngell & Douglas, 2015, 242). Many models of distribution of access to these technologies exist. Allhoff, for example, proposes a Rawlsian approach on the grounds that "the genetic enhancements of the few would create a larger social product such that everyone would benefit" (2005, 44). Related models would entail that the wealthy subsidise genetic policies to provide the non-wealthy access to interventions. An inventive, but far-fetched approach was suggested by Maxwell Mehlman and Jeffrey Botkin: a national lottery takes place and the "winners would receive access to a complete package of genetic services, from which they could choose what they desired" (1998, 125). The underlying rationale is that since these technologies are too expensive, the lottery would be a good way of allocating access to them. Unfortunately, a poor individual with bad luck would remain excluded from access to interventions even if he truly needed them to improve his well-being. There should be a sounder way to allocate resources other than sheer luck.

Although I don't think Allhoff's Rawlsian approach would benefit developmentalism, I agree with his point that genetic interventions *per se* will not produce unjust results. The problem to be addressed is whether we have an unjust distributive scheme in place that enables the injustice to come about (cf. 2005, 44). Below, I want to argue in favour of a distributive scheme that combines sufficientarian and prioritarian distributive principles according to a multilevel layered structure composed of two thresholds to adjust and balance access and needs to interventions. The underlying ethical assumption is that across

the layers, the state *ought to* take an active role in creating and maintaining social conditions that best enable its citizens to engage with non-instrumentally valuable goods and activities, thus creating the opportunities for them to lead well-rounded and flourishing lives.[88]

d. Two Paradigmatic Cases

In this section, I want to look at two paradigmatic cases of genetic interventions. The first is a somatic intervention (increasing one's height) but its implications are obvious for the debate on whether parents should be given the option of choosing genes that make their children tall. The second is He Jiankui's germline genetic experiment that resulted in the creation of two gene-edited babies.

i. Limb lengthening's case;

The *Toronto Star* is one of Canada's largest daily newspapers. In October 2022, it published an extended article with the following question as its title: "Is cosmetic limb lengthening the new BBL [Brazilian Butt Lift]?". The article featured several stories of men – 90% of those interested in this cosmetic surgery are male – who decided to have their legs lengthened to become higher, *i.e.*, for mere cosmetic purposes (cf. Jiang, 2022).

Cosmetic or avocational limb lengthening became popular around the time the Covid pandemic started, but it was a common procedure since the 1950s to treat people with congenital illnesses or injuries, being regularly performed in children born with one leg shorter than the other. Studies show that it is a low-risk surgery[89], notwithstanding the long and hard period of recovery. It consists of the surgical fracturing of one's femurs and the implant of two titanium telescopic rodes in one's thighs that extend one millimetre a day until the desired length is achieved (cf. Jiang, 2022). Starting at US$70,000, any person who wants to gain an extra 8 centimetres has now multiple options available at the marketplace.

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[88] My approach on this subject owes much to Alexandra Couto's remarkable work on Liberal Perfectionism, and in particular to her construction of a very appealing version of political perfectionism (cf. 2014). But whereas Couto argues for a modest version of this political perfectionism (*i.e.*, [t]he state is permitted to protect and promote intrinsically valuable goods on the basis of their intrinsic value (2014, 33)), I believe we have good reasons to support her bold definition as well (*i.e.*, "[t]he state ought to protect and promote intrinsically valuable goods on the basis of their intrinsic value" (2014, 33)). The reason why I believe this suits my approach is mainly due to the fact that the state's role in providing access to interventions varies across the multilevel layered structure I want to put in place. The state ought to protect and promote access to interventions until the threshold of a minimally good life is reached, but above that it is simply permitted to protect and promote access to interventions, until it reaches the upper threshold and distributive principles no longer apply. I'll develop this in section f.

[89] Despite this fact, currently available studies on this procedure reveal some limitations. For example, they work with relatively small sample size: a retrospective study by Novikov and colleagues focused on 138 patients treated between 1983 and 2006. From these, 48 patients (37%) had 59 complications related to treatment (cf. 2014, 3549). Other problem is that these small numbers of patients are operated on by many surgeons over a long period, with many of them not being directly assessed, and others being excluded for varied reasons (cf. Hosny, 2020, 8).

The *Toronto Star* covers the case of Scott, a 22-year-old athlete who had a small length difference between his legs that he wanted to fix. By doing so, he also got 8 extra centimetres and soon after was back on the soccer field enjoying the results of his *physical enhancement*:

> [e]quipped with extra leg room, Scott felt his kicks had more power. He also believed the additional height aided in his role as a goalie. Overall, Scott said the biggest benefit of the procedure was a boost in confidence. "Not that I didn't have any," he said. "It just gave me more" (Jiang, 2022).

Like Scott, there are others who highlight how limb lengthening changed their lives:

> "I don't (want to) have that thought for the rest of my life, that I'm shorter than average," John said, adding that he's waited two years for the surgery to become available. "It's just for personal fulfilment, just to make me a happier person. From the inside, no one else could have made me (overlook) my height. Physically changing it was the only option" (Jiang, 2022).

There are no reasons not to feel moved by these testimonies. These people went through a major surgery which, after all, involved some risk, they faced a difficult recovery period, and paid a significant amount of money so they could feel better about themselves. Beyond treating minor disabilities, it was all about personal fulfilment, boosting confidence, and becoming happier persons able to live better lives. Moreover, empirical evidence indicates a connection between height and higher scores on well-being indicators, such as attractiveness to the opposite sex and success in forming long-term partnerships (cf. Nettle, 2002). For example, in the specific case of men, being taller often means more career opportunities and higher income (cf. Deaton & Arora, 2009; cf. Johnson, 2019; cf. Jiang, 2022), but should this fact of life suffice to justify one's decision to use the surgery? Would it justify parents to select height as a *non-instrumentally valuable* trait to pass on to their children?

A relevant fact is that healthcare providers require interested patients to attend counselling sessions with psychologists and surgeons to determine whether they need the surgery (cf. Novikov *et al.*, 2014, 3554). We saw before that well-being is our key value, the one in which the developmental account grounds its normative strength. Yet, we also saw that the enhancement of one's height is the paradigm of a positional good, and interventions aimed *specifically* at giving us positional advantage over others are

morally impermissible. This doesn't exclude the fact that in some cases, interventions aimed at increasing one's height are necessary, for example, when one's health is notably at risk.

Where does this leave us, then? Is the state permitted and justified to provide access to these interventions? If it's not, on what basis can it deny citizens interventions that apparently contribute to their living happier lives? Should we condemn individuals who take the responsibility and strive to achieve their own well-being? Boethius once wrote that "[w]hat all men want, although they seek it by different routes and through different activities, is to be happy" (2008, 61). But he also warned that although the desire for happiness is inborn and instinctive, human beings are often "led astray by false ideas of the good" (2008, 61). Is this what is going on here? Are these people somehow confused and being led astray by a false idea of the good that compels them to enhance their height so they can feel better about themselves? What if they, as autonomous and rational agents, freely choose to do so?

John Harris has argued, *contra* Sandel, that it is inescapable that the burdens of responsibility become our fate as choosing autonomous beings (cf. 2007, 118). Sandel, on the other hand, claimed that as our understanding of genetics grows, "the greater the burden we bear for the talents we have and the way we perform" (2007, 87). According to him, "[t]oday when a basketball player misses a rebound, his coach can blame him for being out of position. Tomorrow the coach may blame him for being too short" (2007, 87). We can look at the cases mentioned above and wonder whether this is the case. Are these people being led to think they are shorter than they should be according to some predefined pattern of aesthetical beauty or physical performance? What motivates some to feel anxious, depressed, and suicidal (cf. Jiang, 2022) because they're 1.60 cm?[90]

Imagine that John, who didn't want to be "shorter than average", met his friends after his recovery only to discover that they had also went through the same surgery and, like him, decided to maintain it a secret that only their families were aware of. John would once again experience the feeling of not being part of the right height group. Possibly, he would feel depressed and, once more, at a disadvantaged position regarding his friends. This is a case in which height enhancement "would provide no net benefit if universally applied" (Bostrom & Savulescu, 2009, 11) because it would result in the raising of the statistical average plus the aggravated consequences it carries with it (*e.g.*, possible negative health effects, the need for more caloric consumption, the redesigning of spaces, economic and environmental externalities).

[90] Other problems might be raised here. One of the most challenging is whether this is something observable in all cultures or typical to only one or a few, and if it has something to do with particular contingent social and historical ways of understanding happiness and flourishing. A different and equally important challenge is whether we should create special competitive leagues and different categories of competition in sports, for example, to give every person real opportunity to compete within her possibilities.

But is it being taller good in and of itself? Does it have non-instrumental value to our flourishing?[91] Although 1.60 cm may be "abnormally small for a current male member of our species in the developed nations" (Roberts, 2014, 4), isn't such an individual capable of flourishing as a creative agent regardless of his height? To be capable of doing so is what we strive for during our lives. To live a life of engagement with the components of flourishing is to be happy; or, more accurately, it is a constant process to which the living of a well-rounded life is critical to bring happiness to fruition.

This being so, we can imagine that there are certain important subjective factors at play in the decision-making process of individuals who decide to go through a surgery to lengthen their limbs to gain height. Individual ideas and self-perceptions regarding one's own image certainly help to explain this. Recall the idea developed in chapter 1 regarding the transhumanisation of culture. The cultural ethos of our contemporary advanced societies is pervaded by images of human beings progressively merging with technology and the public discourse is overflowing with references to the imperative of transition: digital, ecological, energetic, etc. Combined with normative aesthetic patterns that portray its male members as desirably tall, athletic, and independent individuals, the idea of human transition, which is in fact the ideology fuelling transhumanism, reinforces many of the images that lead people to value positional goods. Ideology in this sense, can lead individuals astray from the idea of the good.

Buchanan and colleagues have also argued that shortness that results from natural lottery might produce undeserved disadvantages, but that preference for greater height is simply a preference that many people hold and there is nothing "peculiar, idiosyncratic, or extravagant" about it. Instead, that preference "is a response to a social prejudice" and what we should condemn is prejudice, not the fact that individuals have an "expensive taste" in reaction to it (cf. 2000, 115). Human enhancement technologies may not be the first solution to address deeply entrenched social issues such as social prejudice, racism, or discrimination. Complex problems such as these call for alternative approaches rooted, for example, in moral education and fairer societies.

I think developmentalism should build on these insights. Clinicians affirm they often deal with patients with "unrealistic expectations regarding the extent of lengthening and that the counselling sessions have helped them to align their expectations with realistic levels" (Novikov *et al.*, 2014, 3554).

[91] We may rephrase it in different ways, although its meaning remains the same. For example, Buchanan and colleagues, following Rawls, talk about "all-purpose means" or all-purpose goods as "traits that are of value regardless of our conception of a good life" (cf. Buchanan *et al.*, 2000, 178). Is height an all-purpose good? Or, following Alexandra Couto, is being taller an intrinsically valuable good that we have ethical and political reasons to protect and promote on the basis of its intrinsic value (cf. 2016, 32-33)?

Its relevant that professional counselling helps patients to assess and revise their expectations.[92] On a study on the motivations and psychological characteristics of men seeking penile size augmentation, it is suggested that surgeons work closely with mental health professionals to better address the problem of highly unrealistic expectations (cf. Sharp *et al.*, 2022, 1313). If surgery is not a viable solution, mental health professionals can help the patient and his partner utilising specific psychological strategies to address their concerns regarding their intimate relationship (cf. Sharp *et al.*, 2022, 1313).

In a study on "regret after gender-affirmation surgery" (GAS), specialists argued that the "extremely low prevalence of regret in transgender patients after GAS" is mainly due to the "increase in accuracy of patient selection criteria for GAS" (Bustos *et al.*, 2021, 11). The study concludes that "[e]fforts should be directed toward the individualization of the patient based on their goals and identification of risk factors for regrets" (2021, 11). This is related to the idea that sometimes, no matter how well-intended our actions are, they end up having counterproductive results. Sometimes we act in ways that are detrimental to our prudential interests, and sometimes the mere desire to act morally is an insufficient condition for moral action. This is why human nature developmentalism insists that rational deliberation is one of the conditions for moral action. The acting agent needs to understand not only the moral principle, but also the circumstances and the consequences of his actions, as well as the ability to appraise the available options and choose the morally best among them. This rational deliberation guides the agent beyond the mere desire to do the morally right thing, which otherwise could have misguided him (as usually happens to those who let themselves be guided by their impulses) (cf. Kraut, 2007, 198-200).

The argument here is that conation, or the desire to achieve a particular end or goal, is a necessary but not sufficient condition for moral action. Kraut also notes that there is a problematic relationship between conation (as our goals, plans, acts of will, desires) and a disturbance of one's tranquillity and peace: "[t]o want is to be moved toward what one does not have; it involves the thought that one should not be where one currently is in time" (2007, 158). Take the following example: a person may have a strong, genuine good will and desire to help other people escape poverty and so she donates much of her money to panhandlers wandering by her church. As altruistic as her act may be, if she had a better knowledge and understanding of the societal, economic, and political causes of poverty, she might put up her money to a better use and eventually seeing it causing a greater improvement in people's lives.

[92] There is a vast array of studies on the motivations and psychological characteristics of people undergoing cosmetic surgical procedures. In two recent studies, clinicians emphasise that screening for disorders like depression, anxiety, personality disorder, and body dysmorphic disorder (the most common psychiatric illness among these patients) is crucial to prevent unnecessary interventions. The improvement of self-confidence is cited as the first and foremost reason to justify the intervention, as well as the lack of correspondence between one's perceived physical condition of functional performance and what one thinks is the ideal or the average standard for both these dimensions (cf. Bascarane *et al.*, 2021; cf. Sharp *et al.*, 2022).

Consequently, the desire to do the morally right thing *without* the knowledge and understanding of what the morally right thing entails, results in one's actions not being truly moral because they lack these necessary conditions for moral action.

We should, therefore, try to have the best knowledge and understanding of moral principles by engaging in a process of reasoning and reflection to evaluate our options and choose what's morally better. Only thus can we be sure that our actions are guided by a proper understanding of what is right and what is good *for* us. The notion of "good for" is essential for understanding what *good* means and implies: something is only good in relation to something else, and something being good in and of itself contradicts the perspectival and contextual nature of goodness, *i.e.*, different things are good for different individuals in different times and places. Such an understanding is paramount for our moral reasoning because it enables us to consider the context and perspective of different individuals dealing with moral problems and making moral judgements that are dependent on a particular context. Of course, it is worth noting that what is right and what is good are two separate things (*e.g.*, it might be good for the agent to lie to his mother, but it is certainly not the morally right thing to do).[93]

Given this line of reasoning, prospective parents who might wish to edit their germlines to pass on to their children the genes that will make them taller might indeed be moved by a strong desire to act morally, but desire alone is insufficient for a moral action to obtain. Knowledge and understanding of the types of beings we are and the goods and activities we need to pursue to live the types of lives that best suit us are a requirement of human nature developmentalism. In no account is height an all-purpose good, a primary good, an intrinsically valuable good, or a component of flourishing. It is not only that "rational people easily could prefer not to be tall", as a neutralist like Allhoff would argue (2005, 51), but that creative agents don't need to be tall to flourish as such. Human flourishing is not contingent on specific physical attributes such as height. This is the welfarist-based claim for rejecting height enhancement. It is the primary reason why it doesn't satisfy the developmental proviso criteria. Considering other claims, like efficiency or safety, we could argue that editing individuals to be taller would also have social implications such as the re-dimensioning of cars and public transportation, houses and house equipment, the provision of more caloric energy to sustain bigger bodies, an unnecessary exposure to risk, greater environmental challenges, among other similar consequences. It is, as Buchanan and colleagues put it, an expensive taste.

[93] This couples well with Kraut's case for the development of virtues such as honesty, courage, and compassion because these are fundamental to guide our desires and contribute to our acting morally.

Our goal here must remain the following: the moral imperative to justify biomedical interventions lies in the value of flourishing, and if one is capable of flourishing as a creative purposive agent and lead a happy life, there is no moral imperative justifying him getting access to biomedical interventions. Given that our subjective evaluation of our own flourishing can sometimes be deceiving, it becomes crucial to have mechanisms in place that help us evaluate the satisfaction and quality of our lives (*i.e.*, our level of flourishing). These mechanisms also help us in identifying areas for improvement and determining whether biomedical interventions can contribute to our overall well-being, by incrementing our developmental power. This highlights the significance of developmental counselling within the framework of the developmental account I am developing here.

To shed additional light on this, take the following example: while the average male height for a Dutch man is 183.8 cm, for a Timorese man it is 160.1 cm (cf. NCD-RisC, 2016). The Timorese cannot be said to be unable to flourish as a creative purposive agent due to his shorter size.[94] But were he to move to the Netherlands he could feel that he had less (career) opportunities available due to his shorter size. This would surely be the result of an unfair social setting favouring his Dutch peers due to their positional advantage, but in no way does it provide a morally relevant claim to the Timorese to justify providing him access to biomedical interventions. Were he to submit to a counselling session, most probably he would come to realise that he was being led astray by a false idea of the good, or that the Dutch society is unfair in that regard, and that most probably, persistent and unjust social conditions are more prone to engender unfair biases leading to false ideas of the good. Contrary to John, mentioned above, to physically change one's body or the genome of future people for that sole purpose cannot be a morally permissible option. The incrementing of his developmental power needs to come from a change in the institutionalised unjust social setting that privileges height as a positional advantage. Note that I'm not establishing a normative difference between enhancement and non-enhancement interventions as possible strategies to increment our developmental power. In this respect, as we already saw, there are no relevant moral distinctions to be made between gene editing technologies and traditional interventions such as education to promote non-discrimination, equality of opportunity, and, in a broader sense, the social basis of self-respect. What's at stake is, above all, the elimination of prejudice and social injustice, more than the elimination of an internal impediment to flourishing, which doesn't really exist as such

[94] It is relevant to note that height is an important heritable human trait. However, crucial cross-population differences may not be due mainly to genetically derived traits, but to environmental factors (cf. NCD-RisC, 2016). Among these, foetal growth, nutrition, and the exposure to infections during childhood and adolescence are chief parameters that end up determining one's height as an adult (cf. Dubois *et al.*, 2012). This may help explain why the top half of the height ranking of the human population is dominated by Western countries with relatively affluent societies. It might also suggest that to be a short individual, particularly a male, in an affluent society is the wrong kind of trait to exhibit, given the predominant normative aesthetic patterns governing those societies.

when it comes to being shorter or taller; it's a false impediment. To this purpose, the biomedical intervention couldn't be the right strategy to eliminate this particular social injustice. While impediments ought to be removed whenever they prevent flourishing, each impediment requires a different approach. To make gene editing technologies available so that one could change his skin colour to prevent racist discrimination in his society would be the wrong strategy and it would be morally intolerable. To have the "wrong" skin colour in that society could still be seen as a major impediment to one's flourishing, but to give everyone access to the "right" skin colour by means of genetic edition would seem to be an easy solution to a far deeper moral problem about its citizens' moral character.

At the light of this last example, we see how permissive the developmental proviso can be. This is why extra requirements are needed to impose limits on the moral permissibility of interventions. Without these extra requirements and based on the proviso alone, to change one's skin colour or to lengthen one's limbs would be morally permissible because these interventions would increment our prudential well-being. But let's imagine that we were able to change our skin colour overnight in a racist society, and for the next week (after moving to a different place where nobody knows who we are) we would no longer suffer any racist discrimination and our lives would drastically improve in terms of well-being. Unfortunately, a hacker leaks the names of all those who went through this procedure, and we would once again be victims of discrimination, and even worse acts of reprisal. It wouldn't have worth the trouble. It would be like John having his height enhanced only to discover that he's still the shorter person in the group.[95]

Let's take the case of non-exclusivity. This requirement was added to the developmental proviso to reinforce the idea that the exercise, development, and enjoyment of our capacities is non-contentious in nature because it doesn't prevent other agents from exercising, developing, and enjoying their capacities. But this reasoning also applies to oneself. It is self-defeating to use biomedical interventions whose chief effect is to modify one particular capacity and, by doing so, ending up endangering or destroying a different and equally non-instrumentally valuable capacity. In the previous chapter, I argued in favour of living well-rounded lives and how these contribute to one's flourishing. A well-rounded life is one that combines the use of our cognitive, affective, sensory, social, and physical capacities. Typically, we tend to prioritise the development of some capacities while neglecting others simply because it is too difficult

[95] Concerning the first example, what if a child at age 10 was forced to change her skin colour and managed to live a very good life in a racist society (charitably assuming such a possibility) until she died happily at her 80's? Would it have worth it? After all, she lived a life of great flourishing and well-being. But how did she cope with the idea of being prevented from living a life with the skin colour she was born with? How would this impact one's self-perception, identity, and autonomy? And would she be happy to live in a society that discriminates against other people based on their skin colour? Would she be compelled to act in such a way as well?

to develop them simultaneously. Sometimes, to alter some dimension of one of these components of flourishing at the cost of another might be desirable. We saw in chapter 2 how the diminishment of some function or capacity might in fact contribute to one's leading a better life: *e.g.*, the reduction of intense emotional wartime memories, diminishment of paedophiles' urges towards child abuse, anxiety control and reduction, etc. These changes, however, involve one's behavioural dispositions.

When we think of changes to the germline, this seems to have a different moral significance. It is fair to say that it would be radically beneficial to any human being if his genetic predecessors' germline was modified so their descendants became immune to HIV/AIDS or cancer.[96] However, it would hardly seem beneficial if this immunity came at the cost of our affective and emotional capacities. If the trade-off were to be between becoming green but immune to cancer, it would be easier to decide going green (cf. Harris, 2007, 38). But if immunity were to come at the cost of not being able to maintain emotional and social relations towards other agents, would this be a reasonable trade-off? Note that what's being asked is if you'd be willing to give up the faculties of your rational and moral understanding, the capacity for aesthetic creation and contemplation, the capacity for emotionally engaging with others for the sake of being healthy or immune to cancer. Considering this balance, what would make your life a happy life? The issue at hand involves the balancing act between different components of flourishing and how we value each of these components. An assessment of this nature cannot be separated from a perspectival and contextual comprehension of what we are, and what and how our life is in the present moment, but also about what it was and what it will be in the future. Even if we rule out contentious interventions as impermissible, there may be situations where we, either personally or someone on our behalf, must make a decision about sacrificing one component of flourishing in favour of another.

As a result, when it comes to biomedical germline genetic interventions, the regulator must carefully evaluate relevant claims to determine whether access should be permitted. While welfarist-based claims enjoy priority over other claims, these are also important as they address challenges such as those mentioned regarding height and skin colour. Justice claims, but also claims concerning safety, efficiency, accountability, and fairness allow us to evaluate, for example, whether one agent is flourishing at the expense of another's unflourishing, the legitimacy of enhancing goods that are simultaneously intrinsically rewarding and positional, the high cost of gene editing technologies, and issues regarding risk and safety, and personal and public health.

[96] Here, too, things are not as clear as sometimes they look like. There is a very important cultural dimension to the binary opposition between ideas such as health and disease, life and death, flourishing and unflourishing. I do hold that these are good examples of radically opposed ideas. Developmentalism is rooted in this opposition as well. Martha Nussbaum, in her *Defense of Aristotelian Essentialism*, followed the same road (cf. 1992).

Height provides a paradigmatic example to evaluate why access to biomedical interventions for this specific purpose is unjustifiable. Although it is a relatively safe and efficient procedure, it's still very expensive and, more significantly, it doesn't promote any of the components of flourishing in any moral relevant way. As a positional good, it would only apparently promote some dimensions of our social and physical capacities, but simply because an unjust social setting is in place that unfairly values height. A tall person would flourish only at the expense of other people not being tall. But more importantly, any creative agent can flourish as such independently of his height whenever no congenital condition related to it is present.

This same reasoning might help to explain why cosmetic and surgical procedures of a similar nature are available at the marketplace, are widely used and accepted, but access to them is not publicly promoted and provided. Examples from the beauty industry are numerous, among both men and women: cosmetic nose surgery, breast implants, straightening and whitening teeth, make cheekbones higher, removal of wrinkles and fat, taking performance enhancing drugs and growth hormones to increase physical resistance and muscle bulk, etc. (cf. Savulescu, 2009, 518). Other enhancements, like alcohol, nicotine, and drugs such as Ritalin and Prozac aim at improving cognitive powers, concentration, and mood. While some of these enhancements might be medically prescribed, access to almost all of them is not publicly provided and funded, despite the contribute they can deliver so that an agent feels he's living a better life. Undoubtedly, some of them contribute to personal well-being, but like height, they also seem to belong to that class of instruments used by the beauty industry to promote "false ideas of the good". It is hard to argue that the state has legitimate moral and ethical grounds to protect, promote, and provide access to these goods solely based on their apparent impact on the well-being of its citizens. Thus, as we see, not all welfarist-based claims are legitimate claims for the purpose of public provision of interventions.

ii. He Jiankui's case;

Take now the example of the two genetically edited babies that He Jiankui, a Chinese biophysicist, created, in 2018. He Jiankui's goal was "to make the babies resistant to human immunodeficiency virus (HIV)", so he "edited out a gene (CCR5) that produces a protein which allows HIV to enter cells". As a result, one of the babies "has both copies of the gene modified (and may be resistant to HIV), while the other has only one (making her still susceptible to HIV)" (Savulescu & Singer, 2019, 221). Following many others, Julian Savulescu and Peter Singer vehemently criticised Jiankui's experiment for exposing human beings to *unreasonable* risk (cf. 2019). According to them,

> [a] greater expected benefit is worth greater risk than a smaller expected benefit. Avoiding HIV is certainly a benefit, but the probability that Lulu and Nana would have contracted HIV is low. In contrast, the unknown effects of the editing could cost them a normal life (2019, 221).

This recalls Harris' case in favour of going green if this was the only consequence of being radically enhanced to be immune to cancer or HIV/AIDS. Harris reasonably claims that it is unethical not to prevent the death of so many people from HIV/AIDS *if* the steps we take to do so do not "put lives at risk" and "are taken only with the fully informed consent of those who participate" (2007, 199). Regardless of this position, Harris is a harsh critic of the precautionary approach to enhancement (as transhumanists in general also are). He critically addresses the idea that we have some moral duty to preserve the human genome "as common heritage of humanity" (2007, 34). This is the policy advocated by UNESCO's International Bioethics Committee: in the first article of *Section A.*, intitled "Human dignity and the human genome", we read that the human genome is the "fundamental unity of all members of the human family", and that our human dignity is somehow dependent on the preservation of our genome as we find it (cf. UNESCO, 1997). Of course, this is a problematic position to uphold[97]: it would be reasonable to question whether our current genome is good as it is or, more properly, if we have a moral and ethical duty not to deliberately act on our genome by means of genetic edition to alter it in any way. We already saw that for developmentalism, this is indefensible and morally undesirable, if not utterly objectionable. It is reasonable to think, for example, that our genome is inevitably subject to the changes imposed on it by the course of natural selection. The problem here (that developmentalism acknowledges) is that human labour was always present, and therefore our current genome is necessarily a product of natural selection as well as human intervention. There is no way of comparing what our genome could be if human labour as a "genetic manipulation" was absent from the equation, and consequently "we cannot know which would be best and hence where precaution lies" (Harris, 2007, 34). All things considered, what we observe in Harris' writings is a considerable sympathy towards some form of the proactionary principle, as considered in chapter 1, according to which the cost-benefit analysis tends to favour some risk insensitivity *vis-à-vis* the expected outcomes.

[97] Among the many arguments against enhancement, this immediately echoes Kass and Fukuyama's positions, as we saw before, as well as the arguments in favour of preserving human genetic diversity, like those advanced by Josephine Johnston and discussed in the previous chapter.

One could argue that He Jiankui adopted a proactionary imperative to conduct his research: at the light of the expected benefits, considerable risk insensitivity was justified. This course of action is much in line with the thoughts of Max More, who believes that "[b]eing proactive involves not only anticipating *before* acting, but learning *by acting*" (2004). The fact is that in this case, two lives were put at great risk and there was no proportionate benefit despite HIV/AIDS being a public health problem.

Yet, things are not this straightforward. In early 2019, neurobiologist Alcino Silva told the *MIT Technology Review* that He's intervention on the genome of the twins probably "did affect their brains" (Regalado, 2019). The deletion of gene CCR5 is associated with improved cognition, learning, and memory, as well as assisting brain recovery after strokes, even though the exact effects are hardly predictable (cf. Zhou *et al.*, 2016; cf. Regalado, 2019). Hence, it is possible that one of the inadvertent consequences of He's edition was that the twins have had their brains enhanced.

A possible justification to edit or alter the genome, taking into consideration the little we currently know of its implications, would require that the problem being addressed is worse than the consequences of the editing itself. Severely impairing genetic disorders "such as BRAT 1, JAM3 and PHGDH, are lethal in the neonatal period" (Savulescu & Singer, 2019, 221), and therefore using genetic edition to try to save these lives could be morally permissible. The reason here is, of course, that despite the risks incurred, these would be "no worse than the fate of the unedited embryos" (Savulescu & Singer, 2019, 221).

Besides the connection between the deletion of CCR5 and cognition, there are considerable risks that may impose person-affecting harms to the twin babies.[98] In addition to the possibility of having enhanced their cognitive abilities, the experiment may have adversely affected their identity, autonomy, and their right to an open future in various detrimental manners (*e.g.*, off target mutations). If what we owe our children is a decent chance to live a life of engagement with the components of human flourishing in ways that respect their identity, autonomy, and their right to an open future, precaution would be required *vis-à-vis* proaction because the risk of compromising one's life is unwarranted.

Of course, we could argue that He was trying to achieve what the developmental morality demands of each one of us: so long as another agent's end is their development, each one of us ought to make the development of others our end as well, and since morality is about flourishing as a creative purposive agent, we have prudential and moral reasons to promote flourishing and prevent unflourishing. HIV can realistically be listed as a condition that brings some unflourishing to the lives of those who live with it,

[98] Savulescu and Singer cite various studies according to which the twins and their eventual descendants might be more susceptible to infections: "CCR5 genes deficiency can lead to a higher risk of infection from the West Nile virus and severe flu" (Savulescu & Singer, 2019, 221).

and therefore it is reasonable that it should be avoided and that if we can act in a way that helps other agents not to live with it, we are doing the morally right thing. As an example, individuals are morally obligated (and sometimes legally required) to disclose their HIV status to a prospective sexual partner.[99] Even if we could slightly increment the cognitive capacities of the twins, the risk of damaging other important components of flourishing would recommend precaution.[100] So, while He's experiment could conform to the requirements of the developmental morality, because it is a highly dangerous experiment whose outcomes are unknown and possibly threat the autonomy and identity of the agents, its moral permissibility remains highly questionable. Additionally, because this was a germline edition, it can also cost the twins' eventual descendants the opportunity to live a life of engagement with the components of human flourishing in ways that respect their identity and autonomy.

In part, this recalls C. S. Lewis' arguments concerning the de-humanisation of the edited person and Habermas' quote of Hans Jonas on the idea that the "genetic programming of human beings" leads to a "future bondage of the living to the dead" (2003, 47-48). Are the edited twins "the undivided authors of their life" (2003, 67), would Habermas ask? Somehow, edited people are not the persons they would otherwise be because their identity is the product of someone else's design and will. We've already seen how problematic these claims can be. Future generations cannot give their consent to the editing decisions we make right now. But are they coerced in some relevant way if their consent is absent? There are two interconnected questions here. On the one hand, there is what Sandel identifies as "the trend toward hyperparenting" (2007, 52), by which he refers to cases like those of "sports-crazed parents bent on making champions of their children" (52). When taken to this extreme, these are cases of bad parenting, and it is bad parenting that is problematic after all, because in most cases it restricts the child's right to an open future in very meaningful ways. On the other hand, how can we coerce embryos? Coercion is defined as the restriction of a person's freedom in a way that impedes her from doing what she wants and makes her do what she doesn't want to do, thus restricting her autonomy (cf. Anderson, 2021). Since embryos are not persons and future people are not persons yet, and since they both lack free will, they cannot be coerced.

Imagine the parents of a child who used IVF and choose one embryo over another because that embryo displayed a genetic disposition to be a musician. Can that child complain about her parents' choice based on that particular trait and how it coerced or limited her freedom? Can she claim that her

[99] In the USA, the legislation is different across states, with some considering the non-disclosure a criminal offense, and others applying legal penalties that range from monetary fines to imprisonment (cf. CDCP, 2022).

[100] This holds particularly true for emerging technologies like CRISPR-Cas9, which are still relatively unknown. For instance, a study conducted in 2018 revealed that employing this technique to edit the human genome in human cells could potentially increase the risk of cancer (cf. Haapaniemi *et al.*, 2018).

right to an open future was tampered with? This doesn't seem plausible. In fact, that child owes her very existence – and her freedom – to her parents' act of selection, because without the use of assisted reproduction, she would never have existed (cf. Savulescu & Kahane, 2017, 615).

There is an additional reason why the argument of coercion is untenable. The parents in the example selected that embryo because of a particular genetic disposition they wanted their child to have. To select between different embryos or to genetically edit the genome to endow future children with a greater capacity for rational understanding, for aesthetic creation and contemplation, or for better physical/mental/aesthetic activity is something that increments that child's options and freedom. To act in this way promotes the child's right to an open future precisely because it increments her options and freedom, or what I've been calling, more broadly, her developmental power. To select for a deaf child reduces her developmental power. Now, it is a plausible scenario that even if this incrementing occurs at the level of embryo selection or edition, bad parenting and coercion can still limit the child's right to an open future by limiting and reducing her freedom, subjecting her to extended periods of sports or music practice while preventing her from playing with her friends. It might be that, despite her immense musical talent, the child realises that gardening is a much more rewarding activity and that she prefers to devote her life to growing and cultivating plants instead of developing her capacities as a musician. Bad parents would prevent her from pursuing the activities she enjoys and bind her to the ones they choose for her. Hence, "selection and bad parenting are independent acts" (Savulescu & Kahane, 2017, 615). In many cases, the real problem is parenting rather than the selection or edition of desired traits. Parents are also responsible for incrementing their children's developmental power once they exist, and this entails the promotion of their creative agency as autonomous beings, and not coercing or restricting their freedom and their right to an open future. Our real concern should be to guarantee that only germline genetic editions that increment creative agents' developmental power to at least a sufficient level of flourishing, that are adequately safe, and that are non-positional and non-exclusive are morally permissible. The aim of this restrictive approach is to guarantee that the autonomy and identity of future people are protected.

But consider Marcos Alonso and Julian Savulescu's argument about how He Jiankui's experiment seriously challenges the autonomy and identity of the twins. Their claim is that in this case, and with gene editing more generally, issues of non-identity are a meaningful looming threat (cf. 2021, 565). We came across this already. Recall the lesbian couple who wanted to give birth to a deaf child and consider two different strategies: the first is to use IVF and intentionally *select* a deaf embryo, while the second entails to genetically *modify* a hearing embryo that will result in a deaf child (cf. Savulescu & Kahane, 2017, 611). Two different strategies – selection and modification – but the same result: deafness and reduced

developmental power. In the first case, with selection, there was no direct, person-affecting harm, but only impersonal harm, because the deaf person wouldn't have existed if the deaf embryo wasn't selected in the first place. One can find this morally wrong, but "it is wrong in an impersonal rather than a person-affecting sense" (Alonso & Savulescu, 2021, 565). What about the second strategy, the one requiring the genetic modification of a hearing embryo? Note that modification is different from selection. It implies person-affecting harm: taking a hearing embryo and voluntarily modifying it to make it deaf would have directly and personally harmed the resulting person. Selection entails impersonal reasons, while modification is person-affecting (cf. Savulescu & Kahane, 2017, 611).[101] To make it clear, with PGD, we choose or discard an embryo based on some genetic trait, while with germline genetic interventions, "an embryo with a specific genetic trait is subject to modification and under the assumption that the modification is successful, the embryo is chosen for implantation" (Hammerstein *et al.*, 2019, 7).

Hence, the twins "could have existed without the CCR5 deletion [...] and the associated off-target mutation" (Alonso & Savulescu, 2021, 565). What's more, the intervention increased the risk of the twins getting exposed to other dangerous health and life threats and, more critically, it might have exposed them to several future person-affecting harms. It is also highly probable that it affects their identity, as one can infer from Zhou and colleagues' conclusions on the effects for memory and cognition associated with the deletion of gene CCR5 (cf. 2016). Identity problems can arise "if the deletion of CCR5 or off-target effects caused significant intellectual disability", given that "CCR5 has been implicated in brain development" (Alonso & Savulescu, 2021, 565-566). To have one's identity modified in this way would require, for example, that the gene editing altered one's brain development and this resulted in a different psychological trajectory.[102] On the other hand, without He's intervention, different children would have been born. One of his procedures was sperm washing, because the father was HIV positive and there was a high probability of the twins contracting the infection as well. Once created, the embryos could

[101] It is important to say that some doubt that impersonal reasons exist. Jan Naverson (cf. 1973) has famously claimed that all reasons are person-affecting because they produce benefit or harm to specific people who benefit or are harmed by them. Nevertheless, it seems sounder to say that impersonal reasons exist, for example when we *presently* decide to reduce carbon emissions to benefit *future* generations inhabiting the planet. We are not benefiting someone in particular, but humanity as a whole. It is something that is *good for* those who will exist in the future. Long term decisions such as these are more correctly understood as being impersonal rather than personal, especially when we think of person-affecting (direct) reasons arising from genetic edition. It is also more reasonable to think that person-affecting reasons may be stronger than impersonal reasons. What interests do we prioritise when we decide what to do: those of future generations, whom we don't know and who might not even come into existence, or the interests of those currently living? A balance between these should be found. But if we prioritise person-affecting reasons, this also suggests that modification ought to be highly regarded *vis-à-vis* selection, as we shall see.

[102] This claim is disputed. Alonso and Savulescu seem to stand with Jeff McMahan and *contra* Ingmar Persson defending that genetic interventions that cause "a different chain of psychological connectedness and continuity on a psychological or narrative account of identity" are identity-altering (cf. Alonso & Savulescu, 2021, 565-566).

have existed without the genetic edition, but they would give origin to two different persons. This would have avoided that any person-affecting harm came to the twins. But instead, He's actions were paramount to create the embryos and to protect them from the risk of contracting HIV from the father, which would have probably happened in the event of a natural conception. Hence, different children would have been born if it weren't for the intervention, and as a result, the entire process was identity-altering (cf. Alonso & Savulescu, 2021, 566).

e. Developmental procreative freedom

What assessment can our developmental approach make of this? If we bit the bullet and take it that modification is person-affecting while selection involves impersonal reasons, which strategy should a developmental approach favour, if any? Given that we have the responsibility of incrementing our developmental power, the developmental approach would seem to prioritise modification over selection. But because our goal is to increment developmental power and since selection can also help us achieve that goal, we also have valid reasons to use selection. However, these reasons appear less compelling in comparison to the reasons associated with modification. By sanctioning modification, we reject mystical arguments, like Sandel and Habermas', and embrace the responsibility of choosing the traits of future people.

Arguing for modification, Savulescu and Kahane put it this way: "there will be a child and later adult who has straightforwardly been benefited who could be grateful for the modification" (2017, 611). Concerning selection, "the person would not have existed were it not for selection" (2017, 611). Following this reasoning, we seem to have a *prima facie* case for rejecting Habermas' argument that the "status of the future person as a member of the universe of moral beings" is harmed in any way (2003, 79). If anything, and provided we follow the developmental proviso, modification would reinforce the ties between the members of the moral community. Modifying the future person to give her a better alternative life also provides "an additional reason and cause for gratitude" (Savulescu & Kahane, 2017, 611), even though we could achieve the same result through selection. A possible objection to this would be that a modified child will "suffer from the consciousness of sharing authorship of her own life and her own destiny with someone else" (Habermas, 2003, 82). But doesn't it seem more reasonable to argue that the child has reasons to be glad because her parents cared for her well-being when they decided to modify her genes (to save her from a genetic disorder or to give her some advantage)? A developmental use of modification doesn't aim at restricting the ethical freedom of the future child, it would entail instead that the future child has greater opportunities to exert her ethical freedom. Habermas also says that parents have no

way of knowing "whether a mild physical handicap may not prove in the end to be an advantage for their child" (2003, 86). This, however, is a peculiar argument. Should parents also take the risk with a severe physical handicap (cf. Harris, 2007, 142)?

Alternatively, one could argue, like Sandel, that once we can use the tools for modification, our "responsibility expands to daunting proportions" (2007, 87). Despite the argument's gloomy flavour, there is some truth to it since greater powers should be accompanied by greater responsibilities. As our understanding of the types of beings we are and the kind of lives that best suit us expands, it becomes an inescapable fact that our responsibility for the choices we make also grows. This is now evident in neonatal examination to identify possible health problems with the baby that haven't been detected during pregnancy. Some parents will want their children to be examined so that any abnormalities are detected and opportunely addressed. And it might be that some parents will prefer not to act in that way in order not to desecrate the given, to respect God or Nature's will, or for other of the many reasons previously exposed. Either way, we cannot escape the burdens of responsibility as choosing autonomous beings. As Harris wrote,

> [r]esponsibility is a dimension of the ability to choose, not simply of a particular exercise of choice. The power of choice brings with it the burden of responsibility for the way we exercise choice, because choosing not to act is still a choice for which we are responsible (2007, 118).

When we choose modification and the possible person-affecting harms it entails, we are accepting the burdens of responsibility.

Nevertheless, there can still be conflicts between the interest of the child and parental reproductive freedom. It is not safe to assume that all parents will act in ways that will increment their children's developmental power. If responsibility means to choose to promote the values of a flourishing, well-rounded life and irresponsibility means to choose not to act against the reduction of developmental power that the openness to the unbidden and the acceptance of God or Nature's giftedness often brings with it, our responsibility towards the interest of the child in living a flourishing life seems to place a constraint on parental reproductive freedom. If it is possible to prevent that a child is born without a disability, parents *ought to* act in a way that gives the child the possibility of being born free of disability. This moral imperative can be counterbalanced by other important considerations such as life-threatening risks to the progenitor or uncertainty as to whether the intervention will save the child's life only at the cost of sternly

jeopardising her autonomy or identity. The same developmental moral imperative applies to germline genetic interventions.

We saw already that some parents would welcome the unexpected, some would accept and love a child with Down syndrome, and some would like to have deaf children. Take this last case: imagine parents can have a deaf child, either by means of IVF and selecting a deaf embryo, or by genetically modifying a hearing embryo to make it deaf. Savulescu and Kahane present this example and then argue that in both cases the future deaf person will live a very good life: "quality 80", they say (cf. 2017, 611).

The first person was selected, and her life is very good. If she wasn't selected, she wouldn't have existed at all, hence, she owes her existence to those who selected her. She has nothing to complain about. The second person also lives a very good life, but she was modified. She would have existed anyway, without the modification and she could have had even better hearing capacities. Hence, she can complain that were it not for the modification, she could have had an even better life, "quality 85", for example, a life of greater engagement with her hearing capacities. According to Savulescu and Kahane, "[t]his suggests that even though the effects of selection and manipulation can be the same, manipulation can still be worse because it denies an individual an even better alternative life" (2017, 611). Yet, the inverse situation is also true: modification can give a child a better life than she would've had, therefore generating real reasons for gratitude between parents and children. What's worth discussing is whether parents choose to use interventions to reduce their children's developmental power. Developmentalism would reject such uses unless these are justified by other important considerations.

One could object, however, that developmentalism entails a strict kind of procreative perfectionism willing to impose severe restrictions on parents' reproductive freedom. Positively, on such a view, parents should have children with the maximum chances of living good lives. Negatively, it would impose moral and legal obligations requiring "banning assisted reproduction to people thought to be likely to be less good parents, or banning the use of donors likely to pass on deafness or other disabilities" (Glover, 2006, 53).

Developmentalism, nonetheless, is too distant from old eugenics to deny people the right to reproduce, either by natural or assisted means. It would be more reasonable to frame it as a form of liberal procreative perfectionism, notwithstanding the challenges of perfectionism itself. But there are sound reasons to do so. For example, the most popular procreative principle is Savulescu's Principle of Procreative Beneficence. On this account,

> couples (or single reproducers) should select the child, of the possible children they could have, who is expected to have the best life, or at least as good a life as the others, based on the relevant, available information (2001, 415).

First, selection is here at issue, not modification. Second, nothing is said about what is it that couples owe to their children. Third, nothing is said about what "the best life" is.

As for the latter of these questions, Savulescu is clear and consistent with his welfarist approach: "[b]y 'best life', I will understand the life with the most well-being" (2001, 419). This formulation puts well-being above other values, but not independently of them, as is also the case with developmentalism. We have gone a long way already in establishing what is (developmentally) good for human beings (as creative agents) and what a flourishing life is. Thus, take the components of flourishing; the presence of a gene X in our genome will make it likely that we are unable to fully engage with some or all the components of flourishing. Gene X will affect either our physical, sensory, affective, social, and cognitive capacities, or all of them. Given the role genes play in our flourishing or unflourishing, we have reasons to see them as impediments or advantages. Thus, if gene X is an impediment to flourishing, we have moral reasons to select against it. We have welfarist-based moral reasons to select some genes and not others.

Likewise, as to what parents owe to their children, the developmental account provides a comprehensive response: what we owe to our children is a decent chance to live a life of engagement with the components of human flourishing in ways that respect their identity and autonomy. We also owe them the protection of their right to an open future as well as the incrementing of their developmental power whenever possible, provided its safe and efficient. Selection would thus aim at increasing the chances of the openness of the child's future (cf. Schaefer *et al.*, 2014). Modification has the same aim *and* generates even stronger reasons to do so.

The idea that "person-affecting reasons are stronger and that we should prefer manipulation to selection" (Savulescu and Kahane, 2017, 612) is not without problems. Because person-affecting reasons are so strong, it could be the case that parents also have very strong moral and legal reasons to modify their child if she is in danger of not being able to live the best life. If so, this would impose severe restrictions on parents' reproductive autonomy. The fact is that presently, reproductive freedom is such that couples can conceive a child whom they know will have very little chances of living a flourishing life (cf. Alonso & Savulescu, 2021, 572). What's at stake is the much-discussed problem of how to balance

parents' reproductive autonomy with the interests of the child and for which developmentalism ought to provide an answer.

To say that we owe our children a decent chance to live a life of engagement with the components of flourishing might sound somewhat vague, but deliberately so. It leaves plenty of room for a wide number of factors to be evaluated on a case-by-case basis, considering the unique characteristics and circumstances of prospective parents' situation and the fact that there is no single blueprint for flourishing. Instead, there is a plurality of ways in which very different individuals flourish. It equally avoids weighty and overly intrusive incursions against couples' reproductive rights. It is safe to say that to prevent parents from having children or to compel them to have children with particular characteristics constitutes a form of harm (cf. Savulescu and Kahane, 2017, 612). For example, deaf people shouldn't be prevented from having deaf children or have rejected the access to the means of having them. A deaf child can still be able to engage with the components of flourishing in a variety of ways and live a happy, flourishing life. If parents choose to have a child with a severe intellectual disability, the chances for her to be able to engage with the components of flourishing is reduced. In such cases, parents failed to care for the creation of the inner capacities required for the child to conduct an autonomous life (cf. Raz, 1986, 407).

So, how does developmentalism balances parents' reproductive autonomy with the interests of the child? In what follows I want to focus on two key features that developmentalism ought to espouse in order to give us guidance in reproductive ethics. These two features are informed consent and counselling. From here, we can derive meaningful ethical guidelines, legal frameworks, and policies for advocacy and education on reproductive decisions.

First, as in Procreative Beneficence, developmentalism should advocate for a "presumption in favour of liberty" (Savulescu, 2001, 425), insisting on couples' rights to make their own decisions about which child to have. This, however, doesn't preclude us from ascertaining that the developmental interest of the child necessarily constrains parental freedom, and as such we have a moral obligation to remove obstacles to flourishing in ways that are not unreasonably burdensome (cf. Glover, 2006, 62). While there might be a significant degree of uncertainty regarding the future child's ability (*i.e.*, degree of developmental power) to engage with the components of flourishing, the presumption of liberty deals with the immediate and very visible and burdensome problem of limiting parents' reproductive rights. Additionally, concerning the developmental interest of the child, parents will face the moral duty of giving children enhancements under the conditions already stipulated. Between these two poles, developmentalism ought to stand in a position that rejects the incursions into personal freedom of strict

perfectionist views, but also the broadly permissible views that put no restrictions on parents' rights of reproductive freedom.

The second step developmentalism takes is to argue for a minimum moral threshold[103] that helps us to balance the developmental interests of the child, the interests of parents, and the interests of society as a whole. Society frequently takes an important part in deciding conflicts between the reproductive autonomy of the parents and the interests of the child. Cases involving custody and adoption often require mediators or legal courts as third, neutral parties that prioritise the interest of the child and decide what is best for her. Although

> parents must always be considered as best placed to make decisions on behalf of their children, there must always be a safeguard to protect those children whose parents may not act in their child's best interests, regardless of how unintentional this may be, and allow those children, where appropriate, to reach an age where they can decide for themselves which is the most appropriate course of action for them (Leask, 2005, 1258).

It is also conceivable that externalities and the social costs of disability across one's lifespan are part of the discussion on the moral permissibility of bringing a disabled child into existence (cf. Wondemu *et al.*, 2022; cf. Stabile & Allin, 2012).[104] Hence, if the idea of a minimum moral threshold is to hold water, it needs to be underpinned by a guiding moral principle. A first, thin, formulation of this principle can be

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[103] Jonathan Glover has argued for something similar, called the "zero-line" view (cf. 2006, 54-63). But Glover's zero-line sets a very low standard. On his account, parents retain their freedom to choose to have children, but if the quality of the life of that future child is below the minimum threshold, the zero-line, it is morally wrong to bring that child into existence. But this standard is too low because it implies that the life of that child would need to be worse than not existing at all. So, parents' procreative freedom is secured as long as they do not have a child whose quality of life is expected to be below the zero-line. An additional difficulty lies in the level at which we must define the zero-line. To do so, Glover suggests we take into account factors that range from disability to poverty, such as the severity of the suffering a child experiences from a particular painful medical condition and the likelihood of that child experiencing suffering from lack of material conditions to flourish. There are important similarities between this and Macpherson's view on how external and internal impediments curb one's flourishing. Overall, Glover's zero-line requires a general assessment of the quality of life of the future child that considers aspects like the opportunities for personal physical and rational development, for maintaining social and emotional relationships, and a general sense of personal fulfilment and purpose. The idea is that "[w]here an obstacle to flourishing can be eliminated in a way that is not unreasonably burdensome, its removal is something we owe to our children" (Glover, 2006, 62). As we saw in the previous chapters, both Macpherson's work on impediments and labour, and Kraut's developmentalism, namely his idea of the components of flourishing, give us important guidelines to establish the grounds of what a flourishing life is for a creative purposive agent. But the "zero-line" view is too "cautious" and sets the flourishing threshold too low for a creative purposive agent to live a life of flourishing and meaningful engagement with the components of flourishing. Desirably, the developmental threshold should be set at a higher – but not too high – level. In section f. I deal with this difficulty.

[104] Prevalent external impediments are responsible for the multiple costs deaf people have to support in order to gain access to relevant goods and activities. Among these, costs associated with assistance for translation and interpretation (*i.e.*, Deaf interpreters and other assistive technologies), costs for traveling longer distances to access specialised services, acquisition of specialised equipment to work, infrastructural reconfiguration of spaces at the working place, and loss of privacy in the relational mediation (*e.g.*, between patient and healthcare professional) (cf. Fellinger *et al.*, 2012; cf. Levine, 2014).

drawn as follows: while parents should have the freedom to reproduce, their freedom is limited by the developmental interests of the child. In this way, we secure parents' procreative rights while acknowledging that their reproductive decisions have a substantial impact on the lives of their children.

But while the extent to which the developmental interests of the child might limit procreative rights is hard to grasp, it is reasonable to say that the developmental requirement should aim at setting a higher standard than, for example, Glover's zero-line view. Like Glover, developmentalism upholds the idea that parents owe it to their children to save them from disabilities by means of genetic intervention whenever possible (cf. 2006, 62), but it goes further in saying that whenever enhancements can increment one's developmental power, parents might owe it to their children too. While Glover claims that parents owe their children a decent chance to live a good, happy life, his threshold of a good life seems to be set too low. If we follow Glover's account, we must accept that a good life may also coincide with the zero point. But this would be, at most, a minimally *acceptable* life, which is different from a minimally *good* life. Of course, it is plausible that the line is not clearly determined and rigidly fixed because its moral aim is to prevent parents to give birth to children with "severe" genetic disorders when this could have been prevented. The goal is to reduce the harm that can be caused to future children by severe genetic diseases, but we lack clear social, medical, and legal explanations on how to define the level of severity or seriousness of these diseases (cf. Boardman & Clark, 2022, 160).[105] Part of the problem is also due to the lack of these people's own evaluation of their condition and quality of life. One of Boardman and Clark's conclusions is that people living with and experiencing disabilities evaluate their lives "often more positively" than those around them that have never experienced them (cf. 2022, 160).[106]

So, for example, a child who is born with a critical but non-fatal medical condition, such as sickle cell anaemia, will experience severe pain and discomfort throughout her life (cf. Kaiser, 2020). But, although she may be limited by her medical condition, she will still be able to live a life of engagement with the components of flourishing. While her developmental power might be significantly reduced due to

[105] Boardman and Clark's work is important because it examines the personal, direct perspective and experience of people who live with genetic conditions. Among these, some are treatable (*e.g.*, haemophilia, thalassaemia), some are life-limiting (*e.g.*, cystic fibrosis, spinal muscular atrophy), some involve cognitive and/or physical impairment (*e.g.*, fragile X syndrome, spinal muscular atrophy, thalassaemia) (cf. 2022, 161). The conclusion that it is important to include "the views and lived experiences of those directly affected by genetic conditions in ethical debates" (2022, 168) is not new, as we saw in the previous chapters (cf. Johnston, 2019; Garland-Thomson, 2019).

[106] Bostrom's *Letter from Utopia* is meant to give us a hint of how good a posthuman life could be if we went through radical enhancements. But just like Bostrom's *Letter*, there are numerous transhumanist manifestos sharing that same purpose. More interesting for our purposes here, though, are testimonies like that of Victoria Gray, that I mention below, or that of a 40-year-old paralysed man who, after 12 years, thanks to electronic brain implants that transmit his thoughts to his lower limbs via a spinal implant is now able to walk (cf. Ghosh. 2023).

her medical condition, she will be able to flourish and live a life that is only slightly above the zero-line threshold.

Because establishing a well-defined threshold is so challenging, we should at least opt for a reasonable approach that takes on board the contributes from people living and experiencing the diseases, people not living or experiencing them, and professionals from the various fields of study that deal with its direct and indirect (medical, economic, ethical, philosophical) implications. To do so moves us one step closer to the strategy of counselling I want to pursue next.

So, take again the case of sickle cell disease. It is known for its devastating episodic crisis of "sudden, excruciating bouts of pain" that can ultimately damage one's organs or cause a "stroke or a heart attack at any time" (Stein, 2019). And yet, it is possible for one to live a flourishing life even with the genetic disorder. A paradigmatic example of this is Victoria Gray. Gray was the first sickle cell patient who volunteered herself to be treated with CRISPR gene-editing, in 2018. Recently, in March 2023, she was a speaker at the "Third International Summit on Human Genome Editing", in London, which brought together professionals and non-professionals, like Gray, to debate challenges on the topic of genome editing. Gray shared her personal experience on how the disease "almost made [her] life unbearable" and how life-changing the gene therapy was, enabling her to live a normal life ever since (cf. Gray, 2023).

While it may be insufficient to clearly establish a minimum threshold, this gives us at least the possibility of conceiving a developmental imperative that demands us to go beyond the acceptance of a minimally *acceptable* life to think in terms of a minimally *good* life for the agent suffering from the diseases. Such a conception is more attuned with developmentalism. In fact, the developmental threshold should precisely correspond to a minimally *good* life, entailing that our moral duty towards one another might be to help people attaining a minimally *good* life.

But if there is no normative standard and no feasible way to fix the line in a precise threshold, all we can hope for is that prospective parents are willing to give birth to the children with the most chances of flourishing they can possibly have. This means that in their decision-making process, the moral developmental imperative of incrementing their children's developmental power within the established limits ought to play a decisive role. Parents have a moral duty to have the children with the best possible chance of meaningfully engaging with the components of flourishing so they can have the opportunity to live a well-rounded life. Such a strong moral duty, however, cannot be enforced in ways that end up coercing parents into choosing certain particular traits for their children or preventing them from, ultimately, having the children they want to.

The way parents acquire the skills to navigate ethical dilemmas such as these leads me directly to counselling and the concept of informed consent. What this process entails is the practical realisation of the whole of the developmental conception of human nature, well-being, and flourishing discussed in the above chapters. It also goes further than dealing with reproductive rights alone. The aim is for it to provide a systematic approach to the ethical challenge of how, why, and in what situations should biomedical interventions be used, and its access made publicly available.

f. Political Developmentalism

So far, we saw that certain goods and activities are non-instrumentally valuable because for us to engage with them is constitutive of our well-being, and therefore these goods and activities are key to determine what's the morally right thing to do. This ethical grounding delivers us a fundamental account of the good and provides the necessary step towards political developmentalism. It is the ethical grounding that gives concrete content and normative legitimacy to political developmentalism. The distribution of access to biomedical interventions is just one among the many potential areas covered by political developmentalism and the one I'm focusing on in here. It could also be explored as a broader political framework that emphasises the importance of individual and societal development in other dimensions (*e.g.*, education, economic opportunities, healthcare). To ensure sufficient access to biomedical interventions is only part of a larger possible programme aimed at fostering overall human development and enhancing the well-being of both the individuals and society.

The moral permissibility of biomedical interventions was determined in function of their being instrumentally valuable tools for us to engage with the non-instrumentally valuable components of flourishing. If interventions can increment our developmental power under the conditions of safety and efficiency established before, there seem to be no sound moral reasons for their impermissibility. If you agree that the prudential, moral, and ethical reasons are valid and that the use of biomedical interventions is morally permissible on these grounds, it should also be relatively straightforward to persuade you that such a rationale extends to state policies as well. The underlying reasoning here is that the state should do what is the ethical thing to do.[107] Hence, the primary focus of political developmentalism revolves around the problem of how access to interventions, or their just distribution, ought to be made.

[107] It might be that practical or political reasons trump ethical reasons and therefore, sometimes the developmental conception of ethics might not correspond to what the state should do. This will be evident, for example, in cases of national security against terrorism or war, but also in the face of serious threats to the public health, such as a pandemic crisis.

At the core of political developmentalism is the following idea: we ought to guarantee access to germline genetic interventions until a level of sufficiency is reached, where sufficiency is defined as the point at which individuals have achieved a threshold of developmental power and capacity for overall flourishing that ensures a satisfactory quality of life and opportunities for self-determination as creative purposive agents. Because it comprises various intricate elements, it is important to breakdown this idea.

The insistence on germline genetic interventions *vis-à-vis* somatic interventions was already extensively explained and we saw in sections b. and d. why the former pose ethical challenges that are more significant than the ones posed by the latter.

An additional feature that needs to be clarified concerns sufficiency. As we can see, this comprises three dimensions: the very idea of sufficiency, the notion of threshold, and the satisfactory quality of life and opportunities.

A consistent aspect of my argument so far was that it is morally important that people have access to *sufficient* flourishing in their lives. I conveyed this idea from the beginning by saying that it is important to increment people's developmental power. As a result, developmentalism privileges giving people *enough* developmental power so they can exert, develop, and enjoy their creative capacities. The idea that "there is a level of well-being such that it is very important that people reach it" (Huseby, 2020, 221) is common among advocates of sufficientarianism. It already implies that some threshold or sufficiency level needs to be determined and policies adopted so citizens can reach that threshold because it corresponds to the level at which people will secure enough developmental power to flourish. Hence, the first idea is that it is morally important that access to developmental power is granted *at least* until the threshold is met. This conveys a positive principle or thesis: it is morally important that people have access to enough developmental power because that will help them flourish. But what happens once the threshold is met? What justice claims can there be once everyone has met the threshold and secured enough developmental power? From this ensues a negative principle or thesis: once everyone has secured enough developmental power, distributions are no longer required. But how can we justify that distributions play such a crucial role *immediately below* the threshold and stop playing such an important role *immediately above* it? The threshold appears as too vague and arbitrary (cf. Shields, 2020, 2). These are the same difficulties we faced before in dealing with Glover's zero-line threshold, and that there might not be a good solution to this problem. It seems hard to justify a threshold which is low enough to render plausible the positive thesis of granting people access to enough developmental power *and* high enough to render plausible the negative thesis that once everyone has secured enough developmental power, distributions are no longer required. This is the threshold objection raised by Paula Casal and Richard

Arneson (cf. Arneson, 2005; Casal, 2007, 315-316). They caution that, irrespective of the plausibility of each one of them, the positive and negative theses pull the threshold in two different, opposing directions.

Our goal is to determine how to distribute access to interventions. So, lets imagine that we want to prioritise individuals whose developmental power is close to zero. These individuals are nearly completely incapable of engaging with the components of flourishing; they are living unflourishing lives. Since we should increment the developmental power of individuals with the explicit aim of enabling them to engage with the components of flourishing, it is reasonable to assume that we should prioritise those who are worse-off. But where, in a 0-100 scale of units of well-being should we place the threshold? To better address the threshold objection raised by Arneson and Casal, and the arbitrariness or vagueness objections, I'll adopt two different thresholds instead of one. Such an approach was already suggested by Casal regarding the choice between single or multiple thresholds (cf. 2007, 317). Robert Huseby has followed and revised Casal's suggestion. On his account, we can work with two thresholds (let's identify them as T1 and T2) that correspond to the two theses, and the gap between the two thresholds shouldn't be too narrow nor too wide. A narrow gap (*e.g.*, T1=45; T2=50) will closely replicate the single threshold, thus making it vulnerable to the same objections. A wide gap (*e.g.*, T1=15; T2=85) puts the lower threshold too low and the higher threshold too high. The problem with T1 being so low is that it seems to report only to the satisfaction of the most basic human needs, amounting to a very low sum of developmental power and, consequently, insufficient abilities to meaningfully engage with the components of flourishing. Inversely, with T2 placed so high, we are left with a wide gap in which there will coexist relevant discrepancies in well-being, with people just below T2 purportedly enjoying a very high level of flourishing that significantly mismatches the flourishing of those just above T1. If so, this can result in a great number of small claims at around T2 outweighing fewer large claims just above T1 (cf. Huseby, 2020, 214). By maintaining a medium gap (*e.g.*, T1=40; T2=80), it is hoped that these problems can be avoided.

As we talk about distributions, we are always and unavoidably reporting to the fundamental ethical assumptions of human nature developmentalism: what a good life[108] is for creative purposive agents. We equally witness the emergence of what will be a multilevel layered structure with two thresholds combining sufficiency and priority. Given what we have observed about our ethical and political responsibilities to one another, it should not be unexpected to come to the results that will follow. Recall that the commitment to the flourishing of all requires us to create and sustain an environment that enables us

[108] Huseby himself devotes his attention to what a good life might be so he can establish a meaningful relationship between this and the positive thesis (cf. 2020, 209-210).

and encourages us to flourish. To create such an environment is the responsibility of the state[109], and since the distribution of access to interventions is part of its responsibilities, the ethical thing for the state to do is to put in place a distributive structure capable of securing universal access to interventions. Here, I claim that the multilevel layered structure with its two thresholds is a suitable approach to regulate access to interventions and it accurately conveys the definition of political developmentalism. In Figure 1 below I present this multilevel layered structure.

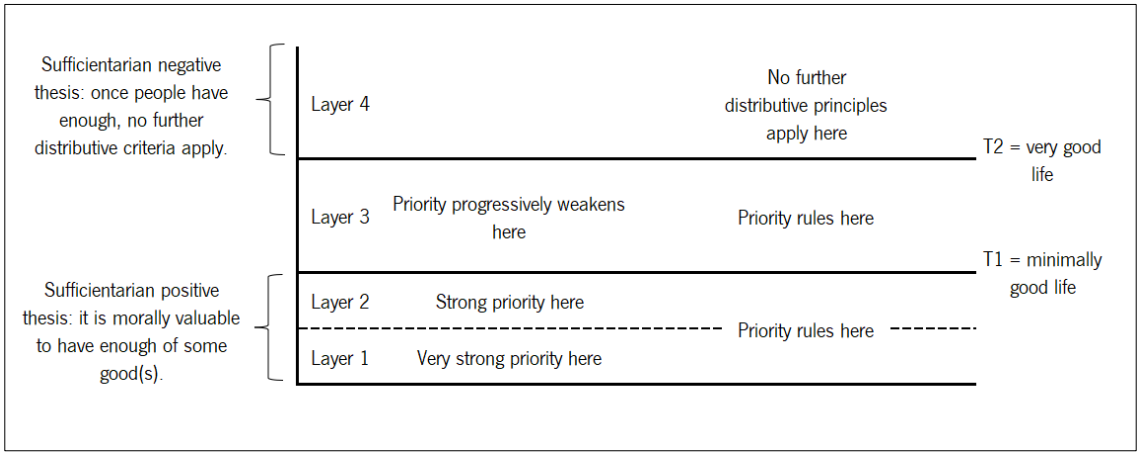

Figure 1: Multilevel layered structure.

This structure uses two thresholds, T1 and T2, to give us the medium gap that corresponds to layer 3. It defines political developmentalism in the following way:

1. At the lower first and second layers, the state *ought to* protect and promote universal access to interventions based on their instrumental value to help individuals engage with non-instrumentally valuable goods and activities; and
2. At the intermediate third layer, the state is *permitted* and *justified to* protect and promote universal access to interventions based on their instrumental value to help individuals engage with non-instrumentally valuable goods and activities.

Both claims convey the idea that the state should refrain from acting neutrally and should act based on claims of non-instrumental value, moral reasons, or metaphysical views (cf. Couto, 2014, 33). Claims of non-instrumental value are the ultimate justificatory reason for the permissibility of instrumentally

[109] Here, as we saw in chapter 4, I follow Avigail Ferdman's overall argument in favour of the creation of a perfectionist basic structure whose chief goal is to provide a "spatial opportunity structure [that] sets the options and constraints that determine how a person can develop and exercise her human capacities" (2019, 17). My claim is that the provision of universal access to interventions is a fundamental element of a broadly conceived spatial opportunity structure in which the category of space is extended to our human biological and organic constitution.

valuable tools such as gene editing technologies. In the case of developmentalism, non-instrumental value reasons and moral reasons are especially relevant. But the first of these claims is bolder than the second. It states that the state *ought* to act in a certain way, not just that it is *permitted and justified* to act in a certain way. The first reason for this is because below T1, in layers 1 and 2, individuals live significantly unflourishing lives. Their developmental power is not enough for them to engage with the components of flourishing. This is reason enough, as Steven Wall claims, to say that "political authorities should take an active role in creating and maintaining social conditions that best enable their subjects to lead valuable and worthwhile lives" (1998, 8). Wall doesn't here make any reference to what is non-instrumentally good for human beings, but we already know what this is, at least according to developmentalism.

A second, more substantive, reason reports to the developmental morality (Wall refers to a perfectionist political morality) that is committed to the flourishing of all citizens, especially with those lacking the developmental power to use, exercise, and develop their capacities. To enable these citizens to engage with the components of flourishing is thus "a subject of morality, of what we owe each other" (Ferdman, 2019, 15). Therefore, the state *ought to* protect and promote universal access to interventions in layers 1 and 2, prioritising individuals in these layers due to their limited developmental power. As priority gradually diminishes above T1 and across layer 3 due to individuals' increased developmental power, the state is only *permitted* and *justified to* protect and promote universal access to interventions. Finally, layer 4 corresponds to the sufficientarian negative thesis according to which no further distributive criteria is required.

Let's look more closely at the first two layers, which are below the threshold of a minimally good life. The assumption behind layers 1 and 2 is that the farther one is from the threshold, the worse his life is, and that the more people are in these layers, the more morally problematic this situation is for the person (cf. Huseby, 2020, 216).[110] To prevent that many people are farther from having a good life, "a negative and limited form of prioritarianism should guide distribution below the lower threshold" (Huseby, 2020, 216). This already hints at why I decided to place two layers below the threshold. Let's assume that T1 is placed at 40, meaning that to live a minimally good life one needs at least to have 40 units of well-being in his life. Individuals scoring 10 units of well-being are at layer 1 and have very strong priority in accessing interventions *vis-à-vis* individuals at layer 2, scoring 35 units immediately below the threshold and who have strong priority over individuals above the threshold. What we see here is that "those below

[110] Huseby's view lacks the sub-threshold division into two layers. In a recent article, Dick Timmer defined this as the "deficiency claim" according to which the lower ranges, as opposed to the lowest range, below the threshold are the ones that should have priority, recognising that some sufficientarian views are concerned with multiple thresholds on one continuum, not just one (cf. 2022, 302-303). Because in the lower layers people have little developmental power, benefits in these layers, among which we have access to interventions, should be prioritised *vis-à-vis* the layers above.

the threshold are given priority that diminishes only slightly as they get closer to the threshold" (Shields, 2020, 6). As Shields also notes and as we'll see here, this priority will diminish thereafter.

This raises a problem for those above T1: their access to interventions, and their gaining further developmental power is sacrificed for the sake of the worse off and is conditioned on those below the threshold having priority over them. One of the risks of this prioritisation is that a large group of worse off and inefficient converters of resources into well-being drains large amounts of resources (cf. Huseby, 2020, 217) that could otherwise be allocated to better converters at layer 3, for example. The developmental counselling model I propose in the next section seeks to address this challenge, namely by facilitating individuals in becoming efficient converters of resources (*i.e.*, access to interventions) into well-being. More crucially, developmental counselling plays a critical role in the developmental process by determining the priority of individuals' access to interventions and assessing their eligibility and need for interventions.

A further problem concerns the level of strength or priority to ascribe to those in layers 1 and 2, below T1, comparatively to those in layer 3, the gap between thresholds. It is especially important that individuals in layer 1 have *very strong* priority and that individuals in layer 2 have *strong* priority over those above T1. Very strong priority (and strong priority) is not the same as *absolute* priority. Despite the claim that there is an important moral duty towards those below T1, and especially those in layer 1, to bring them above the threshold, as Huseby notes, there could be reasons to say "that a few small shortfalls from the lower threshold cannot always outweigh losses, no matter how big, to individuals in the gap" (2020, 218). Furthermore, as we saw with the resource drainage challenge above, here, too, some poor converters of resources into well-being could "claim all resources above the threshold, if we accord absolute priority to those below it" (Huseby, 2020, 218).

Priority also rules between thresholds, but it progressively weakens the closer it gets to T2. This view doesn't take it as more plausible that there should be a "default in favour of equality" (Shields, 2020, 6). It is true that since individuals in layer 3 are already above the threshold of a minimally good life, one might well expect that priority is abandoned in favour of other principles, such as equality. There is a first good reason to avoid this. Indeed, T1 serves as the minimum threshold for a minimally good life, and on its own, this limit would restrict the consequences of levelling down that result from egalitarian principles. But it is conceivable that people in layer 3 with a fair level of developmental power would have to be levelled down for the benefit of some whose developmental power is just above the level of T1. Huseby says this would be done "just for the sake of achieving equality" (2020, 219), which runs against developmentalism as conceived here. There is a second good reason to avoid egalitarianism in the gap.

Take layers 2 and 3. Let's assume that there is a distribution of population such that close to half the people are in layer 2 and the other half are distributed along layer 3. Again, if we assume that those in layer 2 are poor converters of resources into well-being such that it makes it unfeasible to distribute outside the gap and below T1, equality would promote the maintenance of two more or less static strata, one below T1 and another in the gap (cf. Huseby, 2020, 218).

As for T2, I claimed that above this level no further distributive principles apply, hence, individuals in layer 4 enjoy no priority over any others. Yet, those below T2 enjoy *absolute* priority over those above it. For example, Axelsen and Neilsen, claim that indifference might justify the lack of further distributive principles in layer 4 (cf. 2015, 415). Note that T2 corresponds to a *very good* life, so we are expected to find a good life somewhere in between thresholds. This goes against Casal and Arneson's idea that the higher T2 is, the more plausible it is. Here, T2 is placed so that we have a medium-sized gap, not a very wide gap. The reasoning is that to allow numerous better-off individuals to enjoy modest gains is a more believable scenario compared to subjecting a smaller number of worse-off individuals to substantial losses. Huseby claims this is "an unavoidable trade-off" (2020, 219). On the one hand, it seems wrong to prioritise insignificant benefits for individuals with a very high level of developmental power over tremendously disadvantaged individuals. On the other hand, it seems wrong to grant absolute priority to the most disadvantaged individuals, especially if these are poor converters of resources into well-being, as it depletes resources that could otherwise be utilised to benefit numerous other people. It is to avoid these problems that T2 is placed at a fairly distant level from what a good life might be and below the level of a maximally good life (cf. Huseby, 2020, 219).

Admittedly, this sufficientarian scheme is still too incipient and requires further refinement. Nevertheless, it already gives significant political content to the ethical claim of human nature developmentalism. This ethical view offers a substantive account of the good and makes an argument in favour of the promotion of certain goods and activities that we have moral reasons to protect and promote because of their value to us as creative agents. Political developmentalism benefits from endorsing this conception of the good as I laid down in the previous chapters.[111] And since the argument made before

[111] This is mainly due to two reasons. First, because a philosophical theory that is epistemically and ontologically abstinent is shallow and unconvincing. In arguing for a justified, reasonable theory, one cannot avoid making judgements about what is true, what is good, and what is right (cf. Raz, 1995, 71-73). There is a paradox in endorsing a theory conveying justice-based claims to guide policymakers on the grounds that it is a true, reasonable, or *just* theory grounded on a restricted set of truth-claims and moral values and alleging that we ought to remain neutral between conceptions of the good. As Raz puts it, affirming the truth of only a few moral values restricts the scope of comprehensive perspectives that can be held; "[t]here can be no justice without truth" (cf. 1995, 70). The rejection of ontological neglect concerning our essence as creative purposive agents, and the commitment to the foundational value of well-being provide the grounds for philosophical enquiry concerning the developmental understanding of the project of human enhancement. For these reasons, and to take seriously the claim that we are entitled a certain level of developmental power to be able to flourish, we should reject both epistemic and ontological

was that it is important that every person has enough or sufficient developmental power to be able to flourish, sufficientarianism seems to provide a *prima facie* reasonable account of how access to interventions ought to be regulated. But even if my goal was to comprehensively develop this sufficientarian scheme, it would still be necessary to complement it with the developmental counselling process I'll advance in the next section. In section d. we saw already some of the reasons why counselling is key to enhancement, namely in facilitating informed decision-making, addressing highly technical and complex medical, philosophical, and ethical considerations, and supporting reflective deliberation by means of a collaborative reflective process that puts human nature developmentalism at the centre of this discussion. Hence, the claim that every person should have assured sufficient access to developmental power does not remove the additional need for a developmental counselling process when a prospective patient voluntarily undergoes an intervention. This counselling process serves the purpose of evaluating whether the intervention contributes to that person's well-being or not, just as in the case of limb lengthening regarding one's motivations, and He Jiankui's case regarding due process in the obtaining of informed consent.

From what I just said, one sees that the goal of the developmental counselling process is to engage in a personalised, holistic assessment of how particular interventions may benefit the person, pondering on its risks, efficiency, safety, and personal and social significance. Off-target mutations and our currently limited knowledge of the genome, human genetics, and the possible unintended consequences of germline gene editing for future generations are critical risk factors advising against interventions of this sort. However, the existence of risk does not promptly entail that we should reject interventions straightaway, "for it is sometimes worth taking a risky course of action if the potential benefits are great enough - and in the case of GGE [germline gene editing], the potential benefits are significant" (Koplin *et al.*, 2019, 50). In the same way that potential risks are passed down to future generations, so are potential benefits. On this matter, we saw how hard it is for bioconservatives to argue that risks will always necessarily outweigh benefits, irrespectively of the validity of their concerns. The (incompatible) assumptions that our current evolutionary condition is unmistakeably good and in need of no improvement, and that natural evolution will work better than us in improving humankind are too

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neglect. Political developmentalism benefits from and needs the developmental ethical theory because of its claim that (i) we have moral reasons to promote the goods and activities that are (ii) non-instrumentally valuable and that are (iii) worth pursuing due to their being constitutive of an agent's well-being. The two latter claims, (ii) and (iii), pertain to the prudential dimension of developmentalism, while the former claim, (i), is moral in nature, as we saw in chapter 4, section b. It is the espousal of this moral claim that distinguishes ethical developmentalism and assigns it greater normative strength *vis-à-vis* the prudential dimension, thus strengthening political developmentalism. Without the moral claim, political developmentalism would simply be defending a particular conception of the good, with no reference to the moral justificatory reasons why we should promote those goods and activities. Since political developmentalism is concerned with state action, it is paramount that it is grounded in a robust ethical foundation (cf. Couto, 2014, 21-22).

questionable to hold water (cf. Harris, 2007, 34). Likewise, the objections based on irreversibility and the lack of consent from future generations are problematic and inoperable, as we saw above. For obvious reasons, the basis for decision-making cannot include the consent of the future people, but this doesn't mean that personal and scientific decisions are not made based on the best available combination of evidence and argument (cf. Harris, 2015, 32-33). It suffices that one recalls Parfit's well-known non-identity problem: "[i]f any particular person had not been conceived within a month of the time when he was in fact conceived, he would in fact never have existed" (1984, 352). A different person would have grown from a different pair of cells. Because our reproductive choices will inevitably be identity-changing to the future generations, all we can hope for is that future people's best interests are taken into account and these people are given a decent chance of flourishing, as discussed in the previous section. Harris claims, much like Savulescu, that if we have any moral duty to future generations, it is that we "create the best possible child. That is what it is to act for the best, "all things considered"" (2015, 33). By now, we have a sufficiently clear understanding of what this entails for developmentalism.

This implies that when evaluating interventions, ethical considerations should be based on principles that help us analyse the risks and benefits involved. Transhumanists and many human enhancement advocates are usually sympathetic towards forms of the proactionary principle according to which restrictive measures to scientific and technological innovation tend to impose burdensome opportunity costs that are unproportional in the face of the potential benefits. On the other hand, moderate ethical evaluations of enhancement rely on different plausible types of the precautionary principle. Developmentalism is among the approaches that adopt a sufficientarian version of the precautionary principle. This is yet another way to apply sufficientarianism to policymaking and the regulation of access to interventions. It is also compatible with the sufficientarian formula presented above: "we ought to guarantee access to germline genetic interventions until a level of sufficiency is reached, where sufficiency is defined as the point at which individuals have achieved a threshold of developmental power and capacity for overall flourishing that ensures a satisfactory quality of life and opportunities for self-determination as creative purposive agents".

Julian Koplin, Christopher Gyngell, and Savulescu comprehensively address the varieties of precautionary principles and their many implications in the context of germline gene editing (cf. Koplin *et al.*, 2019). Their take on this is that we have good enough reasons to put forward a sufficientarian precautionary principle. To see why this is so, let's focus again on the multilevel layered structure of Figure 1. Take the various components of flourishing: suppose a sufficiently well-rounded life requires an agent to be at 60 out of 100 units of well-being, *i.e.*, precisely between T1 and T2, in the middle of the

gap. The proviso requires us to increment the developmental power of as many people as possible, ensuring that as many people as possible have the opportunity to lead fulfilling and well-rounded lives. Now suppose there was a chance of making a young person who is scoring 60 units of well-being immune to cancer, but this would imply a trade-off from which results that she will only score 35 units throughout her entire adult life, thus failing to meet T1 (placed at 40). The rule of thumb here is that whenever an intervention prevents a person to meet or be above T1, that intervention should be avoided.

The approach here is slightly different from those advocating the precautionary principle in its various possible weak and strong, positive and negative formulations. The basic idea of these principles is that "we should take (some form of) precautionary action against activities that may cause (some kinds of) harm" (Koplin *et al.*, 2019, 51), and this idea can be formulated negatively, or more or less strongly. One of these strong formulations entails that we should take "extensive precautionary action to fully eliminate *any* potential threats to human well-being, regardless of the costs of the precautionary action" (Koplin *et al.*, 2019, 51), while a weak formulation would simply recommend taking some minimal precautionary actions. So, what would a sufficientarian precautionary principle demand and how would it differ from these formulations?

Our physical and psychological powers constitute the fundamental requirements for purposive creative agents to exert, develop, and enjoy human capacities. Any principle regulating access to biomedical germline genetic interventions must be construed having safety and health security as its cornerstones, so these powers are not compromised. Like precautionary principles, a sufficientarian precautionary principle will also, unsurprisingly, recommend possible "bans, moratoria, premarket testing or requests for extra scientific information before proceeding on a potentially dangerous course of action" (Koplin *et al.*, 2019, 56). Naturally, the idea of such a principle is that whenever substantial threats against the incrementing of our developmental power exist and endanger our possibility of achieving or maintaining a sufficient level of flourishing, we should act in order to minimise risk. Koplin and colleagues formulate it as follows: "we should take precautions against threats to achieving or maintaining a sufficient level of well-being" (2019, 56).

Let's apply this principle to sight, since this is a non-instrumentally valuable capacity constitutive of our flourishing. In a logMAR scale[112], the bigger the number, the worse the visual acuity, so, roughly speaking, 0.0 is perfect vision, 0.5 or above is classified as low vision, and to score 1.3 or more

[112] Logarithm of the Minimum Angle of Resolution. Different institutions and national organisations differ as to what values correspond to sight impairment. Here, I follow the World Health Organization's International Classification of Diseases (cf. World Health Organization, 2022) that establishes that a visual acuity worse than 1.3 logMAR corresponds to blindness, but in the USA, for example, legal blindness is established as a visual acuity of 1.0 logMAR or worse in the better eye (cf. Virgili *et al.*, 2018, 14).

corresponds to blindness (cf. Virgili *et al.*, 2018, 14). So that no one suffers from sight impairment, we should aim at bringing every citizen at least to the 0.5 threshold. We can see this more clearly if we use the multilevel layered structure presented above. Within our layer 1, encompassing the range from 0 to 20 units of well-being, we would thus find those individuals scoring approximately 1.0 and 1.3. These are individuals with severe visual impairment or blindness. Layer 2 (20 to 40 units of well-being) comprises those individuals with moderate visual impairment, scoring logMAR values between approximately 0.7 and 1.0. Layer 3 (40 to 80) is the widest layer and the one between thresholds. Here, logMAR values range between around 0.3 and 0.7, which represents individuals with good visual acuity and minor visual impairment. Finally, in the upper layer 4 (80 to 100) logMAR values range between 0.0 and approximately 0.3, meaning this layer represents individuals with excellent visual acuity and no visual impairment.

Now imagine that a person scores 0.7 in the logMar scale, just at T1, the lower threshold, and there is an intervention with 99% chance of bringing that person to 0.0, but there is a 1% chance of severely impairing her vision, leaving her permanently blind. Our sufficientarian precautionary principle would advise against the use of such intervention because the trade-off implied wouldn't in any ways increment the developmental power of the person in question. Of course, this is an extreme case. Take a different person who is below the threshold, in layer 2, at 0.9, and whose vision is moderately impaired. An intervention that brings her to 0.3 has 99% chances of success and 1% chances of severely impairing her vision. In such a case and following our principle, we not only have justified reasons to use this intervention, but we are advised to do it, since there is an important chance of incrementing that person's developmental power.

What these examples are meant to show is that a sufficientarian precautionary principle would recommend the use of caution when utilising interventions so that no one is put below the threshold of a minimally flourishing life. Whenever a person's developmental power is low, there are strong reasons to sanction the use of interventions, and the greater the chances of their succeeding in incrementing one's developmental power, the stronger the moral permissibility to sanction their use.

One might say these examples are of little use because they don't necessarily involve germline genetic interventions. But consider the following two cases. In the first case, there is an individual who has a genetic predisposition for a rare genetic disorder that significantly affects his quality of life. He is in layer 2, below the sufficiency threshold, and experiences significant limitations and challenges due to his condition. A genetic intervention is being considered that has a 99% chance of correcting the genetic disorder and effectively removing it. However, there is a 1% chance of unforeseen complications or unintended consequences that could result in severe health issues.

Here, it seems that we have strong enough reasons to proceed with the intervention because the potential benefit of removing the disorder and achieving a sufficient level of well-being outweighs the 1% risk of severe impairment.

Take a second case: there is a person interested in enhancing her cognitive capacities by means of a genetic intervention. The intervention has a 99% chance of successfully introducing the desired genetic modification, resulting in improved cognitive capacities. However, there is a 1% chance of unintended consequences, such as unforeseen cognitive side effects or health risks.

As in the previous case, the sufficientarian precautionary principle would recommend the evaluation of the potential risks and benefits of the genetic intervention. If the individual's current cognitive capacity is significantly below the threshold for sufficient well-being, and the potential benefits of the intervention outweigh the potential risks, then we might have reasons that justify the intervention. Our cognitive powers are one of the components of flourishing, and they are a non-instrumentally valuable and constitutive dimension of our overall well-being. However, if the individual's cognitive capacities are already above the threshold for sufficient well-being, the potential risks of the intervention may outweigh the incremental benefits. In such a case, it would be more cautious to refrain from the intervention to prevent unnecessary risks and preserve that individual's current level of well-being. Alternative courses of action to increment one's cognitive capacities might involve, for example, traditional and tested methods, such as education.

In both cases, we see that the evaluation of the potential risks and benefits, the exploration of possible alternative options, and the obtaining of informed consent and shared decision-making to decide whether interventions are justified already presuppose that patients should engage in a collaborative decision-making process with various professionals to discuss these issues.

The multilevel layered structure shows us how the sufficientarian scheme ought to work. It translates the idea that we have a moral duty to increment the developmental power of a creative agent to a sufficient level of flourishing, granting that the worse-off will have priority over other individuals. Not to do so harms the agent whose developmental power we didn't increment along the various thresholds when it was safe and secure to do so. When we think of genetic edition, it is clear how person-affecting harms can occur. Nevertheless, the sufficientarian precautionary principle especially prioritises the prevention of threats that could cause individuals to fall below a satisfactory level of flourishing. Germline genetic interventions will be worth pursuing in cases in which the outcomes will significantly outweigh the risks, for example to correct terrible and severely impairing genetic abnormalities (cf. Koplin *et al.*, 2019, 57). Hence, according to Koplin and colleagues, what best differentiates the sufficientarian precautionary

principle is that it "recommends taking precautionary action against threats to achieving or maintaining a sufficient level of well-being", while other versions of the precautionary principle "commonly recommend taking precautionary action against threats of serious, catastrophic or irreversible harm" (2019, 57). Such a formulation fits well with developmentalism because it goes beyond the typical cost-benefit analyses and recommends that we aim at enhancing people's well-being, at least to a minimal level of flourishing.

The aim of this section is only to show that non-instrumentally valuable goods and activities give us ground to put forward a type of political developmentalism that is legitimised in favouring particular conceptions of flourishing. The goal here is to make a case in favour of state action according to which the state is *permitted and justified* to protect and promote universal access to interventions, and that it *ought* in fact do so in virtue of our moral duties towards the worse-off individuals.

Political developmentalism, however, needs to be complemented with what I'll call developmental counselling. Once we are fully aware of the moral and ethical reasons that require us to help every person flourishing, we have to determine which persons should really pursue genetic interventions. Recall the limb lengthening case: not every young adult male was a suitable candidate to submit to that particular intervention. Similarly, in He Jiankui's case, because of the inappropriate procedures adopted, proper consent was not obtained, nor the well-being of the persons involved (present and future) was taken into account, and much less from a developmental point of view. Since the embryos used were already at a sufficient level of developmental flourishing and the future children would have had a sufficiently good life, there were especially strong ethical reasons against the exposition of the children to the high risk involved in the gene editing (cf. Koplin *et al.*, 2019, 56, n. 51). In the next section, I explore what developmental counselling is and why it is required as the last step towards human nature developmentalism.

g. Developmental counselling

The main reasoning behind this section is the following: individuals who want to make use of biomedical interventions ought to be granted access to them on the condition that they go through a thorough process involving the combined, specialised assistance of ethicists, healthcare professionals, and other intervening agents with the purpose of providing each and every person with relevant and accurate information for them to make an informed decision. The evaluation guiding this process is developmental in its nature because it is anchored in, and always reports to, the substantial notions of human beings as

creative purposive agents whose well-being resides in the ability to exercise, develop, and enjoy our human capacities in the context of a well-rounded life structured around the value of flourishing.

The counselling process also reflects one of the ways in which the practical realisation of the ethical principle devised before is attained: we have moral duties to help other creative agents exercise, develop, and enjoy their capacities by helping them engaging with the plurality of non-instrumentally valuable goods and activities conducive to live a good life. The commitment to the flourishing of all requires us to create and sustain an environment that enables and encourages us to flourish. The counselling process not only assists individuals in navigating the intricacies of flourishing but also engages them in exploring the profound complexity of the very notion of flourishing and the meaning of living a good life. The counselling process is also about these deep questions.[113] One further aspect of counselling that is attuned with developmentalism is that of rational deliberation. Rational deliberation is a crucial condition for moral action, but it is also vital for prudential reasons. Each one of us has "non-moral self-regarding reasons"[114] to promote our own well-being over the course of our lives, and counselling works as a way of furthering our rational deliberation towards the end of promoting the engagement with non-instrumentally valuable goods that increment our well-being. This way, we have a reasonable solution to deal with the challenges posed by conative theories, namely their claims that what is good for the individual is to satisfy his need for pleasure or his informed desires. Developmental counselling highlights that the acting agent ought to understand the moral principles guiding his action as well as his personal and social circumstances, and the consequences of these actions when assessing the available options regarding biomedical interventions. Developmentalism arrives at the conditions for prudential and moral action by engaging in rational deliberation to assess the existing circumstances, the potential consequences of individual actions, and by systematically and reflectively evaluating and discussing values and information regarding all available options. Conative theories engage in a similar process, but the distinctiveness of

[113] The "deep question" was discussed by Gwen Bradford to refer to what she understands to be perfectionism's failure "to offer a satisfying foundational justification for why developing the human essence is valuable" (2016, 1). The objection is that the perfectionist is not successfully capable of explaining *why* a particular list of goods and activities is good and why is developing our human capacities something that is good for us. On Bradford's account, "it is not clear how it [perfectionism] explains why developing the capacities would be good" (2016, 11). Developmentalism tries to answer why things are *good for us* (this being the only possible way in which they *are* good) and why it is good for us to develop our capacities. Take the components of flourishing. Is it better or worse for you to engage with them across your lifespan? For the type of beings we are, to meaningfully engage with the components of flourishing *is* to live well. Developmentalism makes a case for the idea that flourishing *just is* our good, as Bradford puts it concerning Aristotelianism. She also acknowledges that this is a challenge that each and every theory of well-being faces and that perfectionism fares quite good at answering the deep problem, as I think developmentalism does. Taking our creative purposive agency as the fundamentally characteristic trait of our nature delivers the normative grounds for both our prudential and moral duties, to shape our lives in particular ways and to help others do the same, namely helping everybody to engage with the components of flourishing. It is also in this way that the deep problem raises our awareness to the centrality of the deep questions to be addressed in developmental counselling meetings.

[114] This is the way Couto understands prudence and it is also the way I use the term here (cf. 2014, 57).

developmentalism resides in its underlying thesis: to understand what is good for some particular human being, we must have some knowledge of human beings in general and also of that human being in particular.

Regarding reproductive autonomy, the idea is that we ought to ensure that individuals are able to make informed decisions about their reproductive and germline genetic choices (*e.g.*, He Jiankui twins' case). The same goes for biomedical interventions concerning adults and somatic interventions (*e.g.*, the limb lengthening case). For instance, this implies that individuals should have access to extensive information and education concerning reproductive health and family planning. By doing so, individuals can consistently make informed choices, taking into consideration their own personal development as well as the interests and well-being of any prospective children involved. This approach ensures thoughtful decision-making and responsible consideration of all relevant factors. This aligns closely with the approach advocated by Savulescu in his influential article on the principle of Procreative Beneficence and the subsequent public policy it recommends. At present, there is a prevalence of mechanisms designed to promote informed consent, with the goal of enhancing individuals' understanding of the terms and conditions related to the utilisation of specific products and services.[115] For example, in buying over-the-counter drugs, informed consent is made simple: the buyer gets information either from direct instructions of the seller, or from a written leaflet accompanying the product. In cases such as an MRI scan (magnetic resonance imaging), informed consent needs to be coupled with the patient's giving his permission by ticking several boxes in a form that a healthcare professional then authenticates. Due to their complexity, cases involving genetic selection, modification, and enhancements in general will predictably require different and more intricate, comprehensive strategies to facilitate informed consent and make morally sound decisions.

Consider again the principle of Procreative Beneficence. What it prescribes is that parents are "morally required" to select for non-disease genes because these are the most likely to enable individuals to live "the best life". Selection should be made "based on available genetic information, including information about non-disease genes" (Savulescu, 2001, 413). Information is provided by means of prenatal genetic testing, that includes screening tests and diagnostic tests to identify possible genetic disorders. According to the American College of Obstetricians and Gynecologists, with this information beforehand, parents have "time to learn about the disorder and plan for the medical care that the child

[115] A recent study revealed that in some cases, the level of comprehension involved regarding informed consent components is low. In the study conducted by the researchers of this study, only half of the patients understood what voluntary participation, blinding, and freedom to withdraw meant (cf. Pietrzykowski & Smilowska, 2021, 8).

may need. Some parents may decide to end the pregnancy in certain situations" (2021). Other parents decide otherwise and choose not to have any information before the child is born or not to have any testing done at all (cf. ACOG, 2021).[116] In the end, "[t]here is no right or wrong answer" (ACOG, 2021), and this is consistent with the line of reasoning put forth by Savulescu. Couples have "free choice of which child to have", but they need to have access to all relevant information and receive "non-coercive advice as to which child will be expected to enter life with the best opportunity of having the best life" (Savulescu, 2001, 425).

What's at stake here, then, is "moral persuasion". On this view, if a couple goes through the process of counselling and, in the end, decide to have a child whose life will probably not be the best possible life, they should be free to do so (cf. Savulescu, 2001, 425). The same happens with Glover's zero-line view. So, moral persuasion is at the heart of counselling, but the process is non-coercive in its essence. But how does it manifest in the decision-making process? One can think of various challenges to this idea, namely that it will imply significant incursions, even if unintended, on patients' autonomy, which is a key principle of professional medical ethics. Besides paternalistic attitudes that can permeate counselling as a sphere of shared decision-making[117], there are other challenges. I'll look below at some of them using He Jiankui's case as a paradigm case of ill-practice in medical ethics.

In cases of germline interventions, a genetic counsellor would act so as to help manage parents' expectations, providing them expert medical advice about what genetic disorders are, what their effects might be, and how and in what ways would prenatal testing cope with these challenges. On Savulescu's

[116] ACOG's website provides a very informative and detailed glossary on each and every available genetic test, as well as the various genetic disorders and their effects.

[117] Paternalism in healthcare is a much-debated topic in the specialised literature (cf. Gert *et al.*, 2006). I'm here particularly interested in the notion of *shared decision-making*, which I take to be at the basis of the comprehensive model of counselling needed to provide guidance to patients throughout the developmental counselling process. Shared decision-making involves "an active dialogue between physician and patient with the goal of arriving at mutual understanding and agreement on a treatment plan" (Drolet & White, 2012, 582). Compared to *paternalistic* models and *respect for patient autonomy* models, the shared decision-making model scores better in terms of patient involvement, leading "to improved treatment adherence, disease coping, and quality of life" (Drolet & White, 2012, 582). For my purposes here, I'll leave aside the dichotomy treatment/enhancement. Of particular interest is the idea that "utilizing paternalism selectively in decision making is not only necessary but obligatory" (Drolet & White, 2012, 584). Because medical decisions frequently carry significant emotional weight, leading to feelings of distress, confusion, and conflict among patients and their families, and since these emotions can hinder their willingness and capacity to actively engage in the decision-making process (cf. Drolet & White, 2012, 584), developmental counselling should not be conceived as a purely *respect for patient autonomy* model, and neither as an overly *paternalistic* model. The developmental model acknowledges that medicine cannot be viewed as a straightforward "consumer-producer market", therefore excluding a "fully patient-autonomous system" (cf. Drolet & White, 2012, 584). While developmentalism highly emphasises the value of patient's autonomy, it also needs to harmonise it with other valuable constitutive principles of medical ethics that express the developmental values discussed so far, such as nonmaleficence and beneficence. In other words, a developmental model of counselling as a collaborative reflective process of discussion might in very specific cases benefit from the use of selective paternalism to reach optimal developmental decisions, provided these are openly discussed between patients and counselling professionals. Possible contributions from the ethics of nudging, social robotics, and the use of AI systems can also play a role in assisting patients and professionals in counselling sessions.

account, doctors have a special moral obligation of trying to persuade couples whose "irrational fears" (*e.g.*, the giftedness of Nature, God's will) prevent them from using genetic tests and thus jeopardise the well-being of the child (cf. 2001, 426). In cases such as these, moral persuasion can be understood as a form of soft or selective paternalism.[118] Where prudential, self-regarding choices are ill-informed by such irrational fears, but also by ignorance, intervention might be justified and is not presumptively objectionable (cf. Hanna, 2018, 149). In these cases, interventions are aimed at preserving or improving our capacities. In the preceding chapter, I emphasised the significance of experiments in living to Mill and how he acknowledges their role in promoting flourishing. I linked this to the need to create and sustain environments that enable and encourage us to flourish as creative agents. My intention is to claim that freedom is only one of the many prerequisites of one's development, as Mill himself admits (cf. 2003, 122-125). The various prerequisites of self-development can often conflict and prevent us from developing as creative agents. For example, when one chooses to spend his life as a couch potato, devoted only to indulge his lower pleasures, it is presumed that this person is not living a well-rounded life (cf. Ferdman, 2019, 9). To engage with the components of flourishing to live a well-rounded life, we need certain prerequisites, like a relatively long-life span, good health, and a number of physical, deliberative, moral, social, and affective capacities. If we claim that our creative purposive agency shouldn't sanction plans aiming at its own destruction, and if we recognise that certain forms of negligent, self-destructive, or imprudent behaviour put at risk our ability to flourish, we may think it is "worth sacrificing some freedom for the sake of other prerequisites of individuality, and if so, individuality does not speak univocally against paternalism" (Hanna, 2018, 52).

I mentioned only the medical and ethical advice a patient can obtain from a genetic counsellor. However, to provide effective developmental counselling, it is necessary to establish interdisciplinary counselling teams comprised of professionals from diverse fields of expertise who can guide patients throughout multiple different stages of observation. This is yet an overly simplified outline, but it is easy to see why counselling is a fundamental pillar of the developmental approach to procreative freedom and interventions in general. Since the role of counselling in reproductive decisions is to help parents navigate highly technical, complex, and sensitive medical, ethical, and sometimes philosophical issues, counselling teams need to be interdisciplinary and especially prepared to engage with parents in a collaborative, reflective discussion. This approach owes much to the collaborative care model that combines various

[118] Soft paternalism is a well-known category developed by Joel Feinberg (cf. 1986). It describes a voluntariness-based view according to which it is permissible to intervene in people's choices if these are non-voluntary or the result of imprudent behaviour, whereas hard paternalism entails intervening in an individual's voluntary but unwise behaviour.

interprofessional practices (cf. Schot *et al.*, 2020) and is a conventional approach in areas like psychiatry and psychotherapy (cf. Raney, 2015; cf. Morley & Cashell, 2017). Collaborative care brings together physicians, geneticists, and psychologists to accompany patients and provide them a holistic approach to their healthcare needs. The role of these collaborative teams is to help individuals have a broad and comprehensive understanding of the circumstances and the consequences of their actions, and to provide them the tools to appraise all available options and choose the morally best among them. As expected, developmental counselling will also include professionals such as ethicists, bioethicists, philosophers, religious representatives, psychologists, social workers, human rights activists, and possibly people who were previous patients.[119] An interdisciplinary approach of this sort to developmental counselling is meant to improve the support and guidance provided to individuals who decide to submit to interventions. The rational deliberation this process entails is intended to guide patients beyond what might be their initial desires (*e.g.*, regarding the type of child they desire to bring into the world, or the degree to which an intervention can help enhance one's social skills), as well as in identifying their possible biases and misconceived assumptions. It helps parents exploring the potential impacts of their choices on their future children, on themselves, and on society as a whole. Conceived as such, developmental counselling is a comprehensive approach. But this still tells us little about the process itself. I will focus on this problem below.

For now, let's look again at He Jiankui's case and why this is a case of ill-medical practice on various levels. The consent process is especially problematic because the consent obtained did not meet the standards of an ethically and medically correct consent process. Additionally, transparency and an independent evaluation and compliance with internationally accepted ethical guidelines were all manifestly overlooked (cf. Krimsky, 2019).[120] He recruited couples in which the father was HIV positive and the mother HIV negative with the aim of giving birth to a HIV-negative child. This would also be possible by means of IVF, but these procedures are prohibitively expensive in China, preventing many couples from using them (cf. Schaefer, 2018). To better persuade couples, He offered them free IVF and sperm washing to prevent transmission of HIV, as well as medical insurance, health insurance for the babies, an additional US$40,000 to cover the costs of treatments, and US$7000 to cover medical expenses and compensation for any harm caused by the research. These monetary values represent more than four times the average annual Chinese wage (cf. Schaefer, 2018; cf. Savulescu & Singer,

[119] This provides only a very general conception of these teams. Their specific makeup may need to be tailored to the unique cultural, religious, philosophical, and ethical contexts of every particular socioeconomic background.

[120] Sheldon Krimsky's article "Ten ways in which He Jiankui violated ethics" delivers an insightful and detailed account on how the experiment violates "several ethical norms, including international consensus guidelines, national regulations and well-established principles of bioethics" (2019, 19).

2019, 221). Hence, what's here at stake is a problem of undue inducement in which the assessment of participants regarding the risks and benefits of the research are significantly distorted and striking moral pressure exists. In this case, our knowledge is very limited and there are many risks and uncertainties surrounding the experiment, and this alone would recommend "society should be especially concerned about the distorting effect of such a large reward on the participants' provision of free and informed consent" (cf. Schaefer, 2018). But this was not the only problem since it is not clear whether the couples truly understood the conditions under which the experiment should take place. For example, they "were offered the choice of having either gene-edited or -unedited embryos transferred", but were they aware that "editing was not necessary to protect their child from HIV" (Savulescu & Singer, 2019, 221)? So, not only could these couples be under extremely high moral pressure, but it is also possible that they didn't understand the complexity of the procedures, its risks, and possible consequences.

To overcome some of the difficulties already raised, I believe developmental counselling warrants what some have already called "an enhanced informed consent process" (Smith & Sisti, 2021, 807). This expression was adopted by researchers conducting studies on the use of psychedelic drugs (specifically psilocybin): because of the considerable difficulty in evaluating and understanding the effects of these drugs beforehand, a *more comprehensive consent processes* than that used for prescribing other psychotropic drugs is required (cf. Smith & Sisti, 2021, 809).

In a very recent book, Emma Gordon argued for counselling as playing a central role in facilitating enhancement (cf. 2023, 65-78). She acknowledges that counselling is a well-established practice (*e.g.*, in psychotherapy) and puts forward a positive proposal that makes use of counselling as a tool for a responsible use of enhancements. Despite restricting her case to a positive proposal on the enhancement of "romantic and familiar relationships" (2023, 12), her model can serve as a guiding framework for enhancing other "valuable components of human life" (2023, 79).

One should not be surprised by the relevance of counselling and its use in the specific context of human enhancement. In his 2001 article, Savulescu already discussed the "Principle of Non-Directive Counselling", according to which "doctors and genetic counsellors should only provide information about risk and options available to reduce that risk. They should not give advice or other direction" (419). Savulescu acknowledges and criticises the neutrality of this principle that mandates doctors to remain silent between the various options parents have, even if some of them are clearly optimal to increment the developmental power of the future child. The idea of counsellors refraining from giving any recommendations or guidance to their patients doesn't fit with either the principle of procreative beneficence or developmental counselling. Counselling teams have a moral duty to provide guidance and

recommendations to patients. For Savulescu's principle, this amounts to the selection of the child who is likely to have the best life: "[s]election for non-disease genes which significantly impact on well-being is *morally required*" (2001, 425). The principle of non-directive counselling could end up having counterproductive results, with parents feeling overwhelmed by the lack of guidance and being incapable of making advised decisions when faced with difficult ethical dilemmas.

For developmentalism and developmental counselling, what is morally required is that counselling teams facilitate the development of the patient towards a flourishing life, whether they are adults or parents seeking interventions for their prospective children. This means that counselling needs to place special emphasis on the components of flourishing and how and in what ways we can increment our developmental power to engage with them more fully. Accordingly, developmental outcomes are crucial to developmental counselling. The developmental interests of the child and the reproductive autonomy of parents are thus accommodated by the collaborative and reflective developmental shared decision-making model.

Both the developmental principle and Savulescu's procreative beneficence principle exhibit significant similarities in virtue of both being welfarist approaches that prioritise the well-being of the agents. Naturally, both principles share the goals of promoting and facilitating a good, flourishing life. Moreover, both emphasise the need for high ethical standards in operating procedures and the importance of a collaborative, reflective counselling process during which patients have access to proper information, resources, and support with the aim of enabling them to make informed, voluntary decisions. But they differ in important aspects. Despite its underlying welfarist ethical framework, procreative beneficence is an approach to the ethics of reproductive decision-making, thus rendering it too limited in its scope and moral guidance to adults seeking interventions. The developmental principle, however, offers a more holistic approach that reflects the all-encompassing nature of the components of flourishing. It also seems that procreative beneficence places too much emphasis on individual responsibility and the choices of prospective parents regarding the genetic makeup of their children. It is, as Michael Parker argued, an overly individualistic principle (cf. 2007, 282). The developmental principle, in advocating for a comprehensive counselling process, aims at stressing that besides individual development, there is an important societal dimension that ought to be considered by counselling teams and patients. Here, the aim is to reflect the very social nature of our creative purposive agency and the ways in which we flourish as such in society, which reports to "the social embeddedness of the concept of the good life and related

concepts" (Parker, 2007, 283).[121] Likewise, it signals that our well-being is comprised of a complex and comprehensive interrelation of physical, cognitive, emotional, social, and moral dimensions that the excessive focus on selecting certain traits and optimising genetic outcomes purported by procreative beneficence might tend to let fall between the cracks. Hence, while procreative beneficence is focused on selecting the child who is likely to have the best life possible, developmentalism is focused on facilitating the development of the child towards a flourishing life. And it is important to say at this point that the *best life possible* and a *flourishing life* might correspond to different conceptions of flourishing. Equally important is that procreative beneficence places more emphasis on the moral obligations of parents to select the child with the best life possible, while the developmental principle places more emphasis on the role of the counselling team in facilitating the children as well as the adult patients' development towards a flourishing life.

The notions of the "best life possible" and a "flourishing life" might be more elusive and subtle than it looks; they don't have the same meaning nor convey the same idea regarding what is good for creative agents. Instead, they convey different meanings and report to different ideas that are related to the principles we're examining. So, for example, the best life possible especially reports to the idea of selection[122] and the moral obligation of parents to select their children based on the capacities the embryo displays. But, as Parker argued, the best life possible is most likely an underdetermining, paradoxical, and self-defeating concept. Underdetermining because it is very difficult to identify what the best life possible is or will be; paradoxical because a good life is not necessarily one in which everything goes well, or a life with no moral or biological flaws; and self-defeating because to pursue the *best life*, like the pursuing of perfection or cultivating a drive for permanent self-improvement towards an idealised notion of excellence or perfection, can be counterproductive (cf. Parker, 2007). A flourishing life, on the other hand, reports to a lifelong, holistic *process* in which the promotion of the person's well-being is understood as a developmental and incremental progression towards a permanent and meaningful engagement with the components of flourishing. This process doesn't report to ideas of perfection or the best life possible for the various reasons discussed before.

So, on the one hand, we have a view with a special concern for selecting for the best characteristics or traits conducive towards and informed by particular conceptions of the best life possible, while on the

[121] It is also important to mention the economic and political embeddedness of these concepts of the good or flourishing life. I looked at this in chapter 3, when examining the close relationship Macpherson established between ontology, labour, a political theory of property, and the democratic right to a kind of life that human beings as creative purposive agents ought to be guaranteed to flourish as such.

[122] We saw above that developmentalism places more emphasis on manipulation or modification because of the direct, personal reasons that involve the incrementing of developmental power.

other hand the concern lies in a more holistic approach that emphasises the possibilities for engaging with the lifelong and socially and politically embedded developmental process of flourishing. More exactly, because developmentalism conceives a good, well-rounded human life as one characterised by the development of our various human capabilities, the developmental principle recommends that instead of prioritising the selection of specific traits believed to increase the well-being of the future child, we focus on promoting the holistic development of the whole person.

We can see these differences more clearly by means of an example. A couple may decide to use technologies such as preimplantation genetic diagnosis (PGD) and *in vitro* fertilization (IVF) to select an embryo with specific traits like higher intelligence or athletic ability. This is what the procreative beneficence principle recommends: as long as a gene for intelligence impacts on well-being, there are strong moral reasons to select for it (cf. Savulescu, 2001, 423). There are moral reasons to prioritise the selection of genes that promote the well-being of the individual. For developmentalism, however, the use of these technologies goes beyond the act of selection for specific desirable traits. The counselling team would focus instead on providing guidance on how and in what ways enhancement technologies can increment the developmental power of the individual and enabling him to live a life of engagement with the various components of flourishing over the course of his life. Hence, either for the purpose of removing genetic disorders or for enhancing capacities (charitably assuming we can reasonably separate these categories), the collaborative reflective process of the developmental counselling team would primarily be guided by a holistic concern with the general and lifelong development of the person as a creative agent. If we take the involvement with the components of flourishing as an example, developmental counselling would have to attend to the need for a balanced and meaningful engagement with different goods and activities. This would have to reflect the individual, social, and political nature of our development as creative agents. Recall Ferdman's emphasis on the promotion of experiments in living and her proposed perfectionist basic structure that incentivises the creation of open-minded environments, which in turn encourage frequent experimentation (cf. 2019). This is an approach that aims at facilitating holistic development. As a result, developmentalism is aiming at something more than the elimination of disease-genes. It takes a broader perspective by examining the various aspects of an individual's life and how an intervention affects their overall well-being, thus identifying what hinders their flourishing.

The developmental principle is the condensed expression of the developmental morality presented thus far. It has a comparative purpose (*i.e.*, of comparing it to other existing principles in reproductive ethics, like the principle of procreative beneficence), but it also enables us to shed clarity into the role of developmental counselling teams. It is worth looking more closely at Gordon's work as she provides an

in-depth analysis of counselling applied to human enhancement. This will help pave the way for determining the role of developmental counselling teams.

Vital to Gordon's account are the six desiderata resulting from the six main objections raised by bioconservatives against the project of human enhancement. These six desiderata report to the bioconservative concerns with the values of achievement, freedom, agency, human nature, authenticity, and equality (cf. Gordon, 2023).[123] In the previous chapters, especially in 1 and 2, I looked at these and other challenges posed by different bioconservative authors. Notably, the aim of chapter 3 was to advance a conception of human nature consistent with the project of enhancement, and in chapter 4 we saw how developmentalism provides an ethical framework for understanding the six desiderata in the context of a flourishing life.

Gordon argues that although the various bioconservative objections to enhancement are indefensible and insufficient, they still raise valid concerns that should be considered. Each of these dimensions, Gordon argues, "was shown to motivate its own plausible theoretical desideratum that a viable positive enhancement proposal should satisfy" (2023, 62).[124] The assumption under which Gordon

[123] One thing I believe is important to mention is Gordon's caution in referring to human nature and not simply to human dignity. In fact, references to values such as human dignity, sustainability, or cultural diversity are missing throughout her book, but concerning human dignity, this is only because Gordon committedly engages with the notion of human nature. Human nature is best understood as encompassing the fundamental qualities and characteristics that define us as human beings. It is more accurate to perceive human dignity as contingent upon our human nature and dependent on it. In chapter 3, I presented my own account of human nature, from which I derived the developmental theory of well-being that, in turn, delivers us an account of human dignity. Recall Fukuyama's discussion regarding these two values: "[i]f all human beings are in fact equal in dignity, then X must be some characteristic universally possessed by them" (2002, 150). For developmentalism, X is our creative purposive agency, "the most basic meaning of what it is to be human" (Fukuyama, 2002, 150). Thus, we see that human nature forms the basis of what we value about human beings, it is the very bedrock of human dignity. This explains why references to human dignity are absent from Gordon's book; not because she adheres to philosophical and ethical views that stand in opposition to essentialist views of human nature or that conceive our inherent worth as human beings as something independent from judgments about the specific qualities or characteristics of human nature.

[124] It is useful to look at the constraints the six desiderata prescribe, according to Gordon.

> Achievement-theoretic desideratum: A positive proposal for pursuing human enhancement should not always recommend enhancement in cases where one's objective could (easily enough) have been achieved without the aid of the enhancement.
>
> Freedom-theoretic desideratum: A positive proposal for pursuing human enhancement should *ceteris paribus* avoid the recommendation of enhancements that would improve performance only at the expense of significantly undermining one's freedom.
>
> Agency-theoretic desideratum: A positive proposal for pursuing human enhancement should *ceteris paribus* ensure that additional capacities be cultivated alongside an understanding of the ways in which new kinds of responsibilities would be expected to be generated by the enhanced capacities, and how to be attuned to them.
>
> Nature-theoretic desideratum: A positive proposal for pursuing human enhancement should *ceteris paribus* ensure that individuals pursuing radical and unalterable enhancements have a suitable understanding beforehand of the ramifications of any such unalterable changes.
>
> Authenticity-theoretic desideratum: A positive proposal for pursuing human enhancement should *ceteris paribus* ensure that the greater the enhancement involves a radical improvement, the more consideration is given to ensuring that the enhancement is in alignment with values that one would endorse on reflection.

is working is that the five values of achievement, freedom, agency, human nature, and authenticity "*contribute* to (or are aspects of) personal well-being" (2023, 60). She treats the desideratum of equality differently because it is, at the same time, self-regarding and others-regarding (cf. 2023, 60).

Hence, her argument is that a moderate bioethics of enhancement needs a model of counselling that engages directly with the desiderata identified above. Gordon's "enhancement counsellor" plays a facilitating role in assisting "the subject of the enhancement in gaining the kind of understanding on which valid consent to enhancement would be predicated" (2023, 68). But to do so, the counsellor has to have a unique set of qualities that enable him to facilitate the objectives of the enhancement programme in collaboration with the patients. To explain the role of the enhancement counsellor, Gordon focuses on three of the six desiderata: agency, nature, and authenticity. These are the desiderata that demand the counsellor to obtain firm assurances of informed consent from patients, and this is not surprising given not only that each of these three dimensions are deeply interrelated, but that they report to our own self-understanding as human beings, our agency, and the significance of our life. At a minimum, obtaining consent for voluntary enhancement in a way that satisfies the three desiderata, the patient must possess a satisfactory comprehension of the specific impact of the enhancement, along with an understanding of whether the resulting effects align with the values he would reflectively support (cf. Gordon, 2023, 67).

This informs us of a crucial further aspect. The desiderata being considered here require more than medical expertise if we are to obtain informed and valid consent. Due to the specific nature of these desiderata, we need an enhanced informed consent process that, I believe, is best accomplished by the sort of counselling teams along the lines described above. The process to obtain enhanced consent will involve (i) the discussion of the new responsibilities that interventions will generate and how the agent will be attuned to them; (ii) the implications of possible unalterable changes; and (iii) exploring whether the results of an intervention align with the values that the agent reflectively endorses (cf. Gordon, 2023, 73). Each of these three predicaments aligns with the desiderata of agency, nature, and authenticity, respectively.

Take authenticity as an example. The bioconservative argument against interventions on this respect is that they will erode our capacity to be and to act authentically, that our natural, "true self" is undermined or compromised in some relevant way. It is Jonathan Pugh and colleagues who define authenticity as "the property of living in accordance with one's "true self"" (2017, 640). They recognise

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Inequality-theoretic desideratum: A positive proposal for pursuing human enhancement should *ceteris paribus* take into account opportunities for inequality-offsetting forms of (voluntary) moral enhancement in cases featuring residual racism and other discrimination patterns (2023, 59).

that to make sense of the idea of a true self, we need to establish what is true and what is peripherical about the self. One can ask what does developmentalism say about this. From my argument in the previous chapters, we can retain that, if we are to make any sense of the concept of authenticity, it is only in its relationship to our creative purposive agency. We are and act authentically if we are able to enjoy the exercise and development of our capacities. On human nature developmentalism, it seems that we have *prima facie* reasons to say that the less developmental power we have, the less authentic we and our actions can be. But this is a weak claim because unless our developmental power amounts to zero, we can, even with little developmental power, still be and act in authentic ways (*i.e.*, one can, to various degrees, still engage with some components of flourishing and exercise and develop some capacities in basic ways). We can expand this reasoning and say that authenticity obtains provided that we use and develop our capacities in non-contentious or non-exclusive ways, and that our creative agency is not contravened, but even this claim seems to be unsatisfactory. Maybe this is due to the fact that the authenticity of our being and actions is not of a purely negative or prudential nature, as it results from this description. It has also to reflect our interpersonal moral and ethical nature, as well as the duties it entails, namely the promotion not only of our agency, but that of other agents as well. This negative and positive framework, I think, gives us an accurate picture of what authenticity means to human nature developmentalism. Hence, we can say, for example, that the life of a couch potato is not as authentic as the life of someone who lives a well-rounded life. There is a distance between the use of merely peripherical, passive traits involving the former that distances it from the central true self that is visible in the latter, if Pugh and colleagues' association of both terms is tenable (cf. 2017, 656, n. 14).

In the meanwhile, note that in no way is this characterisation of our nature and agency straightforwardly incompatible with the use of biomedical interventions. If anything, we have, as we saw in the previous chapters, a normative grounding for determining the permissibility or impermissibility of interventions. Once we establish that what we need is to assure equitable and universal access to interventions under the conditions of justice previously established, the inclusion of developmental counselling becomes the ultimate requirement to be fulfilled. Its aim is to evaluate the conditions under which interventions can be performed safely and efficiently, and its primary focus lies in obtaining informed consent and a comprehensive understanding of what's at stake when one decides to submit for interventions. As we saw, it also aims at assisting individuals in becoming more efficient converters of resources into well-being. Subsequently, the reflective examination of the desideratum of authenticity exposes the profound interconnection between this and those of nature and agency.

What real guidance does this give us concerning authenticity? Above all, it establishes a unique normative framework for developmental counselling consistent with the prudential and moral prerequisites of human nature developmentalism. It finds a sound reference point in the ethical conception of the human being as a creative purposive agent, thus deepening the relationship between our self-understanding, our actions, and our essence. Thus conceived, all of Gordon's desiderata are plainly visible here. For this reason, developmental counselling teams operate under the specific moral and ethical framework of developmentalism.

Finally, something needs to be said about what methods and strategies counselling teams should adopt. At this point, too, Gordon's recent theorisation on the facilitating role played by the enhancement counsellor gives us an important approach that the developmental model can adopt and adapt. Here, the challenge is: given the outline of the developmental strategy, what methods are the most efficient and safe to obtain enhanced consent from patients? On this matter, Gordon draws lessons from the psychotherapy literature. The problem she addresses is the following: "how a counsellor might go about facilitating understanding of complex issues with a client by looking at some models and techniques where this has been successful in psychotherapy" (2023, 69)? The complex issues ultimately report to the desiderata and focus on the "new kinds of responsibilities" that enhancements generate, and whether enhancements align with our values upon reflection or not (cf. Gordon, 2023, 69).

To make clear the relationship between the strategies the developmental team ought to employ with patients and the moral and ethical content of human nature developmentalism, it is worth recalling an argument I made in chapter 3. There, I asserted that the ontological framework that takes human beings as essentially creative purposive agents stems from a belief which is largely empirically or logically unverifiable. Our moral judgments and what we consider to be worth preserving about our nature is ultimately a subjective matter heavily influenced by cultural, historical, and ideological factors. Moral reasoning and deliberation play a crucial role in shaping our conceptions of human nature, and this helps explaining Macpherson's belief that any ontological framework is ultimately a question of selecting between morally preferable concepts of what human beings are (cf. Lindsay, 1996, 18). We saw why – and this is indeed Macpherson's life goal – we have strong reasons to prefer the developmental notion of the human being rooted in Aristotelianism and ethical liberalism over the possessive individualist conception rooted in the late modern capitalist market morality. Macpherson's argument is that we have valid reasons to prefer the former because it better represents the kinds of beings we *want to be* and the types of lives *we want to live* (cf. 1973, 4-5). My intention was not to identify a number of specific traits that single out individual human beings from all other living organisms. Creative purposive agency fulfils

this intention, but its primary aim is offering us an ethical and comprehensive understanding of the human being and what constitutes our well-being.

To a large extent, the role of developmental counselling teams also bears on this problem: what kinds of beings are we, what goods and activities do we value *qua* creative purposive agents, and what kind of lives do we want to live? In 2019, Francisco Lara and Jan Deckers published an article in which they debated the potential of Artificial Intelligence (AI) to function as a Socratic assistant for moral enhancement (cf. 2019). Moral bioenhancement, as we saw, is probably one of the most controversial dimensions of human enhancement. Nevertheless, because human beings aspire to be morally better, it is expected that we use tools such as AI to achieve that goal. The relationship between morality and human flourishing explains why human beings should do so, provided these tools comply with the developmental conditions established before. Lara and Deckers' proposal is that we use a computerised assistant that asks questions and provides "relevant information to help the human agent to reach better moral judgments and realisable behavioural options that cohere with those judgments" (2019, 286). The aim is twofold: to exercise and stimulate the "cognitive skills necessary for morality and to motivate agents to behave according to what they think is right" (2019, 286). Also in this sense, AI can be seen as a possible future substitute or auxiliary to developmental counselling teams, if correctly trained to act as such. For example, when faced with a moral dilemma, the agent would have access to computerised, personalised, and up to date information prepared by the AI for him to make moral decisions by his own. The idea is that the agent should hold a position of privilege and be the primary source of proposed solutions for these dilemmas. The solutions would subsequently undergo an examination process, allowing the Socratic AI system to pose pertinent questions and uncovering potential flaws in the arguments (cf. Lara & Deckers, 2019, 282). Here, too, the strategy is a collaborative and formative dialogue between the agent and the machine focused not on presenting options from which the agent ought to select the best one, but to assist the agent in developing ethical reasoning abilities. These features distinguish Lara and Deckers' Socratic assistant from other alternative models.[125]

However, Lara and Deckers' exceedingly optimistic conclusion that people would let the judgment co-produced with the AI assistant influence their judgment *more than* those co-produced with personal assistants would merit further critical and empirical analysis. There are at least a handful of conceivable difficulties this model must cope with. The sensitive and complex nature of the matters discussed in developmental counselling might recommend that only human professionals are involved in the process. So, what shape or form should the machine adopt? For example, one could argue that not all people are

[125] Among these, Savulescu and Maslen's (cf. 2015) and Giubilini and Savulescu's (cf. 2017) are probably the most well-known alternatives.

familiarised with the technological apparatus required for an AI driven counselling session, and that this would raise complications to the collaborative reflective and shared decision-making process itself. One way of tackling this problem would be to eliminate the communication barriers between persons and machines (*e.g.*, eliminate the requirement of inputting commands or prompts into a computer). Still, some people might find it challenging or uncomfortable to expose their feelings to a machine. They might perceive it as a mechanic device incapable of displaying any *real* emotional attachment and empathetic understanding of one's concerns, or incapable of displaying a nuanced contextual understanding of one's personal circumstances. One could also feel that the AI assistant is a simulating machine that simulates feelings, like empathy and understanding, that it is a deceiving device, thus making us distrust her judgements and guidance.[126] Even if we could have a virtual assistant that genuinely looks and acts like a human being, it is plausible that these challenges wouldn't be dismissed, as the uncanny valley effect seems to suggest (cf. MacDorman & Chattopadhyay, 2016).

For all that, there are sound reasons to suppose that patients would doubt that the final judgments and guidance of the AI assistant are more persuasive than the judgments and guidance that result from the human-based reflective, collaborative, and shared decision-making model I'm addressing here. It is questionable that patients would feel "proud" of the decisions they "give birth to" by means of an AI assistant and perceive them as "completely theirs" (cf. Lara & Deckers, 2019, 285). These worries, however, don't seem to be enough to build a robust case against the use of AI assistants in developmental counselling. We cannot dismiss the possibility of patients feeling more comfortable exposing their feelings to a machine, or the idea that machines can be more trustworthy than humans (cf. Borenstein *et al.*, 2017, 127). Still, it can plausibly be argued that AI assistants can be one of the methods used under professional supervision and as a non-mandatory or voluntary step integrating the counselling process to obtain enhanced consent from patients.

But to what strategies can AI assistants be applied to as a method? The core of Lara and Deckers' approach involves engaging in a Socratic dialogue. AI assistants should be employed to "ask questions and provide relevant information" (2019, 286) to the patients with the aim of helping them developing their arguments by interacting with the machine. In this way, it is expected that patients develop their moral skills and be motivated to act morally after having reflected on what is right and wrong. Certainly, the act of asking questions should be included in the strategic plan adopted by a counselling team to

[126] These concerns apply, of course, to human assistants or counsellors as well. There is a vast literature on this topic. Here, I mention only a few interesting and illustrative studies on this matter published in a book edited by Patrick Lin, Keith Abney, and Ryan Jenkins, in 2017: cf. Meacham & Studley, 2017, 97-112; cf. Kirkpatrick *et al.*, 2017, 142-156; cf. Borenstein *et al.*, 2017, 127-141.

make sure that patients are able to give their enhanced informed consent to interventions. Questioning appears as a natural strategy to address the challenges posed by interventions to the three desiderata of agency, nature, and authenticity and the discussion they entail regarding the new responsibilities generated by interventions that can result in unalterable changes to the person and her values. Asking questions, instead of making assertions, invites the patient to express and reflect in his beliefs and consider the vast array of relationships between the multiple facts, past and present. They also serve to gain greater clarity and to detect the level of understanding the patient has of his own situation and purposes.

Unsurprisingly, *questioning* is Gordon's first strategy to pave the way towards a positive enhancement proposal (cf. 2023, 70-71). Many of her insights in this regard are based on research findings from the field of cognitive therapy, where questioning plays a significant role. The first goal is that we can maximise the effectiveness of the questions being asked to patients to elicit their knowledge and comprehension. This will require us to look at the type and content of the questions as well as to the questioning techniques. Regarding the latter, Ian James and colleagues focus on two techniques: Socratic questioning and vertical arrow restructuring. The first is used primarily "to clarify meaning, elicit emotion and consequences, as well as to gradually create insight or explore alternative actions" (2010, 85). Vertical arrow restructuring is used to explore underlying meanings and beliefs. The idea is to critically evaluate our thoughts to understand the core principles at their roots. As regards the form of the questions, we can expect different forms to fulfil different functions. For example, contrary to closed questions, open questions will allow for a more comprehensive exploration of patients' thoughts, feelings, and experiences. Patients are invited to provide detailed and subjective answers, enabling them to get in a self-reflective process that will allow counsellors to uncover possible underlying concerns and to get a deeper understanding of the patients' perceptions and expectations.

It is also important that questions go beyond the simple recollection of information and require that patients have the time to critically process information. This can be done throughout various counselling sessions with different professionals to allow patients to continually question their initial assumptions and beliefs from different viewpoints. Together with Socratic questioning, downward arrowing is meant to establish the relationships between patients' thoughts and their consequences in a shared reflective space in which patients evaluate their beliefs (cf. Gordon, 2023, 71).

Given the diverse composition of the counselling team and the predictable extended length of the counselling process, the questioning process will necessarily be multi-layered and comprehensive. We can look at James and colleagues for guidance on this matter, and particularly to the type of questions

that patients can expect to consider. For example, questions of the type "what would happen if...?" or "What's the worst that could happen if...?" (Gordon, 2023, 71; James *et al.*, 2010, 86) are meant to delve into patients' values, expectations, and motivations, promoting their understanding of their reasons to submit to interventions and their counterfactual thinking. This gives us some guidance to think about the questioning process that a developmental counselling team would be expected to conduct. A suggested general framework would imply exploring the following topics: (i) one's motivations and expectations regarding human enhancement; (ii) how one envisages his life after undergoing an intervention and in what ways one anticipates the intervention will positively impact his overall well-being and quality of life; (iii) what values and beliefs about human nature and the moral and ethical implications of genetic interventions does one hold; (iv) what potential risks and limitations associated with human enhancement does one envisage and how does one weigh these *vis-à-vis* the potential benefits; (v) how does one predict the result of interventions will affect his relationships with others; and (vi) what ethical dilemmas one faces when thinking about enhancement and what are the possible ways to navigate complex situations.

To elaborate further on this general framework, one should expect the developmental counselling team to focus on problems that directly require patients to engage in a critical evaluation regarding the very meaning of one's essence as a creative purposive agent, what a well-rounded life is, and how interventions contribute to one's flourishing. In facilitating understanding of these topics, the counselling team is expected to obtain information regarding the patients' level of understanding of the implications of enhancement. Hence, further exploration into the following topics might help attaining this goal: (i) how one plans to navigate the potential risks and challenges of enhancement while striving for a flourishing, well-rounded life; (ii) how one perceives his creative capacities, his potential for personal development, and how enhancement contributes to the development of one's creative purposive agency; (iii) upon reflection on the various components of flourishing, which areas does one feel could benefit from enhancement and why; (iv) in what ways does human enhancement align with one's values and goals for a flourishing life and how does enhancement empowers him to engage more deeply with the components of flourishing; and (v) how one balances the pursuit of enhancement with considerations of moral and ethical responsibility and the potential impacts on one's relationships with others.

In addition to questioning, a second possible strategy, according to Gordon (cf. 2023, 71-72), is *interpreting*. Once we have a promising questioning framework, one of the ways in which the counselling team can facilitate understanding by reflectively working with patients is by outlining different possible interpretations for them to process, allowing them to adjust or to reject them (cf. Gordon, 2023, 71).

General or specific interpretations are best understood as a process that consists of observations or the presentation of hypotheses that require patients to go beyond the insights they already have (cf. Sharpless, 2019). In his comprehensive analysis of the literature on interpretation, Brian Sharpless developed a six steps-procedure with which counselling teams can work, having in mind that the goal is for patients and counsellors to work together in a relationship that, simultaneously mitigates the risk of authoritative counselling, and enables patients not to look for *the* right interpretation, but to gain a critical insight of the various interpretations possible (cf. Barrot, 2013, 379). Hence, Sharpless' six steps of interpretation involve (i) the generation of clinical material by the patient; (ii) the systematic organisation of the material by the therapist into one or more problems; (iii) the planning of the material into one or more possible interpretations by the therapist; (iv) the presentation of preliminary interpretations to the patient; (v) the therapist listens and evaluates the interpretations of the patient seeking support or rejection; (vi) the therapist can start the process all over again or provide further interpretations to help patients clarify or gain different perspectives of their insights (cf. 2019, 156).

By the time counsellors get to step (iv), in which they present preliminary interpretations, they are expected to have good insights into what patients know or do not know and to what their beliefs and expectations might be. Depending on the characteristics of the patient, interpretations can then be presented more or less tentatively, in more or less simple indicative sentences.[127] If we take the five questions in which patients consider the range and scope of interventions in their relationship with their creative agency and the potential to flourishing, interpretation could be tentatively phrased in the following ways: "Could it be the case that...?" or "I wonder if..." (cf. Gordon, 2023, 72; cf. Sharpless, 2019, 163). Additionally, if the hypothesis appears too perplexing, the patient could be asked to rephrase it in his own words. Overall, the interpreting process entails that from the collaborative and reflective discussion results that patients can gain a greater understanding of the challenges interventions pose to the various dimensions of our life. The process of accepting, revising, and rejecting interpretations is expected to help patients gaining a good level of personal understanding so they can give their fully informed consent to interventions.

We can recall cases like that of limb lengthening or Victoria Gray to illustrate how interpreting works as a process of presenting patients with different hypotheses. Consider the following possible interpretations given by the counselling team: (i) how do you think your overall well-being and flourishing would be influenced if an intervention unintentionally results in you losing the ability to experience particular emotions, like empathy or anger?; (ii) what if an intervention radically alters your cognitive

[127] Sharpless calls out our attention to the fact that there is disagreement about this in the literature (cf. Sharpless, 2019, 175, n. 11).

abilities, making you extremely intelligent, but curtails your ability to establish meaningful social and emotional relationships with others?; (iii) could it be the case that in order to enhance certain moral traits, one might need to sacrifice his autonomy and freedom to fall, *i.e.*, the capacity to deliberately act in morally questionable ways, even if to attain a greater good?; (iv) what if an intervention enhances your physical abilities to an extraordinary level but comes at the cost of limiting your cognitive capacity?; and (v) I wonder how you would feel when faced with the possible case in which the intervention does not produce the desired outcome or fails to meet your expectations.

Enquiries such as these invite patients to hypothesise and problematise on the scope and impact that interventions might have in one's life and how one's life could be affected by them in multiple and significant dimensions. Moreover, one must keep it present that these are very general and oversimplified questions meant only to give a glance of the scope of the developmental counselling team's work.

Other than questioning and interpreting, a further possible strategy to obtain enhanced consent is *externalising*. This strategy is widely employed in narrative therapy and family therapy, in which it is used with the purpose of "linguistically separating the client from a target problem" (Gordon, 2023, 72). The idea is to help patients to understand their problems as separate, external issues that can be addressed and overcome, rather than internalising them as personal flaws or shortcomings. Externalising internal impediments helps patients not to overidentify themselves with their life problems, and helps to create a distance between them and the issues they're facing, which can help addressing these issues without negative self-appraisals like guilt or shame constantly preventing patients from expressing their feelings (cf. Gordon, 2023, 72). Hence, characteristics such as a poor physical appearance, little cognitive capacities, or the lack of moral virtues are externalised, and patients identify and discuss them as specific traits and qualities worth having. The aim is to shift the discussion from self-blame and self-criticism for lacking certain traits or feeling in a certain way, to acknowledging the existence of external obstacles that can be properly identified, managed, and altered. From this perspective, there is a significant difference between a patient asserting that he is a "depressed person" instead of declaring that he "feels inhibited by depression" (cf. Gordon, 2023, 72).

In chapter 3, I characterised internal impediments as relevant obstacles to human flourishing. One example of this was self-esteem. A patient may voice that he has a low self-esteem, but it might be more adequate to externalise this and refer to low self-esteem as "it". A counsellor might ask: "How does *it* try to convince you that you're not liked or unworthy of love?", or "Are there specific circumstances in which *it* is more or less likely to emerge?", or even "May I accurately interpret that *the problem* is attempting to convey information about the kind of person you are?". To look at them in this externalised way may also

help the person to gain a greater sense of agency and control over her life. It can also be useful if the person doesn't establish an essential connection between these impediments and her core identity, as if depression, like the lack of moral character or a poor physical appearance were an integral and constitutive part of one's identity. Note that I'm not claiming that these traits can be separated from personal identity. In fact, from the nineteenth century on, physical appearance has gradually become a central and defining trait of personal identity, while traits such as moral character, citizenship, and honour were central and defining traits of personal identity before that (cf. Negrin, 2008, 9-10). My argument here is simply meant to demonstrate that externalising problems can encourage patients to engage in a rational, collaborative reflective process with the counsellors that might facilitate a shared understanding of the patients' values and intentions. Additionally, as Gordon notes, "making the problem an entity or object for the purposes of discussion seems to prompt creativity in the client" (2023, 72). Consequently, it can even be the case that externalising leads the patient to reject false beliefs about what he thinks to be impediments (*e.g.*, about his physical appearance or cognitive capacities) and acquire new or more accurate beliefs, as we saw from the case of limb lengthening.

Explaining frameworks can also work as a strategy for the counselling team to facilitate understanding of any particular problem by means of conceptual frameworks or theoretical models. The idea is to offer a set of principles, concepts, and guidelines that help patients organise and understand complex issues. The adoption of theoretical perspectives can offer constructive insights, clarify ambiguous aspects, and serve as a navigational tool to enhance their knowledge and understanding (cf. Gordon, 2023, 72; cf. McLeod, 2013, 69). For example, an ethical framework will provide ethical guidelines and principles so that patients can address moral and value-based concerns, thus helping them navigate ethical dilemmas and make informed decisions aligned with their values. The goal is that patients can "conceptualise the relationships between capacities and responsibilities" (Gordon, 2023, 74) when assessing a particular intervention. Other examples might include cultural frameworks that take into account the cultural and contextual influences and factors (*i.e.*, cultural beliefs, values, norms, and practices) implicit in the patient's psychological issues, or developmental frameworks that focus on the various components of flourishing and how human development takes form across one's lifespan and at different stages of one's life. As Gordon rightly points out (cf. 2023, 72-73), it is also possible to use family systems theory to clarify how excessive responsibility due to unrealistic parental expectations can influence the various dimensions of the patient's life, as romantic relationships, or his low self-esteem. Conceptual frameworks such as these might help the patient to establish relevant connections and facilitate his reflection on the reasons why he seeks enhancements.

Finally, *modelling* can also be effectively employed by the counselling team as an operative strategy to tailor the patient's behaviour through emulation. Here, the counsellor himself serves as a role model, displaying certain behaviours that patients can emulate and integrate into their own lives. For instance, in observing the counsellors' behaviours, responses, or techniques during counselling sessions and in specific situations, such as communicating complex ideas and concepts, handling and navigating difficult problems and ethical dilemmas, or managing feelings, patients can also "develop or improve their own such abilities" (Gordon, 2023, 73). In addition to observation, patients mentally retain the behaviours observed and try to recall the chief aspects of the modelled behaviour or skill, which they will reproduce and practise in their daily lives, outside of the counselling environment. By providing feedback and guidance as well as asking specific questions and making certain suggestions, counsellors encourage the practice of the modelled behaviour and reinforce continued development.

Suppose that counsellors ask a patient the following question: "If you were to go through the desired intervention, how do you envision it changing you as a creative agent?". Depending on the patient's goals, he can answer that the intervention will enable him to establish more meaningful relationships with others, or to boost his physical, cognitive, or moral capacities so he can be healthier, more productive at work, or be a better person. Ultimately, the idea here is also that the patient can establish and explore the connections between the envisioned modifications resulting from the intervention and their potential multiple effects across his lifespan. The goal is to model the process of exploring these connections and expecting patients to reproduce these procedures to have the necessary understanding, so in the end enhanced consent is obtained.

h. Conclusion

Taken together, the five strategies just examined can help us better understand the role developmental counselling teams are expected to play to obtain enhanced consent from patients who voluntarily plan to submit to interventions, either for themselves or for their future children. I followed much of Gordon's recent work on this, but there are substantial differences between her very specific positive proposal and my developmental account. Gordon makes a case in favour of enhancements starting from an analysis of six bioconservative arguments against the project of human enhancement that she claims are insufficient to justify why enhancements are morally impermissible. Even so, she acknowledges that each of these arguments gives us six different desiderata that can impose important constraints on an enhancement project. I adopt a different approach in my developmental account. The basic building block of human nature developmentalism is the ethical conception of human beings as creative purposive

agents. From this ethical, normative grounding I defined the contours of what human development and a flourishing life are in order to stipulate that living a well-rounded life, a life of engagement with the components of flourishing, such as cultivating meaningful relationships, pursuing personal growth, and exercising our moral agency, is indispensable for achieving a fulfilling and meaningful existence. In that sense, by focusing on the developmental aspects of human nature and the promotion of human flourishing, human nature developmentalism is also a theory of well-being that informs us of what constitutes a good life.

With this normative ethical framework in place, I ensued to argue that human enhancement technologies are best understood as a set of tools on a technological continuum, irrespective of their disruptive potential. I claimed that, despite the legitimate concerns they might raise, their use is compatible with human nature developmentalism and that we might have prudential, moral, and ethical reasons to pursue and promote interventions. From here, I derived the political obligation of providing universal access to interventions to the individuals who voluntarily wish to pursue them. Accordingly, I proposed that the best way to regulate distribution of access to interventions should be done in a sufficientarian basis in accordance with the following principle: "we ought to guarantee access to germline genetic interventions until a level of sufficiency is reached, where sufficiency is defined as the point at which individuals have achieved a threshold of developmental power and capacity for overall flourishing that ensures a satisfactory quality of life and opportunities for self-determination as creative purposive agents".

One of the steps to arrive at counselling was to look at what a developmental procreative principle should look like. This holds significance because of the difficulties in establishing a coherent procreative principle that gives parents clear guidance on what choices to make when it comes to the selection of the traits future children should have. Both for parents who seek interventions for their children as well as to individuals who seek interventions for themselves, the acquiring of enhanced informed consent is what we should be aiming at. Concerning the former, we are justified in telling parents that it is morally impermissible to have children whose life will not meet the developmental criteria required for one to live a flourishing, well-rounded life (*i.e.*, a life of engagement with the components of flourishing to some degree). But it is not morally permissible to impose the selection of particular predefined traits contrary to the parents' determination, or to enforce them not to have the children they want to, as this would violate their reproductive freedom and autonomy. As for the latter, we must ensure that individuals who voluntarily want to submit to interventions are facilitated the understanding of what it means to have their capacities (permanently) altered, the new kinds of responsibilities this will entail, and how this decision

sticks to one's understanding of what a flourishing life is. Counselling as a shared decision-making model and collaborative reflective process ought to be done by interdisciplinary teams that ought to guide patients and provide them guidance and recommendations. The strategies the developmental counselling teams ought to follow reflect this purpose. They are employed to support patients in understanding their motivations for considering biomedical interventions and to explore the concept of our developmental human nature as creative purposive agents whose goal is to pursue well-rounded lives of engagement with the components of flourishing. In this way, the claim that the state ought to be permitted and justified to both protect and promote the relevant opportunities for each citizen to engage with valuable goods and activities is adequately addressed.

CLOSING THOUGHTS AND SOME PATHS FORWARD

I once read that man is an animal who betrays his own nature. I believe these attributed words are apocryphal and often associated with Emil Cioran, who certainly was much more pessimistic about our human nature than contemporary transhumanists. But there are many that, like Foucault, claim that "one can never know too much concerning human nature" (1978, 22). Except maybe for Hobbes, who knew too much about us, the prevailing perspective today is that not only is human nature a concept that is difficult to grasp, but it is also one that muddles the debate. Still, throughout this thesis, I established human nature as the essential foundation for all my arguments. I take it to be fundamental to any discussion about what is good for human beings and, ultimately, what a good life is.

Either for those claiming that humans betray their own nature, for those saying we can never fully penetrate and understand its mysteries, and, of course, for those offering fully fledged accounts of what we are, there is some basic feature or set of features that characterise human beings as such. To many of these, human nature still plays a classificatory, an explanatory, and a descriptive role of some sort and to varying degrees. Much of my work here was to argue for the idea that creative purposive agency is the essential trait that defines us *qua* humans. It gives us the reasons upon which a developmental political philosophy should base its enquiries. I argued that once we recognise this, there is a substantial work to be done to understand what the relevance of the project of human enhancement might be.

Cliché or not, I conclude this study with a fair number of ambiguities and open-ended enquiries. If anything, the brief period I dedicated to exploring these issues has served to lay the theoretical groundwork for my personal perspective on the matters I have discussed. In fact, it took me almost four years to put in place the developmental approach to human enhancement that would enable me to evaluate interventions at its light. As many know, the process of constructing a thesis can be incredibly frustrating at times. Mine was no exception. Yet, some important foundations have been placed for an approach to human enhancement that I believe merits further exploration in the coming years. While this research may not have arrived at unequivocal conclusions, the exploration of developmental morality and its potential impact on the discourse surrounding the ethics of human enhancement strikes me as highly significant. I'm aware that many of these are provisional conclusions. Much more work would be required, for example, to develop a comprehensive account of developmental counselling, and even this would possibly require refinements to the work done on human nature developmentalism. Nevertheless, I have set in place the rock upon which I believe I can continue building. Human nature developmentalism embodies this foundation. With this fundamental principle in place, we can construct a comprehensive

framework upon it. As soon as we are in possession of a coherent conception of human nature and a proper understanding of well-being, we are ready to evaluate the goodness of interventions and establish normative guidelines for their moral and ethical permissibility.

Of course, at this point, the reader is already well-acquainted with the pattern I've arrived at after having weaved the intricate threads that lead me to human nature developmentalism. Indeed, along this project, many were the moments when I found myself unravelling entire sections of the woven tapestry, tearing threads apart, only to carefully select new threads and embark on the weaving process once again.

But we can still enquire about the purpose to which we can allocate this tapestry. Can it be useful to any future endeavours? Will it be able to generate new answers when confronted with different philosophical and ethical challenges? Naturally, I cannot argue otherwise, as I firmly believe that human nature developmentalism is a valuable approach that holds appeal to address and investigate other areas requiring ethical analysis. It will certainly generate new questions when addressing these challenges, as it did for the model of developmental counselling.

Part of my conviction doesn't just stem from the theoretical robustness of this approach, but also from the insights I gained through the process of constructing and implementing it. As I said, in March 2023, near the end of my doctoral research, it was held in London the "Third International Summit on Human Genome Editing". At this time, I was already working on my approach to developmental counselling. I followed the event closely, and Victoria Gray's testimony had a great personal impact on me. Sickle cell disease made Victoria's entire life almost unbearable until she got cured thanks to CRISPR gene therapy, enabling her to live a normal life ever since. "I stand here before you today as proof miracles still happen" (Gray, 2023), she declared to the audience. To someone who has endured such difficulties, the achievement of successful therapy, regardless of the methods employed, must undoubtedly appear miraculous. To me, when examining this case through the lens of human nature developmentalism, it became evident that my approach was moving in the right direction. What better evidence could there be to demonstrate that it is not the means we adopt to make our lives better that matter, but the ethics of doing so?

To someone who embarked on a doctoral journey just months before the burst of the Covid pandemic and continued researching amidst the booming debate surrounding the numerous challenges of artificial intelligence, the outbreak of a war in Europe, and what appears to be an enduring global stagflationary crisis, it is indeed promising to see that some of the threads with which I weaved my thesis can potentially contribute to evaluate and address these complex issues.

During these years, as my research advanced, I developed a great interest in bioethics, and particularly in the challenges posed by the emerging fields of Artificial Intelligence, the Internet of Things, and the Internet of Bodies. These areas are converging into what is called the Internet of Everything, which integrates people, processes, data, and things (cf. Dudeja *et al.*, 2022). Across the current literature, there is an agreement on its main goal: to collect and convert information into actions. The purpose of this is to enable data-driven decision-making and to improve efficiency, sustainability, and profitability across a broad spectrum of applications and scenarios.[128] Here, too, the purported goal is to make our lives better, but it is important to have clear frameworks of what better means. The growing interactions and the progressive merging between our bodies and technologies like wearable devices, implantable sensors, and health monitoring systems will inevitably imply a reconfiguration of the dynamics of economic and political power. Biological life will be the prime object of monitoring, control, and regulation. It will be an important step towards the improvement of the already existing political technologies of the body. The aim will not be the "infinitesimal destruction of the body", as Foucault argued concerning the spectacle of the scaffold (2006, 51), but rather the infinitesimal control, monitoring, surveillance, and management of the body to its smallest components. The transformation of the human body into a seamlessly integrated component of a broad network structured by a specific set of property relations, all with the declared aim of perfecting production systems, fits well as the goal of this project. The human being is one among other factors, at all times quantifiable, adjustable to the requirements of the production system when needed, subject to ongoing surveillance so it can be rewarded or punished if it fails to comply with the requirements of those quantifying it (Conditioners?). Similar to what we've seen before, here as well, the body and the human being are subjects of a project of construction. A literal construction, as in human enhancement and our cyborgification, but also a discursive and ethical construction with profound cognitive and normative implications. We must surely be concerned about the possibility that this project might be enforced upon individuals via procedures that threaten our autonomy and freedom. This could involve the imposition of sanctions, fiscal penalties, and numerous policies aimed at making us comply with specific regulations or objectives. The recent COVID-19 pandemic served as an elucidating prelude: it introduced travel restrictions for unvaccinated individuals, limited access to specific spaces, mask mandates, mandatory vaccination, compulsory lockdowns, and quarantine and isolation protocols.

[128] This was retrieved from an announcement of a special issue dedicated to the Internet of Everything organised by Vasco Soares and Juan Santana (cf. MDPI, 2023).

But this Orwellian scenario is not the only possibility. In fact, it is perhaps more plausible that the *brave new world* ahead of us will witness individuals willingly and eagerly embracing these new technologies, without feeling pressured to question their numerous potential problematic dimensions. One needs only recall the Cambridge Analytica scandal that brought to light how personal data can be susceptible to political and commercial purposes. How will the comprehensive transformation of our lives and ourselves into patterns of data impact our ability to use, develop, and enjoy our human capacities, to flourish as creative purposive agents, and to live a good life?

In this way, biopolitics is much more than James Hughes' idea of a new political dimension added to the political spectrum of the 21st century. It is a political category fundamentally structured around the notions of power and property relations. Considering the challenges presented by the Internet of Bodies, what potential contribution can human nature developmentalism offer? The immediate challenges that one can identify are primarily associated with privacy and data security, informed consent, autonomy and control, fairness and access to goods and activities, healthcare delivery, and many other unknown and unpredictable long-term consequences. So, in what ways can human nature developmentalism be further developed to cope with these and other ethical issues? This is a direction towards which a future investigation seems not only promising, but also capable of offering original answers to the direction in which the debate is evolving.

If anything, human nature developmentalism may serve as a small but meaningful contribution to remind us of the importance of focusing on what truly matters to us, why we should always care for a philosophical and ethical reflection on the values we cherish the most, on what things are essential to our lives, and what we really are as human beings. It is an alternative conception of the good that we have strong compelling reasons to adhere to. In the face of uncertainty and turmoil, it is these fundamental questions that should guide us towards a deeper understanding of ourselves and the world around us, and ultimately, illuminating the path forward.

I would like to conclude this thesis with a final reflection concerning human nature. Some may contend that combining "human" and "nature" is a peculiar task, especially when we intend to convey that human beings possess a unique essence that distinguishes them from other natural beings. Aren't human and nature two completely different things? For instance, transhumanists assert that nature primarily entails determinacy, whereas humanity is, and can only be, characterised by indeterminacy (cf. Hauskeller, 2013). On this perspective, the human being is not a being *of* the world, *in* the world. Our cognitive, affective, sensory, social, and physical existence necessarily make us beings of the world, in the world, but this is not what we *really* are, transhumanists would contend. Given the religious

substratum of transhumanism, one shouldn't be surprised if they claimed that humans are from above and not of this world, while other beings can only be from below and of this world. This is why we need both a cure for the disease of being human, and to embrace the uplift imperative. Both promise to set us all free. Still, it is true that, as a transitional species, we must cope with our current existence, but this is not what truly characterises us. Our nature is to have no nature at all, as Pico della Mirandola demonstrated (cf. 1965). This essential indeterminacy is the source of our human dignity, as we fight a struggle for survival against nature to escape the determinacy it imposes on us. Our dignity comes from the foundational act of violence in which we strip nature off the veil under which it loves to hide, lurking, eagerly awaiting to be stripped off her secrets. It is this foundational and perpetual act of violence that shapes our identity and sets the meaning of all our human existence, at least until nature is no more.

Indeterminacy is equated with freedom. The less determined we are, the freer we are, and the closer we are to the beings we really are. Therefore, if we possess the means to radically transform ourselves, to redesign ourselves in ways that allow us to escape our human(animal) condition, we would be betraying our own nature by acting otherwise (cf. Stock, 2003). This summarises the entire transhumanist morality. But we can see that this argument can also be shared by many who don't identify themselves as transhumanists, but advocate that we ought to make use of human enhancement to alter our condition. So, can this also be a criticism against human nature developmentalism?

It is an inescapable fact of life that human beings have always acted upon the world to transform it, transforming themselves in the process. While transhumanists firmly build on well-defined and comprehensive notions of human nature and the good life, all of which involve fast and radical transformations to our human condition, most human enhancement advocates do not endorse such swift and drastic alterations, nor do they share a consensus on a specific notion of human nature or the good life. The account I put forward in this thesis approaches this with caution. First, it presents a well-defined account of human nature and the good, but it doesn't necessarily argue that indeterminacy unequivocally amounts to increased freedom. Second, it privileges a moderate approach based on interventions that increment, not maximise, our developmental power. As part of my closing thoughts and some possible paths forward, I want to look at both these problems, with a particular focus on the latter.

Concerning the first claim, it is not reasonable to subscribe to the Manichean and dualistic perspective that implies that our freedom, autonomy, and well-being depend solely on whether we are entirely separate from nature or entirely dependent on it. We can plausibly hold the position that human beings are not solely products of nature, nor is nature the ultimate determining factor in defining us. Nature (*natura*) is that which is born to be the way it is, without the possibility of being something else,

of deviating (*delirare*) from what it must be. We share this contingency with nature. However, freedom sets us apart from nature (cf. Rosa, 2009, 503-505). But because of the radical transhumanist opposition against nature, understood as the source of all evils that befell upon us, the transhumanist conclusion can only be that radical freedom entails absolute detachment from nature. From a developmental standpoint, this needs not be so.

Our freedom, autonomy, and well-being do not depend on rejecting or separating from nature. But developmentalism doesn't also align with the bioconservative thesis that the pursuit of human enhancement is a hubristic expression of our desire to play God and our will to reject the blessings of the given. It is more reasonable to argue that we must harmoniously coexist with nature, recognising that these values are deeply interrelated with the human-nature dynamics, and that we can only fully understand them in the context of the complex relationship between humans and nature. I argued that the project of the conquest of nature is narrow and self-contradictory, ultimately proving to be unattainable and dangerous. The very idea that nature is there to be mastered and conquered is representative of the classical elusive and erroneous conception that human beings stand apart from, or above, nature (cf. Leiss, 1972). Instead, we should shift our focus to what matters to us: human well-being and flourishing. To transhumanists, indeterminacy is the normative core of human nature, it is what holds non-instrumental value to us (cf. Hauskeller, 2013, 67). On the developmental account I presented, creative purposive agency is the normative core of human nature, and flourishing is what holds non-instrumental value to us. Transhumanism and developmentalism have different theoretical and normative starting points that necessarily lead to the following: transhumanism places a strong emphasis on the pursuit of freedom from nature's constraints, while developmentalism prioritises the engagement with the components of flourishing and the exercise and development of our plural capacities in numerous combined ways. For transhumanism, nature embodies all the limitations imposed on us and that prevent us from experiencing any freedom, autonomy, and well-being. Consequently, to reduce and eliminate nature's determinacy is key to our flourishing. But this is not so to developmentalism. What our nature as developmental beings dictates is that we should live well-rounded lives structured around the value of flourishing. And since we flourish by exercising, developing, and enjoying a wide and comprehensive set of capacities in varied and combined ways, biomedical interventions are part of a set of instrumentally valuable tools to achieve that goal. Developmentalism doesn't make it its primary purpose to achieve greater indeterminacy. In fact, the physical, sensory, affective, social, and cognitive components of flourishing are a constitutive part of our nature as determined beings. They are the primary expression of our determinacy as natural beings (*i.e.*, part of nature).

In developmental terms, developmental flourishing is what nature demands of us. Freedom, autonomy, and well-being do not inevitably and directly depend on reducing or eliminating the determinacy of nature. Take the famous passage from Aristotle's *Metaphysics* in which he claims not simply that "[a]ll men naturally desire knowledge", but that we esteem our senses "for their own sake" (especially sight) (1933, 980a). Following this account, we can say that the components of flourishing naturally want to be satisfied in this precise sense. Our cognitive capacities seek knowledge, understanding, and the ability to make sense of the world around us. Our affective capacities desire emotional well-being, including feelings of joy, contentment, and emotional stability. Our sensory capacities want sensory experiences such as perceiving the beauty of nature, enjoying the smell and taste of food, and feeling the warmth of sunlight. Our social capacities want social connections, relationships, and a sense of belonging within a community. Our physical capacities strive for health and the ability to engage in physical activities without discomfort or pain.

What these capacities seem to reflect are our natural inclinations and desires, which are integral to our overall well-being and flourishing. Transhumanists look at nature as our existential enemy (source of pain, diseases, ageing, decay, death), while developmentalism understands it as an integral part of the type of beings we are. It is only natural that, due to the distinct starting point of developmentalism, one should expect it to significantly diverge from transhumanism concerning the meaning of well-being and flourishing.

Consider now the second point made above: developmentalism privileges an approach based on interventions that increment, not maximise, our developmental power. I justified why this is a more reasonable approach, yet some questions remain unaddressed or adequately developed. Here, I want to look at the following challenges: how do we distinguish an intervention that maximises from one that increments? How do we measure this? Who decides what counts as maximisation and incrementation? Aren't these definitions agent-relative, context-relative, time-relative, and culturally relative? Recall that a similar challenge arose when trying to define developmental power and establish methods for its measurement.

Naturally, the most straightforward response to this question would be to attribute this responsibility to the competence of the counselling teams. These would offer each patient personalised guidance during the analysis of their specific situation. But it's worth exploring this further, even if any solution offered remains somewhat tentative.

We know that to achieve a better engagement with the components of flourishing is what we're aiming for with biomedical interventions, and counselling is a crucial part of that process. This definition

of flourishing is overarching and broad enough to be applicable to every human being, regardless of the specific context of each and every single one of us. But each person engages with these components differently. Hence, through the process of counselling, there is a need to take into account the perspectival and contextual nature of goodness that informs human nature developmentalism. Human flourishing is necessarily agent-relative, context-relative, time-relative, and culturally relative.

So, it is inevitable and indispensable that counselling teams assume a key role in evaluating each case, establishing criteria for what qualifies as an appropriate engagement with the components of flourishing, and determining whether an enhancement exceeds reasonable boundaries considering the associated risks. It is expected that the team tasked with assessing a particular case can define what will be an intervention that increments the developmental power of a patient and one that goes beyond what's reasonable for that specific person, even though it could be reasonable if applied to a different person in a different context. A patient who naively expects to gain superhuman powers after an intervention might be looking for a maximisation of his developmental power, whereas interventions, on the developmental account, are meant to contribute to well-being within the boundaries of a balanced approach to human potential. This also applies to the time frame for achieving enhanced engagement. The developmental counselling process is a long and comprehensive one, and the incremental approach is likely to involve gradual, long-term progress towards enhanced engagement. This approach may appear to be at odds with the concept of radical and potentially disruptive interventions required for maximising our developmental power. It's conceivable that, from the beginning of the process to the attainment of the desired outcomes, there was such an increase in one's developmental power that we can say that it was maximised. However, it is expected that this enhancement occurred gradually and through the thorough process I outlined and by means of small, incremental steps that were taken to prevent any disruptive effects.

The measurement of the outcomes of an intervention should take into account the degree of engagement with the components of flourishing one is able to attain. Counselling after an intervention will serve as a vital means of monitoring and evaluating an individual's post-enhancement experience. Besides assessing her well-being and how a person is faring in terms of engagement with the components, this process is expected to reveal any significant or atypical departures from the expected results for engagement with the components. Data on a person's physical health, cognitive performance, emotional well-being, social interactions, and sensory experiences will provide the information required to measure her well-being. This could still be somewhat subjective, but we can try to find objective criteria to work with. For example, one's physical health could be assessed and monitored be means of various medical

exams and tests to measure parameters like cardiovascular fitness, muscle strength, and overall vitality. These exams might include the measurement of a person's heart rate, blood pressure, and oxygen consumption, the measurement of muscle strength with a dynamometer (cf. Saygin *et al.*, 2021), and the monitoring of one's body mass index, body fat percentage, and energy levels. These are rather common standard medical procedures to evaluate one's physical condition. The same applies to all the other components of flourishing. Cognitive performance will entail that tests related to memory (*e.g.*, recalling lists of words or numbers, recognising and remembering visual patterns, testing short-term and long-term memory retention), problem-solving (*e.g.*, identify the number of correct solutions to a problem or the time taken to solve them), and decision-making (*e.g.*, quality of decisions, the ability to make optimal choices in different contexts) are conducted to evaluate the person's response.[129]

We can equally evaluate emotional well-being by using standardised surveys that measure happiness, life satisfaction, and emotional strength. These will require sessions in which the patient and a professional will review questions related to personal fulfilment, relationships, overall feelings of contentment, and one's sense of purpose in life. How the person copes with stress, adversities, and emotional challenges will be helpful indicators of her well-being (cf. Tasneem, 2022).

This will extend to the examination of one's level of social engagement and social well-being, the quality and quantity of a person's relationships being the best indicator of her social and relational flourishing. While a higher quantity of relationships may indicate increased social engagement, the quality, diversity, and consistency of these relationships is equally determinant. For example, one should be able to hold deep, intimate, and stable family relations, strong and trusting friendships built on empathy and self-confidence, and workplace relationships among co-workers based on professionalism, cooperation, respect, and open communication. Given the provision of the basic necessary requirements to enable a person to engage with the social component of flourishing (*i.e.*, existence of open-minded spaces and environments, free time, access to public and shared spaces like libraries, theatres, and cafes, to sporting facilities, or to cultural events like fairs and concerts), biomedical interventions can increment one's developmental power at this level. It is expected to contribute to one's capacity to better engage with his closer circles as well as the larger community by participating in social activities and groups.

Finally, the evaluation and measurement of a person's sensory capacities might require the assessment of her sensory acuity, perception, and overall sensory enjoyment. At this level, I'm referring

[129] There is plenty of literature available on well established procedures and methods for measuring various aspects of cognitive functions. It is worth exploring this literature further and evaluate the adaptability of these procedures for use in developmental counselling. The following studies were particularly useful: cf. Pellicer-Espinosa & Díaz-Orueta, 2022; and cf. Riello *et al.*, 2021.

to the primary senses of vision, hearing, taste, smell, and touch that can be evaluated, for example, by means of standard sensory tests to measure visual acuity, or audiometry tests for hearing. This could also require tests to recognise and distinguish sensory stimuli, such as colours, flavours, odours, or textures. Through these tests, professionals evaluate the impact of sensory experiences to one's overall well-being. This is done with the aim of identifying whether positive sensory experiences improve emotional health, reduce stress, or improve one's quality of life, also taking into account the different contexts in which these experiences take place.

This post-intervention support, or follow-up care, is a fundamental part of the developmental counselling process. Its aim, as we can see, goes much beyond the assessment of whether an intervention maximised or incremented a person's developmental power. The ongoing assistance and monitoring provided to the person who has undergone an intervention is designed to ensure her flourishing and trace the outcomes of the entire process. With this data, we can determine whether an intervention has resulted in meaningful improvements to one's developmental power or if, and to what extent, potential setbacks occurred. This will better equip developmental counselling teams with the tools to ensure that interventions are both effective and attuned with the goal of incrementing an agent's engagement with the components of flourishing.

As readers go through these paragraphs, they are certainly wonder how this addresses the perils I identified earlier when mentioning the Internet of Bodies as my account clearly involves quantifying, measuring, monitoring, and controlling the patient to its smallest constitutive components. Additionally, in this context, we are viewed as *patients*, which exposes a discursive construction of the subject, carrying potential philosophical and ethical implications. Isn't this biopolitics as well? To make use of the full technical apparatus of the Internet of Everything can surely advance our developmental purposes. But again, this was my aim from the beginning: the driving force behind my developmental account is the ethical imperative of improving our lives, it is this principle that serves as the foundation of my account. This reminds me of Friedrich Hölderlin's well-known verse from the poem *Patmos*:

> *But where there is danger the*
> *saving powers also grow* (1986, 193).

I consider this to be one of the most encouraging outcomes delivered by the theorisation of human nature developmentalism. But this conception of human nature can surely open many more lines of investigation, and not limit itself to assess the moral and ethical permissibility of biomedical interventions.

It can surely play an important role in ethical decision-making, where it can provide a suitable basis for evaluating the ethical permissibility of individual and collective actions, policies, and technology design by considering their impact on human flourishing and well-being. I briefly mentioned this throughout the thesis, but there is a very important contribute to be explored concerning the application of human nature developmentalism to social policy and the design of public strategies to promote individual and social human flourishing and well-being. This ranges from the design of public spaces (cf. Ferdman, 2019) to policies related to healthcare, environment, social support, and economic justice.

Likewise, it can inform educational philosophies and practices by insisting on the importance of exercising, developing, and enjoying our various capacities in different ways and for different purposes. Not only can it provide educators guidance to help children achieve this, but also facilitate children in embracing, from a young age, a holistic understanding of their well-being and its interrelation to the fundamental aim of living of a well-rounded life. A particularly important dimension here is that of the development of healthy interpersonal relationships for human flourishing in an age in which technologies have "facilitated the means for human communication, allowing social connections across communities, cultures, and continents" (Ruben *et al.*, 2021, 1), but at the same time, seem to be hindering our capacities to sustain deep and meaningful relationships, like friendships (cf. Turp, 2020).

Finally, one can expect human nature developmentalism to give us a general framework to debate cultural and moral values grounded in a foundation that has as its cornerstone a clear understanding of what human well-being and flourishing are. This framework is compatible with both a universal framework that includes all the members of the human community, and the ability to adapt to specific contextual and particular conceptions of flourishing. Of course, I'm aware that my conception of flourishing may be susceptible to criticism for being excessively aligned with the Western tradition of philosophy, and for displaying potential biases in its assumptions regarding the nature of well-being and human flourishing. I admitted to this since the beginning, when I aligned my approach with the tradition that originates from the ancient Greeks and extends through philosophers such as Kant, Marx, and Mill. I do not ignore its failings, but for the past two millennia, this tradition played a key-role in promoting the fundamental structures of our culture and civilisation, like democracy, human rights, and political and legal systems.

The set of ethical values that human nature developmentalism promotes is one upon which we can build an approach to evaluate the permissibility of interventions, which are themselves outcomes of Western scientific and technological advancements. But we saw that these values are too broad and encompassing, leaving sufficient room to adapt different developmental strategies aimed at evaluating individual flourishing from diverse perspectives (*e.g.*, privileging collective and communal values *vis-à-vis*

individual autonomy and creativity). The design of the components of flourishing is intended to encompass a broad range of human capacities, with the purpose of not excluding any meaningful expression of human creativity. It is an ethically plural account that acknowledges a multiplicity of valid ethical perspectives, including those of non-Western cultures. Any lack of cultural sensitivity should be among the concerns of those committees composing the developmental counselling teams to better address the expectations of those involved in the process. This can be achieved while preserving the ethical framework of human nature developmentalism, which retains its normative and ethical strength while remaining adaptable to changing cultural and moral contexts.

In any case, in all the examples I mentioned, we move forward with the confidence of stepping on solid ground beneath our feet. We know what type of beings we are; we know what is good *for* us; and we can better identify the types of lives that better align with this understanding. From the beginning, I argued that developmentalism is well-suited to capture our beliefs about what is important in our lives. The ethical notions surrounding the goods and activities that are non-instrumentally valuable to us and that we want to have in our lives for their goodness should form the foundation of any political philosophy, as they definitely do for human nature developmentalism.

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