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Thesis:

Humanism and Post-humanism as fundamental frameworks for the interpretation of emerging technologies for radical life-elongation

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Introduction

Human enhancement technologies have become an important topic in the worldwide scientific community. When commenting on this type of technologies, specialists often bring up human nature in the arguments. It is taken as a limit of our technological pretensions, as what must be preserved against change. Nonetheless, the conception of human nature is rarely explained or clarified. For instance, there is no study of what being human might mean in none of the collective volumes of human enhancement edited by Miller & Wilsdon (2006), Koops, Lüthy, Nelis, Sieburgh, Jansen, & Schmid (2013), or Clarke, Savulescu, Coady, Giubilini, & Sanyal (2016)[1]. These various authors often recognise that 'losing our human dignity' or 'threatening our human nature' is used as argument, but they neglect any exploration of what 'human nature' means in the context of these debates. They are, we could say, too concerned with being pragmatic. As a result, many arguments about human enhancement technologies lack a deep comprehension of their subjects.

What we are pursuing in this research is to grasp a better comprehension of the concern for the effects of human-enhancement technologies in the human being. However, these technologies are numerous. For the sake of brevity, precision and clarity, we will choose a type of human enhancement technology. Thus, we aim to explore what being human entails for the possibility of technologies for radical life-elongation. We choose these technologies

[1] Lüthy (2013) is the only one who deals with the need to examine what we can understand with human nature. However, his chapter does not commit to a deep reflection about this nor does it present a decisive stance. He explores the history of the distinction of humans from the rest of living creatures and reaches important deductions about the historicity of the human being. He also presents the problem of nature versus artificiality in the human being, but does not reach any strong conclusion. Weckert (2016) notably recognises this same problem, struggling with placing the human either inside or outside nature. Unfortunately, his analysis fails to place this struggle in the fact that the nature we are inquiring about is particularly human.

because they test our conception of the human being in terms of its considered natural boundaries. These technologies alter important conceptions of the western philosophical tradition, such as lifespan and human mortality. This allows enriching the dissertation. We also choose such technologies because it results interesting and challenging that they are in a state of emergence, a characteristic which is crucial when dealing with human-enhancement technologies in general. We proceed now to explain this further.

Life-elongation technologies are as old as the human being. In a sense, they are also almost uncountable. A bandage is, for instance, an old but basic technology which has contributed to the elongation of human life. However, we now have in scope another sort of life-elongation technologies; that is why we deem them as radical. Following Bostrom (2009b), we discern that even with our current medical technology the human lifespan has not increased significantly. 'Significantly' means that it would bring a radical change in how we know human life. There are, however, technologies in the stage of research which aim to radically increase the human lifespan. These technologies we will typify as emerging technologies for radical life-elongation.

The concern around the implementation of such technologies might be expressed through different questions; some of these questions would be: "What is and will be the impact of the so-called 'emergent technologies for radical life elongation' in what is understood as the human being?" "Could these 'emerging technologies' transmute the human being into another being?" "Is technology driving humanity into conquering some of its fundamental boundaries, thus overcoming them?" Despite a multiplicity of symptoms, we shall maintain that the concern is only one. It appears to be so as it has allegedly one focal object, what the human being is, which would receive the transforming effects from the application of these

emerging technologies. No matter at which side of the debate you stand, it seems to be clear to every participant that each technological attempt to increase the human lifespan aims to alter the lives and bodies of human beings, as if to shift what we consider ourselves to be.

Our hypothesis before embarking in this research has been that emerging technologies for radical life-elongation cannot affect our being human. We anticipate that a characterisation of being human depends on our human will, and is therefore malleable. That characterisation manifests that which is considered most valuable in our life and may be stated as being capable of free reason and action. Free reason and action cannot be closed to *Homo sapiens*, but open to any organism which presents its characteristics. As long as this is preserved, the human being may be free to pursue any self-technological implementation.

In order to better comprehend the current discourse about advances in human life-elongating technologies and their effects in the human being, we need to first develop an understanding of emerging technologies as linked inevitably to human action. Emergent technologies are often analysed through philosophical categories which lead to specific agendas, both technoscientific and ethical. The philosophical stands around them can be typified with many concepts, such as religious, humanist, anti-humanist, transhumanist and posthumanism. Dialogue between the positions that carry each concept is scarce and it appears as impossible as long as there is no clarity about what each label might imply. Consequently, after having a clear conception of emerging technologies, it is necessary to perform an analysis of the conceptions of the human being. Since our methodology is philosophical, we ought to take into consideration the main trends in philosophical anthropology to explore the conception of the human being. Regarding the work methods, a clarification previous to the main body of the dissertation comes handy.

Agnes Heller (1990, p.1-2), in her introduction to *Can Modernity Survive?*, states that there are three main philosophical approaches: systematic philosophy, quasi-systematic philosophy, and divergent and interconnected philosophy. She argues that for the first two approaches to prosper, the authors must have a clear idea of the output that such works will have, and the work shall be as monothematic as possible. On the other hand, a divergent and interconnected approach happens when a variety of 'interconnected segments of life' are tested to fit into making some sort of sense, and when the author has no clear idea about the output of the dissertation. This last case is ours at the present research, as we do not have clarity on whether there is a human essence to be defended against certain technological risks, or on the contrary, if humanity is but a temporary state of consciousness that may be overcome through emergent technologies. Because of this, we certainly cannot have a clear idea of the role that radical life-elongation technologies play within human life and its eventual transmutation.

From the above it must be clear that by no means do we attempt, methodologically, to subsume our investigation into any philosophical system, even less to form a new one. We will clarify our position to this regard ahead. Further following Heller (1990, p. 2), she explains that within the lastly mentioned philosophical approach, she finds three genres which suit it: dialogue, deconstruction and essay. We intend to follow an essayistic genre since it is quite flexible and it allows a multitude of resources, such as demonstration, description, narration, analysis, dialectics, mild rhetoric, illustration. It can also employ allegory, metaphor, historical example, scientific proof or something else.

Within this genre, which philosophical game shall we practise to conduct us through our research? To answer, we need to consider our object of study. Our matter, what being

human entails for radical life-elongation technologies, is an exercise of elucidation which grounds itself in the core of philosophical anthropology with theoretical application in the reflection of the mentioned emerging technologies. It cannot be blind to philosophical traditions and reflections around this matter and at the same time it cannot adhere to merely one school of thought. But we also have limited resources. We, therefore, identify the need to explore what can be concluded from the most general positions of current philosophical anthropology, humanism and posthumanism.

We are facing discourses from different scopes, which have different sources and motives, and which are related to different aspects of life, namely technology and humanity. We pretend to bring all of these encountered traditions of thought into a resolution, into a position that may allow us to take a stance towards what practice —to put it in Sloterdijk's terms— demands from us. Because of all mentioned above, we intend to use analogical hermeneutics, the methodological proposal developed by Mauricio Beuchot, as primal method of research. Beuchot (2005) proposed a philosophical methodology which, considering the proposals of mainly Gadamer and Ricoeur, would overcome the univocal or equivocal character of other hermeneutics. Since its character is analogical, it is useful to tend bridges among different texts and traditions. The bridge is the reader's question, who addresses the texts prudentially, i.e., taking into account the context of the writer but also his or her own context. This prudence is, however, no excuse for lacking a critic spirit. It is possible to use a soft reason, in the form of the enquiry, to address different texts. Beuchot (2005, p. 73) explains:

> The danger of relativism can be seen when rationality is considered as internal within the different traditions, since then they would become incomprehensible

> to each other. [The different types of rationality] are not completely incommensurable and it can be mediated or translated among them.[2]

Different philosophical traditions share common traits of rationality. Therefore, Beuchot argues that it is possible to reach certain synthesis among traditions because analogical hermeneutics works through reason to reach understanding, allowing meanings and forms of life to be shared.

Back to our main concern, and following these methodological aids, our proposal is to scrutinise the philosophical humanism and posthumanism, respectively, of two pairs of philosophers who have been especially influential in philosophy of technology. Their discourses will be analysed in terms of their anthropological foundations and how those foundations interrelate with the philosophical stands of the other philosophers. That work of interpretation will aim, as it has been said, to gain a common ground among them, while keeping the differences at sight. Our research inquiry shall be the bridge through which different thoughts transit. In the end, the interpreted proposal will try to shed light into a possible interpretation of the sense of emerging technologies for radical life-elongation.

With this in mind, the choice has fallen for Hannah Arendt, Hans Jonas, Peter Sloterdijk and Bernard Stiegler; the first two being esteemed as humanists and the last two as posthumanists. We have selected them because of several reasons. Firstly, they all are significantly in debt with the thought of Heidegger. This means that the commensurability of their discourses —to use the same term as Beuchot— is significant. Implied is, of course, that they belong to the same time and have similar concerns. Secondly, it is essential for our research that, among those concerns, the issues of *modern* technology

[2] Original in Spanish. The translation is mine.

played a striking role in the thought of each of these philosophers. Even further, their interpretation of technology as *modern* is almost identical, also an inheritance from Heidegger. Thirdly, their work has been very influential in contemporary philosophy of technology. Lastly, they all have a strong position of philosophical anthropology, which was directly tied to their views about technology. As a result, by exploring and testing the ideas of these notable philosophers, and reading and deriving their implications for emerging technologies for human life-elongation, we hope to arrive to a more clear position about the concept of the human and its role in the mentioned technoscientific research.

Since the dissertation focuses greatly in philosophical anthropology, but it also transits through philosophy of technology, a foreword in this last branch seems justified. During the XX century, the centrality of technology became evident to anyone willing to examine the components of human life. It is not that technology was unattended before in human history. As Carl Mitcham (1989) and Josep Esquirol (2011) have shown, the reflection about technology is as ancient as human thinking. The Ancient Greeks had already considered the importance of τέχνη for the development of human life. As a matter of fact, applied technics as problem-solving theory and praxis is an indissoluble element of Pre-Socratic philosophy as a whole. Kirk, Raven and Schofield (1983, p. 78) do not hesitate to name Thales, the first philosopher, an engineer, even if risking certain anachronism. Plato (1992, 346a) and Aristotle (2001, 1140a 1-23) would hardly be named engineers, but they began the philosophical tradition of reflecting around τέχνη. They highlighted its importance in human affairs. It is true that the term τέχνη included a wider —but, in a sense, also shorter— range of activities than those we today mean with our term technology. However, the relevance of the term to understand the genesis of technology has

been widely defended by authors from such distinct traditions as Heidegger (1977, p. 4) and Mitcham (1994, p. 20).

This understanding of technology proposed by the Greek was dominant in the West for the centuries to come. With this as the starting point, reflection regarding technology became systematic as late as in the XIX century[3]. It was then that scholars such as Kapp, Dessauer and Engelmeier began publishing work exclusively trying to clarify the principles of technology. While Mitcham classifies them as engineering philosophers because they focused on the intrinsic matters of technology, we shall find more useful to note their enthusiasm towards technology. On the other side, at the dawn of the XX century, renowned philosophers such as Bergson, Heidegger, Ortega y Gasset or Ellul brought a new tone regarding technology. Mitcham names them humanistic philosophers of technology, mainly because they searched for the significance of technology for human beings. One of their main characteristics, though, is that they were cautious, and up to a certain degree pessimistic, about the effects that technology may have for humanity, understood both as the collective of humans and as human essence. It is among these latter that we can find the precedents about the shift of human nature because of technology.

Among them all, Martin Heidegger was the most influential philosopher who generated a strong philosophical stance about technology. His work has been widely identified as pertaining with what he calls the world of technics in *Being and Time*, and later with his conferences and articles *The Question Concerning Technology*, *The Turning*, *The Thing*, and tangentially in *The Age of the World Picture.* In all cases, the world of technics is not

[3] In accordance with Mitcham, we can argue that the classic investigation of the nature of τέχνη that Plato conducted in several of his dialogues was already a proposal for understanding how the human being applies knowledge in the intended transformation of reality.

accessorial to the *Dasein*, the being-there, term that Heidegger uses to refer to the entity that the human being is. He treated it as the originary condition of our destiny, thus conferring it not an anthropological status but an ontological condition. This can be explained by the clarification of how Heidegger uses the term technology[4], which also is important for our endeavours.

For Heidegger, technology is a form of revealing, a way in which truth un-conceals. It has been like this at least since the Ancient Greeks considered the character of τέχνη. It includes the developing and usage of devices, procedures, programs, etc., but moreover, it is a shaping of the world in a certain fashion. In a type of this certain fashion, which is not pre-set within technics, we find the difference that Heidegger makes specifically for modern technology. "What is modern technology? It too is a revealing. Only when we allow our attention to rest on this fundamental characteristic does that which is new in modern technology show itself to us." (Heidegger, 1977, p. 9) The new element in modern technology is, in words of Heidegger, a setting-upon of nature as a reservoir, something to be used. This setting of nature is therefore a challenging-forth, as nature becomes increasingly demanded by modern technology, subordinate to its needs for developing. This scenario, as demanding from nature, is called an enframing (*Gestell*), as it is the condition from which "…nature reports itself in some way or other that is identifiable through calculation and that it remains orderable as a system of information." (Heidegger, 1977, p. 15) As part of nature, humans do not escape from this enframing, and thus are subject to be

[4] The German word used by Heidegger is *Technik*, which for us means both technology and technics. In Heidegger there is no difference, but many other philosophers do mark a difference. For instance, in Sloterdijk and Stiegler we can observe that technics is a volition for transformation, whereas technology inscribes that volition as concrete devises and procedures which they aid to fulfil. This is the scenario from which we will make a critique of the understanding of both technology and technics, so that it results clear what we understand for new technologies.

regarded as the reservoir for the further developing of modern technology. There is danger, not in technology itself, but in the destiny of technology, which identifies with the enframing. This danger, however, is only a possibility, since enframing has an ambiguous essence:

> On the one hand, Enframing challenges forth into the frenziedness of ordering that blocks every view into the coming-to-pass of revealing and so radically endangers the relation to the essence of truth. On the other hand, Enframing comes to pass for its part in the granting that lets man endure […] that he may be the one who is needed and used for the safekeeping of the coming to presence of truth. (Heidegger, 1977, p. 24)

In summary, Heidegger maintains for technology an instrumental and an anthropological approach: it is something used by humans and is not bad in itself. But this conception is shallow and Heidegger finds more when analysing the enframing technology. The essence of technology, what excels in modern technology, is the possibility of blocking truth, as well as for the permanence of the *Dasein* to the being for the forthcoming presence of truth, i.e., the preservation of the human being.

Before we continue, let us go a few steps back into the modern history of technology. Following Heidegger's characterisation, which appeared from his reading of the *Nicomachean Ethics,* technology has been traditionally and rightfully understood as means to an end. Following Ellul (1964), technology permits the most relevant description of any society, since man and technology have always pertained to one another. Taken together as an understanding of technology, they allow a fruitful reading of history, in which the status

of civilisations can be measured by efficiency in terms of their own goals. This reading of history pertains to the worldview of the Renaissance and that of modernity in general. The great utopias of the period describe perfect, or near-to-perfect, societies which are at large sustained by technological developments. This spirit set off the age of scientific discovery, in which thinkers such as René Descartes or Francis Bacon would propose the intellectual and technical dominance of man over nature. Despite this will —the will of the age, one might say— the dawn of Modernity was not yet the full era of technocracy. Science and technology had heavy restraints. Bacon coined the famous phrase that nature, to be governed, must be obeyed, which manifests limits to human usage of nature as resources. Descartes also imposed strict limits to the possibilities of science, through God's will in human morals.

In contrast, there was a change in the reflection concerning technology during the XX century, because technology itself changed. Several philosophers have characterized this change differently, from Heidegger's *Gestell* to Ellul's technic system. Despite certain differences, there are at least two similarities in the descriptions that have been made: the increase of power of technology, and the view of technology as both a menace and an opportunity. Both traits point towards that which technology alters, and this is a fact that has not been sufficiently stressed out. If we ask ourselves about the object in which this power falls, Hans Jonas's (1984) characterisation of the change of technology is illustrative. He described modern technology as capable of destroying and creating at a scale and depth never seen in human history; consequently, these creations and destructions alter nature at a fundamental level, up to a no-turning-back point. In short, for the first time in human history, nature becomes vulnerable as nature. This nature that becomes vulnerable does not

refer exclusively to the environment: it refers notably to human nature as well. Technology, concretely a group of technologies aimed to deeply alter the human body, has opened the possibility for humans to cease in their existence, at least as human beings. An increased uniformity of human traits, greater longevity, greater cognitive or physical capacities, or even a promise of immortality illustrate goals that some fields and actors of technoscience[5] have stated in recent years.

As the influence of Heidegger in the topic has been enormous, it is only logical that many of the late XX century philosophers reacted to his philosophy to state their unique thoughts. Now, at the beginning of the XXI century, the concerns shown by these philosophers during the XX century are proving to have a strong potential in their convening power. Plans and devices to achieve what can be described at least as a 'higher human status' have been regarded as attainable by an influential group of people, especially in the technoscientific community; and their influence has become global, with concerns such as the expressed by Hans Jonas becoming global as well. Castells (2000, p.1-2; 367-368) has shown that, on one hand, the globalized world allows for the expressions of these concerns to be exchanged among all countries; on the other hand, globalisation is largely a recursive phenomenon with technology. This means that globalisation has depended on technology to be; simultaneous and increasingly, it has promoted the development of technology. This condition results in the fact that a globalized world is necessarily a technicalized one, and thus we will be able to find the concern about technology everywhere, often associated with globalisation. If information society as a world phenomenon has only been possible through

[5] For the rest of this dissertation, when referring to technology or science, we will maintain with Jacques Ellul his elaborations around the concept 'technoscience', especially in what it implies that there is a new evolutionary line of development in which science has become technological and technology has become scientific up to the point that strict distinctions between one and the other are not only problematic but also not convenient. See: Ellul, J. (1954). *La technique ou l'enjeu du siècle.* Paris: Economica, pp.6-11.

the application of technology, then it appears as consequential that the huge changes described by Castells have caused for people to wonder about the effects these changes might bring along, especially in the environment, but also in the human being.

The loudest cultural movement of this changing situation is the transhumanist movement, since it certainly includes much of the technoscientific community that shares the aims previously mentioned. The ideas that gave origin to transhumanism, according to Bostrom (2005, p. 1), come from the ancient human desire to achieve eternal youth, or conquer death. These ideas have come into materialisation through technoscience in the 20th century. And, in the last 25 years, several organisations have been considerably founded to promote technological advances which enhance the human being. Humanity+ and The Extropy Institute are among the most relevant of them, which also devote resources to reflect around their projects. But transhumanism is not exactly a school of thought: it is an ideology that equivocally describes an inspiration of technoscientific devices. We say equivocally because within this ideology many different shades of postures may be identified. These postures may go from the animosity of leaving behind the human condition —whichever it may be—, up to enhancing the existing human condition. The range of postures is also spread among most of the Western countries[6]. Humanity+, for instance, has chapters in Canada, Singapore, China, United States, Russia, Spain, Mexico and many more. All of the postures across these countries share eagerness towards a brighter future for human beings as a result of technoscientific advances, even if debate

[6] For Western countries we will understand what Noam Chomsky proposes for them, in order to include 'honorary' countries which have hoisted Western values (especially those which came from capitalism). Vid. Chomsky, N. (1993). *Year 501: The Conquest Continues*. Cambridge: South End Press, p. 3

exists about how far can we take certain technologies, and how a deep change in the human being can or should be done.

But transhumanism holds but one side of the arguments, since there are strong humanist positions which do not share its stance. Jonas's philosophy may be one example of this, but we find other examples in different worldly institutions. The relation between technology and the human being, with emphasis on the effects that first might have in the latter, has also been a subject for diverse religious authorities. The most vocal speaker of the topic has been the Catholic Church. From the Twentieth Century on, several encyclicals have highlighted the central role of technology for the human being. *Pacem in Terris*, written by John XXIII, was the first. On it, the Pope was very optimistic on the role that science and technology may have in shaping a better world, of course from the optic of Christian values. But just four years later a new Pope, Paul VI, wrote *Populorum Progressio*, in which he warned: "The reign of technology —technocracy, as it is called— can cause as much harm to the world of tomorrow as liberalism did to the world of yesteryear." (Paul VI, 1967, §34). The Church was getting on board with the dual conception of technology as both an opportunity and a hazard. The following Popes, John Paul II, Benedict XVI and Francis I, not only continued showing a growing interest in technology but even began to focus their attention in specific technologies, such as IT's or biotechnologies. In *Caritas in Veritate,* Benedict XVI has put special attention in biotechnologies, within which life-elongation technologies would fall. He has warned the Church that the great dignity of technology can be corrupted if humans, through technology, deviate from solid humanistic principles. Benedict XVI explains:

> In this way man's interiority is emptied of its meaning and gradually our awareness of the human soul's ontological depths, as probed by the saints, is lost. The question of [technological] development is closely bound up with our understanding of the human soul… (Benedict XVI, 2009, §76).

As one might expect, the Pope has not been the only religious figure of authority to express an interest in technology's effects. The XIV Dalai Lama, Tenzin Gyatso, has also often referred to technology and its impact on human beings in general, and Buddhists in particular. But his sentences have not been the same as in Rome. For instance, when the Dalai Lama discussed about the moment in which consciousness appears in the human being, technological advances are to be taken into consideration:

> Today, through technology, an egg can even be fertilized outside the womb leading to successful conception, after which the embryo is inserted into the womb. Some ancient stories also relate incidents of conception taking place outside the mother's womb. Thus human conception need not occur inside the womb. (Dalai Lama, 2009, p. 38)

New technologies open possibilities. If there is a challenge, even in what is considered as sacred, then an outcome of the world, ourselves within it, is not set by some kind of fate but opened to the possibilities.

In 2013, the Dalai Lama visited the Chiba Institute of Technology in Japan, and the focus of his speech was our relation with technoscience. Then again, technology itself is not bad for the Lama. He is a passionate advocate of scientific knowledge and he recognises that this knowledge is impossible without technology. However, the risk technology comprises

is matched by its own advance. The mention of distracting mobile phones and atomic bombs by the Lama in Japanese soil was no gratuity: “Human beings are the only species with the power and potential to destroy the world.” (Dalai Lama, 2013). The risk is present and real.

The stances which the transhumanists, the Holy See, or the Dalai Lama have about modern technology show the antipodes of the subject. They can help to notice that such positions heavily depend on a set interpretation of nature in general, and of human nature in particular. In the case of the Catholic Church, there must be an essence of nature, which modern technology corrupts; the same happens with the nature of human beings. They highlight the social relevance of the shift in technology as denaturation and that actions must therefore be taken. They defend that, what is most valuable as human beings, has already been given to us and that which is valuable in humanity needs to be defended from the pernicious effects of technology.

In the case of transhumanists, the situation is very different. Those who wish for the human condition to be transcended, regard a state of an imperfect human being who can come closer to perfection. The foundations, if there are any, of what makes us human are feeble and expendable. Accordingly, their conceived outlines for the general direction of technoscientific enterprises have a completely different mission from that stated by Jonas or the Church. Are the anthropological foundations for this ethics and technoscience something useless? Can we examine these foundations to shed light into the matter? What are these foundations exactly?

Apart from the complexity given by the multiple positions in the debate, the haste at which emergent technologies for radical life-elongation develop also shows the need for intense reflection on the matter. These words from Stiegler, said twenty years ago, are even more pertinent today: “This question [technics] still seemed secondary when, ten years ago, I was setting down its first delineations. Today, it informs all types of research, and the enormousness of the question summons us all.” (1998, xi). The possibilities that come along with these technologies, especially in affecting the human being, have called for diverse reflections and attempts of normativity that in many cases remain disputed by different groups. We will now present a summary of some of these emerging technologies.

During the last century, and increasingly, there has been a change of mind-set regarding ageing among an important sector of the world-leading producers of knowledge. Scientists from universities around the globe are working to significantly increase our lifespan, even considering the possibility of indefinite youth and life. Notorious examples include David Sinclair, Aubrey de Grey, and Jennifer Lemon. In general, there are some features we can observe in all ageing research. The most defining one is that almost each laboratory, almost each head researcher, has its own ideals with which to handle ageing. Some researchers consider ageing a process which should be studied, but not interrupted, while others aim to inhibit or even reverse it. According to Tad Friend (2017), the focus of different researchers is also varied. It can go from the molecular to the systemic level, from treatments with substances to DNA programming or manipulation. It can even go into the field of robotics, intending the use of advance prostheses to replace parts of the body which, because of their natural wear, impede individuals to continue living. No matter how these scopes are different, researchers in the field tend to agree on the complexity of ageing. Some

researchers, such as de Grey (2003), even consider that scientist must keep in mind that behind the idea of ageing there are many intertwined biological processes. These processes, such as metabolism or reproduction, might not seem related to ageing at first glance, but might in fact play a role in it. Therefore, scientists in the field often realise that the study of ageing involves not only how or what questions, but even why questions, which often demand interdisciplinary work.

David Sinclair is a geneticist best known for his anti-ageing research focused on dietary supplements and potential medication. One of Sinclair´s main objectives is to get governments to consider ageing a disease. No one government on Earth does so. If this happened, it could open up the possibilities for investment in developing drugs and procedures that treat ageing as a disease. In his book, *Lifespan: Why We Age —and Why We Don't Have To*, he explained the fundaments of his research. We will now produce a summary of his research so far. Sinclair claims that we age not mainly because of what is written in our DNA, but because of what the epigenome tells our DNA to act on. Over the past years, Sinclair and his team have realised that, rather than focusing on changing or editing genes, ageing could be slowed or reversed by altering what the epigenome commands certain genes to do. They found that certain genes called sirtuins make enzymes which control how cells function. As we age, more and more genes are switched on, changing the nature of the cells and creating what Sinclair calls damaging 'epigenetic noise'. This leads to cell-degeneration, which closely looked is losing important properties and even their specificity. Muscular, skin or nerve cells stop behaving as their type, causing the characteristics we recognise as ageing: weakness, lack of stability, less physical resilience, etc. However, when sirtuins are stimulated, they turn off some of these genes

that rush the ageing process. After these findings, Sinclair published in 2004 a study about a molecule called resveratrol, which could activate sirtuins and in fact alter the ageing process. After scientific critique and struggle —which even lead to the losing of important funding—, he published a more comprehensive and conclusive study in 2013. This study allowed him to collect new funding, which allowed him and his team to move towards new goals. Sinclair's research has shifted to molecules that enhance the levels of a crucial compound in our bodies called oxidised nicotinamide adenine dinucleotide, abbreviated as NAD+. This compound plays a role in regulating almost all the important biological processes in our bodies —including metabolism—, but levels drop steadily and dramatically as we age. NAD+ molecules are not Sinclair´s discovery, but he did find out that, whereas resveratrol stimulates only one of the seven types of sirtuins in our bodies, NAD+ does affect all of them. And the impact of NAD+ molecules could go beyond because of its participation in hundreds of different reactions in and around cells. His on-going research included several articles and also U.S. Patent Applications No. 16/020,652 and 16/138,460.

Aubrey de Grey is a biomedical gerontologist. His research is focused on regenerative medicine and how it can prevent ageing. His mission is more radical than that of Sinclair, since de Grey has clearly stated that he works to achieve human immortality. He works on producing "Strategies for Engineered Negligible Senescence" (SENS), a set of techniques designed to rejuvenate the human body and stop ageing. To this end, he has identified seven types of molecular and cellular damage caused by the atrophy of essential metabolic processes: cellular loss, cellular senescence, cellular residues, cellular aggregates, extracellular protein crosslinks, mitochondrial mutations and chromosomal mutations. Each

type of damage needs to be tackled if we want to stop ageing. He proposes there is not one therapy to do so, but several including somatic telomerase deletion, somatic mitochondrial genome engineering, and the use of transgenic microbial hydrolase. De Grey argues the list of therapies is not complete because much more research and investment in interdisciplinary transtechnologies is needed.

Just as Sinclair, de Grey has faced severe criticism, among which we should highlight the *MIT Technology Review* debate (Estep, Kaeberlein, Kapahi, Kennedy, et al, 2006). It is noteworthy that the criticism in this case was directed exclusively to de Grey's mission and proposed methods and not to the ageing research in general. It is even more outstanding that the critique in general was based on that we cannot accomplish de Grey's proposed therapies with present technology. The debate ended without any clear winner since a lot of ifs became involved. This showed once more that the level of speculation within emergent technologies for the elongation of human life is so profound that it resists criticism in favour of what accumulative technoscientific advances could allow.

The proposal and scope of Jennifer Lemon are much more humble, one might think. It certainly does not draw the attention of reporters or celebrities. An integrative physiologist, specializing in ageing and age-related disease processes, Lemon has conducted research programs about the modifying effects of nutrition on oxidative stress, inflammation and cellular dysfunction on ageing and age-related diseases. Instead of focusing on ageing as a process, Lemon (2005, 2011, 2018) has focused on what certain dietary behaviours and supplements can do to specific diseases: Alzheimer, cancer, Parkinson. However, it is notable that her research almost entirely deals with diseases which affect aged individuals.

Like Lemon's, there are multiple research programs that deal with these diseases individually. Without taking any far-fetched position, it is undeniable that the extending of human lifespan continues. The matter of up to where these researches might take us is not foreseeable. Even if specific proposals are discredited, the call to more collaborative work in the field is generating enough response.

Giving the degree of research, and the fact that these are emerging technologies, I would like to point out how their scope often depends on (1) a mechanistic understanding of life, (2) a molecular bottom-up reductionism, and (3) that diverse biological organisms are not that different from each other in their constitution. These conditions imply a conception of the human being which we cannot esteem as traditional. The tag post-human becomes handy, but one must be careful about its usage. Yet, plain humanists may face certain problems with the anthropological grounds of such scientific attempts. The elongation of personal lifetime is an on-going process that, while on track, has not tagged a post-human label on us yet. It seems indistinguishable what the tipping point of such process would be, especially because there seems to be little clarity upon what being human is —which is under inquiry as well—.

A summary of the chapters is written below.

Chapter 1 begins presenting the term "emerging technologies" because most technologies for radical life-elongation are considered emerging. This term is greatly used nowadays in scientific publications, but its conceptual competence is unclear. The term remains poorly studied, especially from a philosophical stance. The chapter aims to bring clarity and discussion about the term. First, we critique previous usages of the term. Thereafter, a

lexico-hermeneutical analysis is conducted by questioning what it means for technologies to be qualified as "emerging." Finally, we contrast the term with the akin terms of invention, innovation, and new and disruptive technologies. From the analysis, we defend the term has a conceptual value expressed through its leverage (both present and to come), ascendance, uncertainty, and materiality. We argue that from this clearer conception we can perform better analysis, for instance, in future studies. As a result of this effort, we acquire more precision about radical human-life elongation technologies.

We continue chapter 2 by arguing that humanism and posthumanism are, within philosophical anthropology, the broad positions which inform different contemporary conceptions of the human being. For starters, by questioning Schiller's project of humanistic first principles based in everyday experience, we justify the need for reflection for conceptual principles from which to start any analysis. We present a brief account of the rise of the enlightened conception of the human being to situate ourselves at the beginning of the Twentieth Century. At this point, the problems which this modern conception has faced are mentioned. Specifically, when considering emerging technologies for human-enhancement, we comment on the critique that Henrich (2011) made of Habermas's *The Future of Human Nature.* We follow this critique to show that the possible effects of new technologies do not allow upholding an anti-metaphysical position anymore, at least regarding human nature. With this in mind, we esteem convenient to present the current context within the humanist and posthumanist academic positions. First, the work of contemporary self-proclaimed humanists is examined. With them, we understand humanism as a conception of a special dignity of human beings, conferred most likely by human reason and freedom. We review different positions within this group, displaying the

debate about what different experts consider to be human nature, with death as a special focal point for our research. The limits several humanists perceive within their positions are also presented. As we present these limitations, it becomes clear some humanists are moving towards a post-humanist position. To understand this general displacement of thought, we need to understand how posthumanism appeared. This goes through anti-humanism, understood as a heavy critique to the grounds on which the idea of the human being had been built over centuries. This critique is reviewed through Foucault's interpretation of Nietzsche and Althusser's interpretation of Marx. We follow these trails of ideas because they show how these two very relevant Twentieth Century philosophers interpreted their foregoers as critics of humanism. Following several commenters, we present how their extreme critique on humanism was detrimental for their political intentions, which caused a return to a soft-subject in Foucault, and to a soft reasoning-praxis in Althusser. The end of their philosophical journeys represents the introduction of posthumanism. To end the chapter, posthumanism is introduced as the philosophical conception which aims to de-centre any conception of the human being. Along contemporary posthumanists, we appreciate their intentions to comprehend the human being as integrated and flowing with the universe. However, we also are forced to recognise their challenges, especially when facing the need for ethical and political action, which cannot renounce to core humanistic values.

With this general comprehension of contemporary humanism and post-humanism, we proceed to analyse, question, and contrast the philosophical anthropology of Hannah Arendt and Hans Jonas, keeping in mind the implications their conception might have in the comprehension of emerging technologies for radical life-elongation. We start thus

chapter 3 reviewing the philosophy of Arendt. Her diverse propositions about human nature are presented, analysed, and contrasted with her proposal about the human condition. Along with Arendtian scholars, we establish how it is necessary to formulate certain humanism within her thought. Otherwise, it is not possible to understand many of her criticisms towards certain technological endeavours. Afterwards, the philosophy of Jonas is taken into consideration. We examine how Jonas contended to ground his famous imperative of responsibility in biological processes. This led Jonas to conclude that all life has freedom and, thus, dignity. But objections to Jonas's conception of freedom are argued. This leaves the human alone in his nature, which is enough to enable Jonas's famous imperative, but results in a blow to his pretender anthropology. We observe that under such configuration, Jonas's criticism of radical life elongation results dogmatic, and the imperative of responsibility does not impose restrictions on radical human-life elongation. From the critique to both Arendt's and Jonas's philosophical anthropology, some elemental traits seem to be unavoidably correspondent to human nature. These traits, however, do not seem to yield conflict with the idea of radical life-elongation.

Chapter 4 presents the analogue exercise to the last chapter, now concerning the philosophies of Peter Sloterdijk and Bernard Stiegler. With Sloterdijk we explore more than forty years of work, from his seminal *Critique of Cynical Reason* up to some of his essays in the second decade of our century. The starting point is an unmasking of what the human being has pretended to be, a transparent self-consciousness. This unmasking, however, hesitates between the nature and nurture debate until the publication of *Rules for the Human Zoo*. In this work, Sloterdijk clearly chooses for the nurture side of the debate while envisioning a plastic, malleable understanding of human biology through biotechnologies.

However, after this work, and perhaps due to fierce criticism Sloterdijk received in Germany, Sloterdijk's scope shifted to the spur of a sort of personal asceticisms. The notion that we are the designers of our selves flourished, while (bio)technologies became somewhat marginalised until very recently. From concepts like anthropotechnics and homeotechnologies, Sloterdijk has opened again the door to human enhancement. Yet, radical life-elongation technologies receive a summary condemnation which we put to test under the light of Sloterdijk's own anthropology. To end our analyses, in Stiegler we find the only philosopher considered in this dissertation who treats radical life-elongation emerging technologies under a positive light. This position originates from Stiegler's critique of the idea that humanity can be perverted through technics. On the contrary, he argues in favour of a human nature and technics which are originarily mutually generated. Technics is responsible for forming the horizons of human existence. Stiegler argues against the idea that technology is the object and the human being the subject of history. The linking of technology and humanity at a fundamental level is further explained with the concept of the epiphylogenetic memory, stored in our technic system. Only human beings transmit and acquire the experience of technics through tools. This identification of the human and the technical means that whether we are successful or fail, it will always be in our technic system. Stiegler considers that human life radical elongation might be an element at play in the promise of the human. This is still an open possibility. To establish it, Stiegler has contended the dominant interpretation of the Heideggerian being-towards-death. At the end of the chapter, a contrast and comparison of the positions of both Stiegler and Sloterdijk are made. The lack of solid arguments in Sloterdijk against emerging technologies for radical life-elongation is criticised. Finally, the pertinence of a concept of human nature within posthumanism is considered before facing our final conclusions.

Chapter 1 - Emerging technologies and the human being: conceptual clarifications.

1.1 Introduction

Philosophers such as Nick Bostrom (2007, 2008 & 2009a), Gilbert Hottois (2000 & 2005), or Peter Sloterdijk (2000, 2004 & 2013) have made human enhancement through technology one of their main philosophical topics. The key technologies for this enhancement are often categorized as emerging. Thus, the concerns in the topic are often oriented towards what humanity may face in the future, either near or distant. But as stated by Rotolo, Hicks and Martin (2015, p. 1827), there is no consensus regarding the term 'emerging technologies.' In the following lines we propose a problematic scope and according understanding of the term. Then, we discuss the type of emerging technologies which are aiming to enhance the human being. We will take a relevant type of emerging technology for human enhancement to keep as a guide for our discussion. Finally, we establish that our conception of the human plays a determining role in the possibility of understanding and assessing such technologies.

1.2 What are emerging technologies?

The term emerging or emergent technologies is widely used by researchers all over the world, becoming more and more prominent in academic publications. In 2014 alone, more than 350 peer-reviewed articles using the term in the title were published across journals included in the most relevant academic databases, such as SAGE, EBSCO, ProQuest, or

Web of Science. These articles originate from virtually all areas of knowledge, exhibiting a wide use of the term: we find it, to mention but a few fields, in medicine, chemistry, history, sociology, across engineering disciplines, biology and physics. This recurrence of the term in academic publications is symptomatic of two of our contemporary concerns: technology and the future. The fact that these concerns are linked through the usage of the term certainly calls for attention.

As the vast majority of terms, though, 'emerging technologies' is used without further examination. Even articles located in the spectrum of humanities often dismiss some explanation of what is meant by emerging technologies. It is also noteworthy that works such as Mitcham's *Encyclopedia of Science, Technology and Ethics* and Restivo's *Science, Technology, and Society Encyclopedia* omit the term. Even if the first includes the highly relevant one of 'technological innovation' and the second offers a detailed introduction to the term 'invention', we shall see that the difference from using these terms and using 'emerging technology' is significant. Here we present some attempts of introducing the term, and how they have fallen short from making a distinct comprehension of it. Following an analysis of previous attempts and a conceptual exploration, we aim to bring clarity to its use and discover if a concept or array of concepts can be associated with it.

1.3. Equivoque views of emerging technologies

An early effort to comprehensively use the term has been done by James H. Moor. In his 2005 article *Why we need better ethics for emerging technologies,* he takes on Schumpeter's economic development model of capitalism to produce a development outline for technology. According to the outline, technologies arise through stages: from

introduction, into permeation, finally reaching power. To better grasp how his proposal is designed, a chart presented by Moor (2005, p.113) is reproduced below:

Table 1. Stages of an open technological revolution

	Introduction	Permeation	Power
Devices	Esoteric	Standardized	Leveraged
Users/Beneficiaries	Few	Select	Many
Understanding	Elite	Trained	Common
Cost per Use	High	Medium	Low
Usefulness	Limited	Moderate	High
Integration into Society	Minor	Moderate	Major
Social Impact	**Marginal**	**Noticeable**	**Significant**

According to his outline, when social impact is significant, we face the power stage of technological evolution. But emerging technologies are not located at this stage, since they are opposed to dominant technologies; instead, they would be located along the introduction and permeation stages, and perhaps in a pre-introduction phase "…in which basic concepts and understanding develop that make the introduction stage possible." (Moor, 2005, p. 113).

For Moor, revolutionary technologies are located at the power stage, because "…the impact of the technology on society is what marks it essentially as revolutionary." (Moor, 2005, p. 112). In spite of the article's title, he relegates the analysis of emerging technologies for the sake of revolutionary technologies, subjugating what emerging technologies are to their eventual power stage. Even if this may be an important characteristic of emerging technologies, it is one that Moor does not exploit. He proposes for emerging technologies to have certain characteristics which are important to consider, but he does not offer a clear picture of emerging technologies as a distinct phenomenon or term.

As we can observe in the chart, the outline presented by Moor offers a gradual idea of technological development. If the focus goes on technologies as emerging, which would be consistent with the stages of introduction and permeation, their characteristics would be set by restricted to moderate advances in the usefulness, number of users, and accessibility to the technology. These can be summarized in that emerging technologies are not of great impact for society yet, and therefore they are, as it had already been said, not revolutionary but pre-revolutionary.

However, Moor recognises that the factors which establish these stages are somewhat inexact, and the boundaries between revolutionary and emerging technologies are blurry. He provides an allegory of the advancement from stage to stage as the advancement from childhood to adolescence and adulthood, which shows the inaccuracy of the outline but does not provide an explanation or demarcation criteria. Furthermore, the factors he established to constitute social impact are not parallel in their advancements. We cannot completely establish that a technology with few users or a high cost of use is marginal because of such criteria. The factors considered by Moor are also very subjective, since one cannot definitely determine what makes a cost of usage high, or the integration to society low because the elements depend on our social standpoint. The result is a lack of clear guidelines for establishing which technologies would be dominant or emerging. To illustrate these problems, consider the following: in May 1945 the atomic bomb may have been comprehended by an elite group of people around the globe and the device might be considered esoteric since only one country had control of its technology; yet, the social impact it had was unparalleled up to that point in history. Even if by some of Moor's criteria we would set the bomb in the introduction stage, by other more relevant criteria we

would place it in the power stage. An open eye must be kept for establishing these more relevant criteria as we explore how other thinkers have approached the term.

Moor provides a first sketch of emerging technologies. Even if the quest for comprehending them as a distinct term is largely abandoned in his article, we have clearly established that social impact of technologies is the main area from which its status as emerging could be recognised. From his, other proposals can be followed and contrasted. In a brief introduction to a compilation which presents emerging technologies, Edna Einsiedel (2009, p.3) states that "The term emerging technologies has been used to describe information and communication technologies (perhaps three decades ago), and more recently, biotechnology, genomics, and nanotechnology." The term therefore does not pertain to a specific technological field, but rather to a variety of them —a limited variety, though—. From her description and examples, it comes clear that emerging technologies are several procedures and artefacts which follow at least one of the following characteristics: they are at the development stage of production or at early stages of commercialisation and they involve forward-thinking and planning. Another two characteristics are that basic research on them could still be being conducted and that their application is still set as a project of "aspirations and hopes". Einsiedel also states that these technologies are in the scope of national interests, perceived as fundamental for global competitiveness, with significant resources devoted to them. Finally, and most notably, emerging technologies are described as revolutionary, since they have power to change institutional arrangements, both in techno-scientific fields and society in general. The label of revolutionary in this case comes from a different emphasis than that portrayed by Moor, namely that emerging technologies have a power of their own, given by the promises and illusions they create.

As it can be noted, the conceptual field that Einsiedel proposes is wide, going from technologies depending upon "basic research" up to the ones that could already be at an "early stage of commercialisation". But at the same time, it imposes restrictions to the term, by setting three —perhaps five— technological fields in which these are found. Furthermore, when determining what makes a technology emerging, Einsiedel (2009, p.6) retracts from a description of characteristics proper to the technological artefacts and procedures and suggests a condition foreign to the technologies themselves:

> …we suggest that a technology becomes emergent when it assumes its form in the public sphere —when others not necessarily involved in the technology's direct development are able to examine its gestation, often through the media or through the activities of various actors.

Thus, for a technology to be emergent, it would be conditioned to its discussion by the masses —even if they be educated masses—, by the creation of a piece of news around the technological development, and the attention surrounding it.

Again, the criterion of social impact becomes decisive, albeit in this proposal it takes the particular form of media fuss. The conditions set by Einsiedel may result inconvenient for the practical identification of the term, and make it difficult to think of a concept proper to it. Let us consider the article published by Langer (2015), named *Two Emerging Technologies for Achilles Tendinopathy and Plantar.* On it, extracorporeal shock wave therapy and ultrasound-guided percutaneous tenotomy are presented as alternatives for overuse injuries. Taken as emerging technologies —a judgement which we may consider

on trial at the moment—, these do not meet several of the requirements marked by Einsiedel:

- They are not located within the domain of nanotechnology, biotechnology, genomics, and information or communication technologies.
- The procedures are not in a development state, but rather at an early application state, a difference of which we will immediately give account.
- The purpose of application is delimited, although part of the innovation falls precisely on the recently discovered purpose.
- It is not likely that national investments were required in their concrete application.
- Media attention has not been created around these procedures. Actually, Reuters (2015), as of June 2015, does not report any piece of news related to the procedures.

Given that these technologies do not match many of Einsiedel's conditions, should we conclude that the label 'emerging' is being used wrongly? In opposition, we may understand that both procedures are indeed revolutionary both in the medical field and in the life of those being treated for overuse injuries. Their revolutionary status comes not by the development of any new artefacts or procedures, but rather by new applications of already existing procedures which are more effective and efficient than other options. This characteristic of emergent technologies has been highlighted by researchers of technology management such as Adner and Levinthal (2002, p. 51), who have recognised the importance of including the potential of application within the developmental process of technology. Indeed, this is a significant feature: the revolutionary comes from a newly revealed promise of power, a central element of emerging technologies we must keep in mind.

Moving on, in 2010 the *Encyclopedia of Technology and Innovation Management* dedicated a chapter to emerging technologies. On it, Narayanan & O'Connor (2010, p. 475) state that the term is vague, although a defining characteristic can be found in them: "…that emerging technologies have the potential to create a new industry or transform an existing one, to provide investment opportunities, and to change the world in terms of offering new benefits and transforming standards of living." From making emphasis in the place emerging technologies place in the capitalist economic system, they present a different code for coping with the term. Actually, managerial sciences and historical economics were among the first disciplines in coping with the term of emerging technologies.

Narayanan & O'Connor, using a different model of technological evolution developed by Perez (2002), place emerging technologies in the irruption and frenzy phase, the first two in Perez's model. The first phase comes after a "key invention" is produced, when new products and technologies show their potential and start being backed up by financial capital: technologies improve and more applications appear, with new investors appearing as well. Through this capital, technologies began making their way into the economy until they reach the second phase, in which the economic potential of the technology detonates intense build-up for the new technologies and their required infrastructure. Investors will explore the potential of the emerging technology for creating new markets and revitalizing old industries. According to Perez, this enforces a restructure of the productive sphere, where people who innovate will prosper and the stagnated shrivel or perish. The last two phases of Perez's model, synergy and maturity, would be comprised by consolidated technologies, thus becoming somewhat unnecessary in our present endeavour.

Narayanan & O'Connor focus on the economic aspects of emerging technologies and technological evolution, providing an important element of the term which is often ignored by experts in other fields. This role of emerging technologies on the economy needs to be strongly taken into consideration, in as much as we need to consider how our economic settings affect emerging technologies. At the same time, the authors almost ignore important elements of the transformative potential of emerging technologies, diminished to the vague tag that is 'improvement of living standards'. Their interest, of course, is in the area of finance and management, their scope is precisely the one they limit themselves to; one can, however, raise the important question of whether the management and economic sciences can really evade consequences of emerging technologies in case of these being transcendental. To better express this idea: can emerging technologies change the laid values by which economics and derivative sciences judge so said emerging technologies?

A diffused, actual and polemical example of the previous is the proposal made by technology entrepreneurs for basic universal income to be implemented (Santens, 2016; Porter & Manjoo, 2016), which is primarily based on the prediction that automation of jobs will greatly impact both the number of jobs available for a wide spectrum of the population, and also make it possible to produce all the necessary wealth to support the population without anyone having to work. The idea already raises severe criticism without even being reviewed by economists, but it provides an idea of the type of economic changes that emerging technologies are foreseen to provoke in the economic layout of developed countries.

From an ethical standpoint, Philip Brey has also proposed a short and pulling definition of emerging technologies. In a 2012 article, he establishes that emerging technologies may be

in a low to medium stage of internal development, or societal uptake, taking both aspects into consideration. This results from his description of emerging technologies as mainly being in the research and development (R&D) stage, "…meaning that they are still at the stage of research into basic techniques, or at an early stage of development which at most has resulted in lab prototypes and experimental applications but little or no serious products that are being used by ordinary users." (Brey, 2012, p. 1) By linking the term with the widely studied process of R&D, Brey introduces emerging technologies into a complex but defined area of technological studies. We are immediately led to consider the many factors that are at stakes, such as profit, benefits, social acceptance of a technology, and technical plausibility[7].

Even if versed in R&D studies, one still needs to face the fact that there are many stands and understandings of technology in such studies. Without any further clarification on what one is ought to understand by R&D, Brey leaves the term in a state of vagueness. Altogether, we are also prompted into the discussions that try to understand the role that R&D has and should have in our contemporary societies, discussions that are but a part of the struggle concerning the world dominant socioeconomic system. For instance, he does use the term technologies as both fields of research and artefacts or procedures created in such fields. We shall examine an example of the use of the term 'emerging technologies' which will show us that the clarification of whether we are referring to fields of research and/or artefacts and procedures should not be omitted.

Apart from establishing R&D as the processes in which emerging technologies take place, Brey (2012, p. 2) indicates one outstanding characteristic for them: their impact lies in the

[7] Following standard manuals for R&D, such as the Frascati Manual (OCDE, 2002) and The Fourth Community Innovation Survey (CIS, 2004)

uncertain future. No one can know for sure how an emerging technology will impact societies once it is introduced, or how it can evolve to have many other applications apart from that originally planned. This means that the study of emergent technologies pertains greatly to the field of future studies, as may be also followed from Einsiedel's optimistic description of emerging technologies projects as aspirations and hopes. This appears to be a very important characteristic of emergent technologies which needs to be taken in consideration. As a matter of fact, several futurologists have concentrated their prediction efforts on how technology will shape our future, perhaps the most prominent of them today being Ray Kurzweil and Nick Bostrom. The double problem is that while the realisation of the emerging technology is at stake, the 'user' targets of such technologies-to-be are also changing. So even if the technology develops as planned, the targets might have already changed, thus interfering in the proper emergence.

To conclude the exploration, in December 2015 an article entitled *What are emerging technologies?* appeared in the *Research Policy Journal*. On it, Rotolo, Hicks & Martin share the same impressions we presented here, and from the very similar indicators: despite a rise of the use of the term in several disciplines, there is no consensus and no clarity about the meaning of the term. To generate a concept, they depart from standard dictionary definitions of the concept of 'emergence' and consider them along with twelve different research papers in the fields of STS's, management and economy which propose certain conceptions for the term 'emerging technologies'. In the end, they highlight that "Emerging technologies are defined by five attributes: radical novelty, fast growth, coherence, prominent impact, and uncertainty and ambiguity." (Rotolo, Hicks & Martin, 2015, p. 1828).

Their study is ground-breaking as it is devoted exclusively to explore this term. Their analysis casts light into how the term is being used by scholars around the world, and reveals the somewhat divergent conception around the term, but which still can be built into a distinctive and proper concept. However, they place the analysed charge of meaning of the term entirely in the word 'emerging', relegating the second word, 'technology', as something that does not need clarification. Here we propose that, in order to grasp the whole possibilities of the term as a concept —and thus discovering reasons behind its growing usage—, the charge of meaning of both words must be considered as reciprocal. We cannot fully understand what emerging means in this term, if we do not understand what this qualifier is pointing to: namely, technologies.

To pinpoint the importance of this, we offer an example: the usage that Bogner and Torgensen (2014) have made of the term under discussion. These authors do not address the problem of defining emerging technologies, just like the others we have mentioned. But they do mention the characteristics the term generates in their own view while presenting their ideas on how technology assessment should deal with this sort of technologies. For them, emerging technologies are not concrete artefacts or procedures, but rather entire developmental fields of study, such as synthetic biology. These fields, according to the authors, represent a challenge of interpretation, since they do not have any concrete function or application yet. And actually, because of their conditions, it would be impossible to associate them with concrete applications, which can only be dimly imagined. This they call "The abstractness or the virtual character of the emerging technologies…" (p.732), and further means that these technologies are in an early stage of development,

almost in basic research. Thus, they conclude that the state of basic research, in which emerging technologies are, is influenced by their feasibility and marketability.

This characterisation of emerging technologies as technological fields "…that lack visible products or practically relevant procedures…" (Bogner & Torgensen, 2014, p. 737) serves well for the authors' purpose of presenting the challenges that technology assessment faces. But if we further examine their understanding of the term, difficulties arise. The authors state "If a technology is so new that it lacks such applications, it becomes difficult to find a context that could provide a perspective for the debate to be held." (Bogner & Torgensen, 2014, p. 733) But if the so said technology is so abstract, so undefined, then how do we even know that it is in fact technology we are talking about? If it lacks application, under what definition of technology could we justly consider it as so? Are not technologies always applied? As the previous cite says, the term emerging technologies does appear to point towards the novelty of the technology, but the link between novelty and lack-of-application is not justified. If indeed emerging technologies are a novelty, from that does not follow that they lack applications.

Borgen & Torgensen fall under the lack of precision of the term 'emerging technologies'. They set the development status so farther back into research phases that it is difficult to sustain it is actually technology to what one is referring. To further contribute to the indistinctness, understanding technology as the technological field of development becomes too broad and general. It would be as if by aiming to assess a nuclear bomb, we concentrated on describing atomic physics. In brief, their use of the term shows us that we cannot abandon the need to reflect on the meaning of technology while considering those technologies that are qualified as emerging.

Even if the case presented by Borgen & Torgensen is quite instructive, it is the consideration of the whole range of authors which evidence a lack of clarity and distinction on the term. The different portrayals of emerging technologies diverge in most characteristics, converging in few ones. For clarity purposes, a comparative chart is presented:

Chart for Concepts of Emerging Technologies						
Characteristics	Moor	Brey	Narayanan and O'Connor	Einsiedel	Rotolo, Hicks and Martin	Bogner and Torgensen
Conception of technology	Fields of study, artefacts and procedure	Fields of study, artefacts and procedure	Artefacts and procedures	Artefacts and procedures	Artefacts	Fields of study
Location of emerging technologies	R&D or being introduced in society	R&D or being introduced in society	Mainly being introduced in society (with emphasis in economy)	Span from basic research to early commercialisation stage	R&D	Early basic research
Application	Incipient but ascending social applications	Partly foreseeable, partly unclear	Technically clear, but profitably unclear	As 'aspirations and dreams'	Partly foreseeable, partly unclear	Lack foreseeable applications
Attention from the	Marginal but	Unmentioned	Marginal but	Considerable attention,	Unmentioned	Practically

public sphere	ascending		ascending and encouraged	even in the form of public debates		inexistent
Conditions for feasibility	Public understanding and use	Commercial, technical, and moral plausibility	Social acceptance and commercial benefits	Commercial, technical, and moral plausibility	Public understanding and use, technical plausibility	Commercial, technical, and moral plausibility
Type of potential	Potentially revolutionary	Uncertain	Improvement of living standards and economic benefits	Potential for application, though revolutionary for their effects as promises	Uncertain	Indefinite

If these differences are present among scholars, of course they can be also found in the general public. The entry for emerging technologies in *Wikipedia* (2015) states that these are "…fields of technology that broach new territory in some significant way…". With this, the entry leaves us without knowing where this new territory is, where the advancement is taking place. Immediately it also says that "Emerging technologies are those technical innovations which represent progressive developments within a field…" The *free encyclopaedia* does not give any more clarification, and it even presents in the examples procedures as stem cell therapy, artefacts as solid-state air batteries, and fields as wide as Robotics. This is evidence for a lack of precision on whether the term refers to fields of study, procedures, or artefacts; it could also state that it can refer to all of them, but specifying in which way this could apply.

Despite important advancements, none of the authors presents a clear demarcation of the term from other relevant ones, such as ‘new technologies’, ‘disruptive technologies’, ‘innovation’, and ‘invention’. The problem in general is the sentiment that all of these terms may refer to more or less the same processes (or artefacts, or fields of study) within technological development or change. This chaos of terms requires for some clarifications through philosophical examination and interpretative proposals, which are attempted in what follows.

In order to generate certain precise application for the term ‘emerging technologies’, there are several tasks to be done. Several usages have already been presented, and we have witnessed that there is no uniformity in its use. The suitability of such characterisations must be explored, but from where should we depart? Which is our reference point? We propose to first explore and reflect on how the term is composed, but with an emphasis on technologies that are emerging, and not in an emergence which refers to technology. What are these technologies and why are they call them emerging? Only then can we proceed to ask how this emergence conditions their technological status. How is it that technologies fit into the qualifier? Do technologies project as well something into the qualifier ‘emerging’? Next, we propose to delimit this term against others which, although similar, do not provide the same content. The term under enquiry has some close terms to it: new technologies, disruptive technologies, invention and innovation. Is ‘emergent technologies’ redundant with any of these? If so, why has ‘emerging technologies’ gained such diffusion? Is it just a fashion, a marketing motto, or is there more to it? Finally, we will return to the characterisations made by the authors mentioned in the section above, and decide on whether we can keep their focus or not, and in what sense.

1. 4. Technology and emergence

The first thing one should perhaps establish when referring to emerging technologies is that these are, in fact, technologies we are talking about. It seems like something so evident, that its sole mention could result annoying. But perhaps our previous exploration through several authors has prevented for such annoyance to appear, since we have observed that even among experts there is not a unique understanding of what technology is supposed to mean. Indeed, Kroes (1998) indicates that there is "…a lack of consensus about the primary meaning of the term 'technology', which may, among others, refer to a collection of artefacts, a form of human action, a form of knowledge or a social process." Mitcham *et al*. (2005, p. 1908) confirm a similar range of concepts which can be associated with the term technology: as objects, as activities, as knowledge and as intentions. However, they regard such spectrum not as a lack of consensus, but as a richness of the technological phenomenon, especially since all connotations for the word are deeply correlated.

From the previous, Mitcham *et al*. imply that even if the term 'technology' has different connotations, there is still a linking characteristic in all of these connotations; it is what they refer to by 'technological phenomenon'. This linking, defining or essential characteristic has been the subject of reflection for a considerable number of philosophers. Ortega, Dessauer, Mumford, Heidegger, Ellul, Simondon, Hottois, Idhe, and Stiegler may be mentioned among the most notorious of them. The debate around the sole concept of technology conforms:

> The demarcation problem —what kind of action constitutes a technological action and what kind of objects or states of affairs are technological

> artefacts?— remains an open issue. Not only is the distinction between the technological and the artificial problematic, but also that between the artificial and the natural. The latter raises fundamental philosophical issues about the relation between the human race and nature. The distinction makes sense only if the human race is considered in some respect not to be part of nature. As an integral part of nature (and as a result of natural evolution), a human being cannot interfere with nature. The distinction between the natural and the artificial is commonly taken to be identical to the distinction between the spontaneous and the intentional; these notions themselves, however, raise all kinds of philosophical problems. (Kroes, 1998)

In whichever way these philosophers have underpinned the concept of technology, the indisputable ground for their philosophical airlifts has been that technology is a means to an end. This is also the most common of conceptions towards technology, and the main characteristic of technology we must retain.

To fully conceive technology as a means to an end does not seem sufficient in order to distinguish technology from non-technology. Think of the hand: cannot the hand be a means to an end; to grab a cup, for instance? Are we to consider our hands, or our hair, technology? Technology must be a singular type of means, so another criterion must be missing. Broncano (2000, p. 114-116) proposes that technology may be distinguished by classifying it as artificial. For him, artificiality consists of an instrumentality of second order which must rest on a strategic intentionality. The possibility of such artificiality rests

on technological rationality, by which we may deem technology as rational instrumentality[8].

Therefore, whether technology is regarded as artefacts, knowledge, human action or social processes, these must be in all cases rational means to an end. Another form of yet saying it is that it must be rationally applied or applicable. This is important to keep in mind especially when talking about emerging technologies, since it is not as if specialists who miss this important notion could not be found. From this comprehension of technology — which appears to be foundational—, Bogner & Torgensen (2014) cannot maintain their appreciation of emerging technologies not being applicable, not even in their planning. Setting on a technological project must necessarily mean that there is an application in mind. Otherwise would mean that we are not dealing with technology, but with science, as typified by Bunge (2012, p. 23-24 & 51-53).

Apart from establishing this minimal requisite for any phenomena we name after the term 'technology', the condition of emerging imposes a great charge for the meaning, and it must be addressed. According to the aforementioned definitional study made by Rotolo, Hicks and Martin (2015, p. 1829), to be emerging means a coming forth from a setting, a passing from potentiality to actuality. But in this case, it points precisely to a moment of *elevation*, a moment when technologies are planned, induced and expected. The type or types of *elevation* included in this emerging condition are a central element to the present inquiry. It also means a novelty, but one that has a historical background. The curious and

[8] Even if it is his intention, we judge that Broncano does not provide a clear distinction between artificiality and nature, at least in the sense that artificiality is exclusive to humans. By resting on the conception of reason, and without addressing the problem of what reason is, he leaves open the possibility that the actions and produces of some animals may be considered rational. Indeed, this is the opinion of Dretske (1988), Dennet (1995) and Millikan (2004). Since the present enquiry is not dependent on such differentiation, we shall not proceed towards it.

singular fact about the emergence that corresponds to technology is that technology itself —this is the technology that is almost omnipresent in the post- or hyper-modern life— has been often described by several authors as emerging itself. Notably, Heidegger (1977) described both truth (ἀλήθεια) and technology as a bringing-forth, as an emergence. Both truth and technology, which are intimately related, uncover what is most proper to the human being, his most authentic possibilities. His metaphysical approach viewed technology as the attainment of modernity and as the possibility of both the ultimate danger and ultimate possibilities for human beings. If we focus on the technologies that are qualified as emerging, and apply Heidegger's considerations, then we are forced to regard them as emerging "bring-forth", as the advanced-guard of man's most authentic possibilities. Stiegler, Heidegger's acolyte in this front of thought, has departed from these very considerations to generate a strong position towards technology: that technics constitute the horizon of what it is to be human. From the historic-anthropological considerations of Leroi-Gourhan, Simondon, and Bertrand Gille, Stiegler (1998, p. 48) declares that our humanity lies within the technification[9] of our species. But, in consideration of the famous scission of traditional and modern technology made by Heidegger, the question that arises is on how this change in technology may change humanity.

However, the emergence of modern technology that thinkers such as Heidegger, Stiegler or even Bunge declare is defined in a very different sense than that of emerging technologies. They refer to a civilisation process, even an ontological process by which a deep meaning

[9] A false problem could arise here is someone questions the possibility of technics as based in rationality, making humanity akin to our rational being, and a topic established since the dawn of philosophy. But this is precisely a false problem because, if we follow the conception of technology as presented before, one is to understand technology as rationality towards an application, which supports with exactitude Stiegler's considerations.

—or a lack of it— is revealed. It is what was meant by the term ‘technological phenomenon’, closely linked to anything that the instrumental rationality generates. But ‘emerging technologies’ appears as something much more mundane, although rightly part of the ‘technological phenomenon’ and of course of instrumental rationality. Then, part of the present inquiry falls under the following question: what role is partaken by emerging technologies in the ‘technological phenomenon’? Is there even a special place emerging technologies occupy in our man-made-machine-world?

Concerns like the ones expressed by Heidegger or Stiegler have, of course, a huge metaphysical charge, which would still need to be assessed. For starters, consider Stiegler’s (1998, p. 24) notion of referring to the totality of the technical:

> Technics constitutes a system to the extent that it cannot be understood as a means —as in Saussure the evolution of language, which forms a system of extreme complexity, escapes the will of those who speak it. This is why Heidegger is opposed to Hegel's definition of the machine as an independent instrument.

If Stiegler’s considerations turn to be accurate, the questions about how technology can change humanity result on a non-sense because the path of technology results essentially the path of humanity. The technical system rises then to the level of humanity, and it becomes a humanizing system. This notion, which may be ranked to the level of a principle, presents us the peculiarity of contrasting it with Kant’s categorical imperative, by which humanity may never become a means, but always an end. This idea appears as nonsense because we are used to seeing technology always as a means to an end, and that is

precisely what we have set as our grounds. But is it possible that these grounds are essentially misconceived? Aren't there other options? Isn't our conception of the human what is at stake in this train of thought? Other visions of the human must be considered as well. But with this reflection a huge leap has been taken, though, and we must return to our present enquiry independently of these leaps in thought.

As it can be inferred from the authors analysed in section 1, the emergence of technologies can be referred to: a) their creation and perfection in the research centres and b) their potential or growing use in society. The first we can identify with R&D, the second with social impact. These two are clearly connected: R&D in technology is oriented to the application of technology in or to societies. The factors which intervene in each of them are very dislike: for instance, economic factors influence R&D in terms of motivation, the why for technological change; meanwhile, economic factors within the social impact of technology are regarded more in terms of functions, the *how* of technological change[10].

Despite the two different scenarios on which emerging technologies could be measured, we have established that both of them are integrated as a process. When alluding to an emerging technology, it is important to mention whether the nature of this emergence is in R&D, in its social impact, or in both. However this may be, one will always be dealing with an eminent state of ascending transitivity, one that is sealed by risk and opportunity. Broncano (2000, p. 136) states that, however chaotic one regards technological change, certain logic (and therefore an overall intention) remains present. In this state, technologies express their struggle for dominion. Their transitivity is towards power: this is the key idea

[10] One must remember Heidegger's characterisation of technology as means filtered by Aristotle's four causes. In this case, technological emergence in R&D responds to the final cause; whereas technological emergence as social use responds to the efficient cause.

behind the term ‘emergence’. Up to where be it possible to extend our power, our dominion of reality?

That emerging technologies tend to power is a broad generality. Who will detent this power, and the degree of such power is a matter of concise study for each case of technology. The power that came from the emergence of the atomic bomb is greater than that which came from the development of anti-fog mirrors. But even between such dissimilar cases, power is still the central feature desired in the technology. Contrary to certain philosophical perceptions, power that comes from technology is not metaphysical[11], but material and very sensible. The ability to control our surroundings, others and ourselves, to model reality into our wishes is the key desire behind technological change. Technology´s power is unquestionable, which is what explains the interest and investment made on it. Because we recognise —and this recognizing is also technological in the sense that it is certain knowledge with application— that technology does not appear from nowhere, that it has an origin, incentives and a history. And we study those to reproduce technological success, thus feeding technological change.

But as much as technology’s power is very present, power for emerging technologies is metaphysical in the sense that it is potential, and not actual. It is metaphysical as much as the kingdom of heaven or the Nirvana for a Christian and Buddhist, respectively. The comparison is not gratuitous: as we said, actions and great efforts are put into the R&D processes with faith in that the outcome of such actions will be beneficial, at least, for a society, and in the best cases, for mankind. But, contrary to religions, on technological

[11] Here and until the end of the subsection, we use ‘metaphysical’ in the sense of beyond what is perceptible to the senses.

change, on the development of technology, we can demonstrate that there have been cases of success where previous emerging technologies became dominant.

As technology's power is palpable, and the power of emerging technologies is metaphysical in the sense that it is expected and induced, therefore the expectation is of a palpable power. Because of this relation with measurable effects, because of its direct dependence of R&D, because introduction or impact in society is important, and because of the frequent use in the plural form, emerging technologies must be understood primarily as artefacts and procedures which are being developed or introduced into society. Moor has been cautious about the term as well, explaining the ambiguity it presents between devices and *paradigms* (sic), an analogy of what has been presented here as artefacts and procedures, and fields of study. The term may refer to disciplines and fields of study only as these artefacts and procedures conduct to their establishment. One might say, then, that synthetic biology is an emerging technology only in as much as the procedures and artefacts on which its focus depends are planned or in the making, not fully developed yet.

Also, if we were trying to understand emerging technologies to assess them, it seems much more proper to regard them as artefacts and procedures, because this guarantees that we are dealing in fact with technology, something that may have an application and direct consequence on society. Because of the effects of the modifier *emerging*, technologies qualified as such are to be artefacts or objects, and human actions or activities. One cannot deny that these are deeply related to knowledge and intentions, but we must deny these two the characteristic of emergence by themselves. Knowledge and intentions are applicable as they are, without further testing or trial. When we are referring to technology —thus referring to what is essentially applicable—, what is at trial is the artefact and the

procedure, and if these are successful, then the knowledge or intention behind is successful as well. If knowledge and intentions change, they do it for the sake of achieving better means.

The possibility of conceiving a technical system is not denied here in favour of conceiving emerging technologies primarily as artefacts and procedures. However, we must recognise that this technical system is an abstraction, and as useful and powerful this abstraction may be, it depends on the palpable and hankered forces at stake. Emerging technologies constitute part of the technical system, and it is something important to keep in mind. Actually, this gives the term a distinction from other relevant terms in the technological argot, and partly justifies its right of existence in terms of its specificity.

1. 5. Emerging technologies: the term *vis à vis*

The analysis of the term, as technologies and as emerging, gives certain elements by which we will now provide a distinction for it from other terms which are akin, but not equivalent. New technologies, disruptive technologies, invention, innovation, are all relevant terms in the process of technological change. However, all of these represent specific concepts and refer to different contexts, processes, or situations which partly compose technological change. One may think and even observe that, given certain settings, all of these terms may be interchangeable with the one of ‘emerging technologies’. Keeping in mind what has already been stated about the term, and showing the specificity of the other ones, the conclusion is that one of the reasons by which ‘emerging technologies’ has taken such prominence lately is because none of the other terms above can provide the same charge of meaning.

Technological change is the background, the setting on which the phenomena of emerging technologies has more analytical partaking. Broncano (2000, pp. 219-221), whose conception on the matter is taken in consideration here, states the change in technology has certain characteristics, such as being logical, progressive, complex, and resulting of social participation. Broncano does not enlist the different elements which constitute technological change, but he does mention inventions and innovations as part of it, without further precision on how these interact. Goldman (2005) and Ropohl (2005) do propose how innovation and invention integrate into the process of technological change.

For starters, Goldman (2005, p. 1903) states that in the common language, innovation and invention are somewhat interchangeable terms. But for specialists, there is a difference, and the difference contributes fairly to better understand technological change. Innovation "…is a social process in which technical knowledge and inventions are selectively exploited on behalf of institutional agendas driven by marketplace values or political policies." Within this process (in which R&D groups are only a component, along with marketing or political groups), inventions are regarded as the *raw material* for innovation. Hence, for Goldman innovation has more to do with the implementation and exploitation of the invention —and in general of the technical expertise— than with the making of an invention. This implementation of a singular invention is called by Ropohl (2005, p. 1053) "the narrow sense of innovation…", which would contrast with the broad sense that refers to the advancement of the whole technological status of a determined society.

In either the narrow or broad sense of innovation, both Goldman and Ropohl regard inventions as that with which innovation is enacted. Hence, Ropohl (2005, p. 1052) states that an invention is "…the identification of a science or technology potential matching a

specific human need or the result of this process: a novel technical product." Contrasting it with a discovery, which rests in the domain of new knowledge, Ropohl argues an invention implies creating new means for some human end. The invention is made once a product or procedure is applied successfully to a particular end. Once this is done, the innovation process begins by introducing the invention into society.

But this view of technological change is extremely linear and it overlooks two aspects of technological change. First, that at many times it is difficult to call for a definitive invention. Consider the history of the radar (Brown, 1999). From Hertz's discovery of the bouncing property of radio waves in 1886, the Russian Alexander Popov in 1895, the German Christian Hülsmeyer in1904, and the North Americans A. Hoyt Taylor and Leo C. Young in 1922 may all be credited for developing the first radar. Even Hertz himself, when experimenting with radio waves, could be credited with such invention. Which could we call prototypes, and which could we call working radars? Where was that first spark —or in the idea of Bunge, the first application of scientific knowledge— that led to the creation of such a device? Where exactly is the invention?

In second place, as Schumpeter (1983, p. 88-89) and then Castells (1996, p. 29) have attested, in our capitalistic society the making of inventions would ultimately be part of the process of innovation (in the broad sense) because these are being massively stimulated for the sake of the market and political agendas. Ropohl (2005, p. 1053) asserts that the term 'invention', as such, tends to include the idea of a spark of geniality which results in the invention. This picture contributes to the misguided idea that technological artefacts are born the way Athena was born from the head of Zeus. But most technological novelties are

hardly inventions in that sense. The term ‘invention’ aids to hide the procedural and social nature of technological change.

All of this results in that the concept of invention is static, incapable by itself to transmit the connections, influences, detours, intentions, and thrusts of technological change. ‘Invention’ does not point towards society the way ‘emerging technologies’ does. An invention may be locked up in the basement of some military facility, whereas an emerging technology cannot. Since technology is controlled and determined by the market, or by a political agenda —which we could argue that is greatly determined also by the market—, the value of inventions can only be established through its potential as an innovation. The sectors and purposes in which those technologies are meant to serve define how economic, moral or social factors may affect the R&D processes, as well as its introduction to society. The development of technology in the military industry will surely depend on different economic stimuli than those in the pharmaceutical industry; the moral values which direct some conditions in the studies will also be different, as the legal strains on each area of R&D. Thus, not all technologies are created and developed equally.

Invention refers to a product or procedure, in the same way we have proposed for emerging technologies. Nevertheless, invention fails to project the dynamism of technological change, contrary to ‘emerging technologies’. When too many clarifications and amendments need to be made to a term for it to mean what is intended, the arrival of a new term takes place. And this is exactly what happened with emerging technologies.

‘New technologies’ is another very colloquial term with which something similar happens. By setting them as new, the term indicates the novelty of technologies; but, unlike the

emerging label, it does not reflect on the 'on the making' and the promising factors of the technologies. 'New technologies' instead points towards artefacts and procedures which would be deemed as already-present and already functional.

The terms 'invention' and 'new technology' point towards the past and the present, respectively. To label something as an invention is to refer to something defined in the past, both in its form and purpose. A new technology is something that is currently at hand, as new and radical as it may be, it is already attainable. By contrast, an emerging technology sends us to the future: to uncovered, but expected and feared possibilities. The emerging technology is not attainable yet, or at least it is not clear yet whether it is an adequate technological option.

Ontologically, a 'new technology' depends on an invention or set of inventions. However, an emergent technology may or may not depend on an invention. As it has been stated, an emerging technology may be the path towards the invention, or to say it with more precision, emerging technologies are a truer image of how technology changes. One can take on Dessauer's (1927, §1) description of inventions to clarify the difference. From a metaphysical comprehension of invention as the core activity of technology — comprehension which depends on an *eidetic*, *noumenic* and theological comprehension of human creativity—, Dessauer declares that invention is the essence of technology. With this qualification, Dessauer reveals an important characteristic of technology: it must always be current, updated. Past technology is no longer technology. But as technology needs to refer to what is up-to-date, a question arises: is technological development the same nowadays as it was in the days of Dessauer?

For ages, technological developments depended greatly on men which have now become legends: from Alva Edison to Nikola Tesla, inventors fuelled technological change based on their wit. They worked almost in solitary, without much public support. Even if the image of the heroic inventor causing explosions in his barn may be considered romantic, this does not mean it was a false image. However, this is no longer the case. Technological developments today follow the principles of our economic system: teamwork, usability, profit, think-tanks, social responsibility; all of these words describe current innovation. Peculiarly, the same words hardly describe the research done by our mythical inventors. Therefore, we are forced to change the essence of technology. Emerging technologies are the new essence of technology, the technology of technology: they embody the foremost frontier of innovation within technological development.

Another relevant term that can be confused with the one of emerging technologies is 'disruptive technologies'. According to Christensen (1997), who coined the term under the idea of classifying *innovations*, disruptive technologies are those which alter the status of previously dominant technologies in terms of their social use and their market share. As the name indicates, these technologies shatter the technological practices that, before its irruption, were dominant in a social group. All of these technologies are regarded as emerging, in as much as they come from a stage of R&D and gradually or abruptly conquer the use of the public. But not all innovations are disruptive. Christensen contrasts disruptive technologies with sustaining technologies, which appear in the market, but do not displace previous technologies in the market. Accordingly, sustaining technologies can be evolutionary or revolutionary. Evolutionary technologies evolve from the improvement of previous devices or procedures, whereas revolutionary technologies appear completely

novel in the market without displacing previous technological products or procedures. All of the classifications made by Christensen could be emerging, differing on the type of emergence and its relation and effects on the precedent technologies. He, however, does not mention the term emerging technologies whatsoever.

And not all emerging technologies can be labelled as disruptive or sustaining, precisely because Christensen's determining factor is the market, and not all technologies in the making are market-oriented. As one considers technologies which are not designed for the market, both labels become awkward. Consider again the invention and development of the radar (Brown, 1999). Early in the Twentieth Century, the radar was an emerging technology: it was on a process of R&D and it rose from a set of scientific principles with a desired application. But it was, when developed, very apart from marketing purposes. Without considering Hertz, all three contestants which could claim to be the first developers of the radar worked on it in close relation or belonging to the militia in their home countries. Because of its non-linear development and an application not intended for the market, the radar could hardly have been called sustaining, let alone disruptive.

Some authors, such as Danneels (2004), have both critiqued and adopted the classification made by Christensen. His main critique has established, precisely, that the consideration of the market as a central element for the classification of disruptive and sustaining technologies does not comprise the whole of the technological development process. The proposal then goes into considering most notably the effectiveness of the technology, and the preference of the most recent one. Following this idea, we could establish that emerging technologies indeed can be classified as disruptive, evolutionary or revolutionary, losing the term sustaining, which mainly made reference to the continuation of certain

technologically-based market. But, as we have already established, in a specialized terminology, by saying emerging technologies rather than innovations we make emphasis on the products and procedures which are desired and encouraged from R&D and technological implementation.

Still, emerging technologies present a dual significance mentioned already. The double possibility of referring to an emergence in society and an emergence in the R&D process implies that, on the first possibility, emerging technologies could be very close to 'new technologies' (as Moor has interpreted), whereas in the second sense there is a farther resemblance with the term 'invention'. The first emergence is sociological, and the second emergence is ontological. But these senses are connected, and 'emerging technologies' is a term that allows for the connection to be made. This is yet another reason why the term becomes necessary for the current understanding of technological innovation.

1. 6. Emerging technologies as a main topic for future studies

Speaking of emergent technologies evokes an original meaning. They are symptoms —the heartbeat— of technological change as currently conceived. As such, they have become a topic by their own right and within their own dimensions because our societies appreciate the huge impact that decisions on technology can have on our lives. Because of the implications, there is a need to predict the outcomes of decisions in technology. The difficulty of grasping change is in the core of their nature. From a certain perspective, the term emerging technologies speaks of our arrogance to capture and control change, to domain the ever-flowing river of Heraclitus. The effort goes into gathering as much information about the technologies in development, which includes both how technologies

appear through R&D, and how they impact societies once the technologies are implemented. Then that information is processed to try and predict how technologies may develop and affect the future. Hence, emerging technologies are mainly in the domain of future studies.

That emerging technologies pertain to future studies is congruent with one of their core characteristics: the uncertainty that covers them. But at the same time, conflict occurs: how can we allude to the future, in this case of technology, if it remains uncertain? What is the point? A challenge for future studies is that their pretensions and significance vary greatly from scholar to scholar. Some authors appear to be at awe when they consider how previous future predictions have been "fulfilled." Ray Kurzweil is one of the most prominent, and polemic of such. Based on a light revision of the history of computers and cybernetics, Kurzweil (1990, 2006) has been enthusiastic about predictions in the future of computational engineering. He calls for the Moore law, by which computers' process capacity doubles every 18 months. Making calculations with such law, he concluded singularity[12] will occur around the year 2045. On the other hand, scientists such as Daniel Dennett, Selmer Bringsjord, David Gelernter and Paul Allen have been quite sceptical about predictions as such. The argument coined by Allen (2011) is quite illustrating:

> Kurzweil's reasoning rests on the Law of Accelerating Returns and its siblings, but these are not physical laws. They are assertions about how past rates of scientific and technical progress can predict the future rate. Therefore, like

[12] The term refers to the appearing of a technological super-intelligence, whose conditions and characteristics are highly debated, and very difficult to predict. First coined by Vernor Vinge (1993), the term's history can be traced back up to Condillac. For an introduction on the history of singularity and its current debate, *Vid*. Eden, A., Moor, J., Søraker, J., Steinhart, E., eds. (2013). *Singularity Hypotheses: A Scientific and Philosophical Assessment*. Berlin: Springer.

> other attempts to forecast the future from the past, these "laws" will work until they don't.

The underlying obstacle for such predictions to work is that factors which determine the success of any given technology are so diverse and complex, that predictions become futile. Adding up, Bringsjord (2013, p. 395) argues that such predictions are actually fideistic. They are not based in any evidence but in an extrapolation of historical currents and extreme hopes, from which no consistent prediction can be made. As a result, past declarations about technological possibilities have failed in general, and have proved not to be trustworthy, or even a part of mere science fiction. And with people such as Nvidia's CEO Jensen Huang (Tibken, 2019) declaring that the fulfilment of Moore's Law will come to an end as early as in 2025, the objections to Kurzweil's predictions are very active.

Despite controversies, the growing consolidation of future studies is undeniable, with prominent universities all around the globe establishing research centres for future studies in the last 20 years. But, what are these studies about? How do researchers in this field work? If they are so inaccurate, why do prestigious universities fund them? Future studies can be described as the interdisciplinary and multifactorial study for the forecasting of the future, with an emphasis on the future of humanity. To this respect, Bostrom (2009b, p. 41), founding director of the Future of Humanity Institute at Oxford, clarifies:

> In one sense, the future of humanity comprises everything that will ever happen to any human being, including what you will have for breakfast next Thursday and all the scientific discoveries that will be made next year. In that sense, it is hardly reasonable to think of the future of humanity as a topic: it is

> too big and too diverse to be addressed as a whole in a single essay, monograph, or even 100-volume book series. It is made into a topic by way of abstraction. We abstract from details and short-term fluctuations and developments that affect only some limited aspect of our lives. A discussion about the future of humanity is about how the important fundamental features of the human condition may change or remain constant in the long run.

Therefore, since future studies deal with expected change, they should be as concerned with the present as with the future. People involved academically in future studies include mathematicians, philosophers and scientists. All of them provide tools and information to decipher the settings of the world in the future. Because of the complexity of variables, work must be approached interdisciplinarily. To a certain extent, it is a speculative task, a characteristic which has granted the field several criticisms.

Responding to these criticisms, Bostrom (2009b, p. 43) explains that speculation is not some absolute description of a thought process. Instead, speculations may be made better or worse depending on the methods and information at our disposal. Also, speculations are not the only product of future studies, which can also make categorical assertions about the future. People and institutions are always calculating the conditions of tomorrow's economy, population, climate, and many other aspects of life, in order to make more accurate decisions and be ready for change. Forecasts will be made with or without future studies, which comprise academic and professional actions to improve the process of decision-making. The possibility of improving such forecasts cannot be overlooked. That is the reason why companies and governments ask for advice with specialists in institutions such as de Future for Humanity Institute.

Still, the task of future studies implies several challenges. The first challenge is to identify the factors which can be assessed and which are more relevant towards configuring our future existence. Drastic and broad possibilities for the future are often their topic of discussion: from human extinction to the colonisation of other planets, human thrive or languish are the main two broad and rough possibilities. Often the general impression is that humanity —understood as the collective of human beings— may remain in more or less the same terms as it has been for the lifetime of any given person. But with so many factors that can alter our existence, such as climate, technology, population, and the effects of outer-space, Bostrom (2009b) considers that the continuity of current human conditions is the least likely scenario if a reach of at least 200 years is sought.

Hence, another factor that plays like a challenge is the temporal reach of such studies. It is not the same to achieve a prediction about tomorrow, the next year, or the next century. Predictions are difficult by themselves, and even a prediction about tomorrow can turn out to be quite wrong. To what extent can we predict the shape of tomorrow's economy more than the economy in ten years? Factors in the blind and the potential of change should be considered exponentially as the prediction advances in time, but even predictions dealing with the immediate future are challenging. However, the restrictions set by time are not uniform and depend also on the subject of future studies. Consider next winter, and next summer in the northern hemisphere: despite their position in time, one can hardly miss that the temperatures in the summer will be higher than those during the winter.

The key of such predictions is having the right information within a correct interpretation, pointed towards a conceivable moment in the future. There are many factors of which there is not informational control: extra-terrestrial life and certain cosmic events —such as the

sudden impact of a very fast meteorite— are part of these. Our best chance is to part from the factors of which we have more control and are highly relevant. Technology is one of such factors, and according to specialists such as Lee (2009) and Berg-Olsen (2009), it is the most pressing and relevant one, and the reason for this lays in technology's power.

The human race is bedazzled by the technological conquests of at least the last one hundred and fifty years. What human beings today are capable of doing makes us immediately wonder what we will be able to do in the future. When thinking in risk, we also think about how to avoid risk and technology is our only resource to avoid risk[13]. But, as previously stated, technology never fails to be potentially beneficial and destructive. Thus, the control of technological change becomes very important for our future that the centrality of technology for future studies is evident. The possibility of planning technology comes from its very own nature. But not everything in technology can be planned because technology can fail, and planning is technological itself.

The conception of emerging technologies is crucial in this task. As we have said, helpful future studies depend on the quality and opportunity of information, on a correct interpretation and on an assessable moment in the future. A more defined concept of emerging technologies helps us root the current possibilities of predictions on technology. Consider the prediction made by Drexler (2013, p. 7, 150) that with nanotechnology we will be able to achieve atomically precise manufacturing, a process by which it would be possible to generate anything out of thin air. Such prediction, estimated by the year 2100, has raised several criticisms in the science community because there are no actual signs of

[13] We argue that without a moral compass technology may and has resulted in the worsening of the world and of humanity. However, it is also true that moral principles without the possibility of action are futile, and to such scale, effective actions can only be made through technology.

nanotechnology advancing towards that goal. Nobel Laureate Richard Smalley (2001, p.77) has even elaborated an argument against such possibility; the argument of the *fat fingers and sticky fingers* states that:

> There just isn't enough room in the nanometer-size reaction region to accommodate all the fingers of all the manipulators necessary to have complete control of the chemistry.... [And] the atoms of the manipulator hands will adhere to the atom that is being moved. So it will often be impossible to release this minuscule building block in precisely the right spot.

The bottom line is that atomically precise manufacturing is not in current R&D, and its application is not even guaranteed or clear, since debate is present on such matter. We lack the basic scientific back-up to attempt such procedures. Therefore we must conclude it is not even an emerging technology. If future studies consider this apparent technology into their calculations for the future, the possibility of failing at such predictions is greater. To actually deal with emerging technologies means that future studies, and any other field dealing with the future of technology, are conducting research based on the most solid information available for a foreseeable end.

The present information must be as certain and complete as possible for it to be worthy of attention. Thus, it must be as scientific/reasoned as possible. Without this characteristic, future studies cannot be granted authority. This certainty and completeness call for us to establish the grounds from which emerging technologies may introduce modifications into our world. As we will establish in what follows, the most pressing emerging technologies

call, in the first place, for establishing and concluding the long ago formulated quest of Diogenes, the dog: “I am looking for a man.” (D.L., 1972, §6.2)

1.7 Human enhancement emerging technologies

Following the previous analysis, contrast and critique of the quoted specialists, we have synthesised four characteristics for a concept of emerging technologies:

1. Leverage: a promise of tomorrow’s power exerts its own power today. Emerging technologies comprise this dynamism, by which they awake hopes and threats, but also enact budgets and actions today.
2. Ascendance: Emerging technologies are in train of their realisation, either because of their material realisation (R&D) or because of their social implementation. By ‘train of realisation’ we mean that emerging technologies are part of a plan. They are systematically encouraged, propelled by intense cultural forces. A notorious feature of this characteristic is that it indicates the technicalisation –or instrumentalisation– of technological research and change.
3. Uncertainty: Whether the effort and resources placed in emerging technologies be successful, or not, is not clear. This and the previous characteristic commonly place the study of emerging technology into future studies, as previously indicated.
4. Materiality: It is possible to clearly identify the artefact or process that is being socially introduced or technically developed, linking it with a defined application.

The synthesis has looked for those recurring characteristics in several specialists and rubrics them under one conception, such as uncertainty, ascendance and leverage. On the other hand, we affirm the need for some correction in the degree of uncertainty and level in

ascendance and thus introduce the category of materiality against the idea that emerging technologies might be in basic research. In consideration of all of these characteristics, we can maintain that there are no truer emerging technologies than those that have been named as human-enhancing, among which those aimed for human life-elongation are usually placed. Before we can explain our reasons for alluding so, we must answer some questions.

1.8 What are exactly human-enhancement technologies?

The question is formulated as any inquirer would express it, and it automatically directs us to the first needed precision: there is no undisputed definition for human-enhancement technologies. We can anticipate this is the case because there is actually no undisputed definition of the human being, which results in the difficulty of establishing an undisputed understanding of human enhancement. But the difficulty secondarily also lies in what we mainly understand for enhancement. Stephen Lilley (2013) has proved how difficult it is to establish objectively what enhancement of human traits may be. What transhumanists hold as transcendence, the conservationists[14] will hold as a transgression.

Thus, when speaking of human enhancement, one is already taking a side on the debate; otherwise, another term would be chosen. At the core of our thesis is the argument that enhancement is not the same as transcendence or transgression. All of these tags may be attributed to emerging or fictional technologies such as inter-mind connection, gene modification or even breast implants. The difference will arise from the preconception of the human being each side defends. Perhaps a more neutral term could be human-altering, but it also results extremely vague.

[14] Lilley identifies as conservationists both religious and secular thinkers which regard certain alterations of the body, and especially the mind, as a threat to human wellness and dignity.

The type, degree and result of these technologies results also problematic. Dealing with a classification for human enhancing technologies, Brey (2009, p. 171) states:

> A brain prosthesis is likely to have different consequences for personal identity than a breast implant. To adequately analyze the consequences of human enhancement for personal identity, we therefore need to distinguish between different kinds of enhancements, to enable us to explore different effects on identity. Enhancements are improvements of human traits, which include mental and physical attributes and abilities and behavioral dispositions. The impact of an enhancement on identity may vary with (1) the type of trait that is modified, (2) the means by which it is modified, and (3) the extent or degree to which it is modified. I will now discuss the different types of enhancements that can be distinguished along these lines.

Within the first type, Brey (2009, p. 171-172) distinguishes body and mental enhancements. The former subdivide in physical and cosmetic enhancements, while the latter into cognitive, affective and personality enhancements. In the second group, Brey ranges them by the means for modification: prosthetic, chemical and genetic enhancements. In the last group, the classification goes for intra-normal or supernormal enhancements: "We can therefore distinguish between intranormal enhancements, which are improvements of traits that remain within the normal range for human beings and supernormal enhancements, which are improvements beyond the normal human range and additions of qualitatively new traits." (Brey, 2009, p. 174).

As a result, it is impossible to give an exact description or definition of human-enhancement technologies. And it becomes even more complex to attempt a judgement of all of them in bulk. However, the complexity does not prevent anyone to be witness of the potential change that certain technologies, which generically we name human-enhancing, may bring to the human being. And we are not philosophically prepared to deal with them. In the following section we will observe the pressure of such technologies.

1.9 What technologies are usually associated to with this term?

It is a particularly difficult task to attempt a catalogue for emerging human-enhancement technologies. Apart from the difficulties of criteria, which we have already discussed, the task is nearly impossible because of the many different institutions across the globe that conduct research applicable to enhancing human beings. Even when attempting a list, generalisations must be practised, as Lüthy & Koops (2013, p. 2) demonstrate:

> …the 2003 Technology Festival held at Amsterdam, which dealt with the issue of the 'makeable man', convey an idea of the diverse connotations of this term: 1. Cloning, 2. Prenatal selection of babies, 3. Gene therapy, 4. Techniques of conditioning behaviour, 5. Neurosurgery, 6. Replacement medicine, 7. Cosmetic surgery, 8. Anti-ageing, 9. Top-class sport (enhanced performance), 10. Cybernetics (applying artificial intelligence to human beings), 11. Nanotechnology and its use inside the human body, 12. Nutrition.

Instead of attempting a list, which would result exhausting and futile, we next provide of two tokens of such technological research. The first are the focal emerging technologies we

have chosen. A second example is also presented for the sake of showing the scale and depth of this type of emerging technologies.

As we have already shown, multiple research projects are conducted today to prevent or reverse ageing in human beings. There are plenty of approaches towards this goal, each of which may be deemed as en emerging technology of its own; they may also converge, and at least in their emergence they do converge towards this goal: prevent or 'cure' ageing. After a summit regarding the topic, a large number of scientists prepared an article, which concludes:

> Accumulating scientific evidence from studies conducted in various organisms and species suggests that targeting aging will not just postpone chronic diseases but also prevent multiple age-associated metabolic alterations while extending healthy lifespan. A number of pathways affecting metabolism, growth, inflammation, and epigenetic modifications that alter the rate of aging and incidence of age-related diseases have been identified. Interventions with the potential to target these pathways safely and to induce protective and rejuvenating responses that increase human healthspan are becoming available. (Longo, V. D., Antebi, A., Bartke, A., *et al.*, 2015, p. 510)

The collective article is very cautious, and does not state any amount of years in which life- and health-span may be increased. Apart from precaution, another reason for this is that the number of involved scientists is so large, and the described technologies so varied, that the number may result highly debatable. But, within all this caution, one must recognise the

message is very clear: technologies which can make humans live significantly longer are being developed.

The group of scientists assembled and worked together from an array of disciplines with this very goal in mind. Within the enlisted technologies, we recognise one that has called the attention of both the scientific community and ethicists: epigenetic modifications. But what is there about direct genes editing? Until very recently, gene editing was considered difficult to achieve, especially when working with human genes. But the development of CRISPR, a gene-editing tool has accelerated the process. Gene-editing is happening at this very moment. The science academies of China, the US and the UK held a summit in Washington, DC to discuss the possible applications, benefits, risks and limits for gene-editing tools, mainly the ones based on CRISPR (Reardon, 2015). The fuss arose from the announcement in April 2015, of editing of embryos already conducted in China. No matter what the precautions were, we know for a fact that edited human embryos are a matter of the present.

Nonetheless, Gene editing by CRISPR is still an emerging technology which, potentially, may very much alter all of the human condition, allegedly enhancing it. Even when the technique becomes technically more stable, its accessibility and gradual penetration in societies still mark emergence in its core, with the inherent risks. Reporting on the Washington summit, *Scientific American* (2015) puts it exactly in these words: "…new ways to alter human DNA, which could cure diseases but also literally change humanity." No one denies the possibilities of the technology impacting directly on the human being. Yet, no one seems to address the question of what the human being is: it is just taken as granted or ignored.

1.10 Human-enhancement: humanity's final question

A preconception of the human being is needed to generate any judgement for what we have broadly identified as human-enhancement technologies. On the other hand, we have established that the technologies which can be truly deemed as such are *still* emerging technologies. As a result, virtually all of the scientific and political community of the world are attempting to form a judgement regarding these emerging technologies on preconceptions which are not scientifically/reasonably grounded. And, since it is deeply related to future studies, it had been established that any treatment of emerging technologies has inherent risks which can only be reduced if our information is as trustworthy as possible. Our main problem is that, in this case, the trustworthy information we are looking for is the answer to what a human being is.

Thinkers, who have dealt with human-enhancing technologies, such as Miller & Willsdon (2006), Brey (2008), Lilley (2013), Koops, Lüthy, Nelis Sieburgh, Jansen, & Schmid (2013) and Hauskeller, (2013), recognise the importance that preconceptions about human beings have in the thinking of the alluded technologies. Few among them, such as Lilley, recognise the philosophical and anthropological grounds from which different groups engage in the ethical debate surrounding the same technologies. Nevertheless, authors do not engage in the analysis, critique, exploration or examination of the preconceptions. And, with the exception of Hauskeller, none of them attempts to form an original well-grounded conception of the human being that could be a beacon for the judging of human-enhancement emerging technologies.

The rough reasons for such limitations are quite blatant: proposing any comprehension of the human being that could meet the thought requirements is overwhelming. The problem of what the human being is results as one of the most complex problems that could be addressed. It covers the widest and most contrasting variety of disciplines, scopes, and creeds. On top of its complexity, it is not a necessary discussion for the advancement of technology. It can be passed by, but it remains the elephant in the room.

However, it is a pressing matter for the sake of argumentation. Post and Binstock (2004, p. 29) summarize the opinions of people involved in emerging technologies for human life-elongation as follow: "Not surprisingly, hardly any of the contemporary scientists, physicians, social scientists, or humanists who have commented on the desirability of prolongevity has expressed favorable views of attempts to achieve arrested aging or virtual immortality." And all while lacking reflection on the subject and object of research.

In the following chapter, we shall advance an analysis of such ideals from Lilley's impression that attitudes towards human-enhancing technologies may be roughly classified in two: the transcendentalists and the conservationists. Philosophically, we can relate them to the humanists and posthumanists. We shall recognise a plurality of voices inside each of these reductionist tags, which all create an open debate about the human being.

Chapter 2 – The concept of the human being as a problem for radical life extension: humanism and posthumanism.

2.1 Introduction

Human enhancement through technology is a well-discussed matter nowadays. Within it, human life-elongation is more often than not the bull's-eye for criticism. As stated in the previous chapter, the degree which human enhancement can and should reach is in the centre of ethic-philosophical discussions regarding emerging technologies. Nevertheless, most of the time discussions omit the examination of their grounds, within which we are focusing on the conception of the human being. The general dominance of a pragmatic and analytic paradigm in philosophy apparently has taken a toll into disregarding the foundations of philosophical enquiry. We do not deny the fruitfulness of contemporary applied philosophy, but we also argue in favour of the examination of its grounds, the inquiry of the root concepts and material conditions which permit them. At the dawn of the pragmatic philosophy, F.C S. Schiller (1903, p. xix) expressed the necessary balance in the reflection made by philosophy; he thus accuses positivism of ignoring the fact that metaphysics is required to justify our natural description of our world, but he also accuses abstract metaphysics of constructing grand, disconnected imaginary worlds which become nothing more than fantasies.

Schiller calls for a necessary balance among the examination of our 'first principles', and the uplift that philosophy must commit from them. Within a philosophical community, this necessary balance takes shape in the commission of different philosophical tasks, and the academic critique performed by peers. Given the great number of philosophical projects

that have arisen in what we may call applied or focalized philosophy of technology —as a result of both the introduction of STS studies and greater funding for such type of studies—, here we partake in exploring more fundamental aspects of philosophy of technology, in as much as it deals with emerging technologies for the elongation of human lifespan.

Part of this effort, as we have discussed, is the consideration of what an emerging technology is; another central issue is the seminal comprehension of what being human means. As a matter of fact, Schiller (1903, p. xvii) considered this knowledge as something already given to us through the human experience each one is already engaged on. After all, when we look at our hands, or into someone's eyes, when we think about our problems as individuals and as societies, we may experience all of this as tokens of humanity. For Schiller human experience is self-evident, and needs no further demonstration; it is both fundamental and pragmatic, and constitutes for pragmatism what Aristotle would call ἀρχαι, or first principles.

The problem with all first principles, of course, is that we can always ask ourselves if these are really a good starting point for our endeavours. Structuralist, post-structuralist, and postmodern thinkers often argue that such a conception of human experience is overgeneralizing, and that human experience cannot be seen as the same for all. *In nuce*, this is the basic problem of all attempts to describe or de-describe the human being. The attempts of description —or even worse, definition— can rapidly be accused of being deficient, either logically or morally. Logically, because from the case of a group of individuals we cannot partake into offering an explanation for any new individual we may meet; morally, because very often these generalisations of what being human is transform into standards for segregation. These critiques about the construction of a whole image for

the human being often derive in other positions with merit for their own, an account made possible for human beings.

In this chapter we aim to present the main positions and problems within contemporary philosophical anthropology when dealing with the conception of the human being, i.e., in its ontological dimension. We identify the main, broader positions regarding the conception of the human being as humanism and posthumanism. Before reviewing the different positions on each side, we will show the need for such clarification by reviewing the shortcomings in the critique of human enhancement.

2.2 The need for the conceptual clarification of the concepts humanism, antihumanism and posthumanism.

From the ancient cynics, going through the stiffest of medieval nominalism, Hume, and up to postmodern contemporary thinkers, the critique of such overgeneralisations results in new emphases on difference and alterity. What can be made out from these greatly varies, but according to Butterfield (2012, p. 22) heavy critiques on conceptions of the human being often result in that we cannot give any longer an account of identity, belonging, or intrinsic value for human beings. The fact that this problem is conceptual as well as practical was clearly set by Haraway (2006, p. 122):

> The theoretical and practical struggle against unity-through-domination or unity-through-incorporation ironically not only undermines the justifications for patriarchy, colonialism, humanism, positivism, essentialism, scientism and other unlamented -isms, but all claims for an organic or natural standpoint. I think that radical and socialist! Marxist-feminisms have also undermined

> their/our own epistemological strategies and this is a crucially valuable step in imagining possible unities. It remains to be seen whether all 'epistemologies' as Western political people have known them fail us in the task to build effective affinities.

This is the complementing problem to the overgeneralisation of the human experience, as we stated from Schiller. If we keep both problems at aim, we can understand they are the two sides of the same coin: how are we supposed to have an open conception of the human? Is an open conception even possible? Contemporary discourses regarding human nature try to establish the *just mean*, an understanding of the human being that is neither essentialist nor iconoclast; a position that allows for communion to arise while avoiding the risk of segregation. However, these attempts are not without problems, as we will try to exemplify in what follows.

The problem of informing a concept of the human being is acuter nowadays because of emerging technologies for human enhancement, but by any means it is a novelty. In approximating to the previously outlined debate, we enter into one of the main philosophical problems in the western tradition. The first and foremost philosopher who has recognised the centrality of the problem was Immanuel Kant. By expressing how the entirety of his philosophical programme could be summarized into attempting to answer what the human being is, Kant resolved that understanding the human being is the pinnacle and cornerstone of any philosophy. Accordingly, Kant's Copernican revolution was the doorstep for German idealism. Nonetheless, we recognise that many were the philosophers who attempted a better comprehension of the human being as a central task for their philosophical endeavours, paying its consequent toll. And the results are palpable

throughout the history of philosophy. Thus, Plato's attempt to define the human being is course material in universities worldwide and Aristotle's crossed definition of ζῷον πολιτικόν with his description of human λόγον ἔχον contributed to the foundations of nearly 2,500 of Western thought. The *Consolation* of Boethius and his philosophical treatises on the *subjectum* greatly defined the understanding that Middle Age philosophy had of the human being, and ultimately ended as background for Descartes' formulation of the *cogito*.

Thereafter, the encomium of the human reached a zenith during the Enlightenment. Reason and free will —autonomy, in Kantian terms— were reckoned as the invaluable dignity of the human. This translated into humans being the only inhabitants of the realm of ends, realm which in turn gave the modern project a whole new direction and intention. Here we take Habermas's (1989) notion of the modern project, remarking its vastness and complexity, from which a plurality of elements arises. These elements can show to be contradictory among them: for instance, we can include both the extension of life span through the medical sciences and the development of increasingly-sophisticated weapons. Habermas himself, in consonance with the critique of instrumental reason performed by the Frankfurt School, would deny such contradictions and classify them as detractions from the project of modernity. However, other authors such as Nietzsche, Heidegger or Foucault would consider such contradictions as expressions of the humanistic project of modernity itself. Summing up, this is the very centre of the debate we are pursuing to understand for emerging technologies for radical life-elongation.

The positions that have grown within this debate are commonly labelled as humanism, antihumanism and posthumanism. Whenever one starts dealing with any sort of *–isms*,

distrust and care must be drawn into the front of thought. If such *–isms* are of the sort we are approaching, words lead us into a conceptual labyrinth which seems rather complicated for something as immediate in our experience as being human. But, where does humanity reside? In what does humanity consist? Do these questions even make sense? Are we not rendering an essentialist view of human beings? What is wrong, anyhow, with an essentialist understanding of what being human means?

These questions reach into the discussions about human nature, which is the main term at dispute within the aforementioned positions. The term 'human nature' presents a double problematic, of referential and of meaning. The first is because the object to which it may refer varies across different theoretical proposals. What we mean by this is that when someone refers to 'human nature', he might very well be pointing toward human conduct, human attributes, human biology, or even spirituality. It could also mean a combination of these. Whatever the case is, it still seems that whenever someone invokes the term 'human nature', what is being pinpointed is a certain regularity and uniformity, to say the least; an essence, to say the most.

The second problem, common in philosophy to key terms, persists even if the object is quite identified and shared among certain theories. The characteristics given to 'human nature' quite largely vary among different traditions, disciplines and thinkers. However, some affinities may also arise. Twentieth-century philosophers share the burden of biological knowledge of life along with the crescent awareness of the varieties of cultures. These result in conditionings for any proposal of the human nature which cannot be ignored. At the same time, the problem of reductionism cannot be simply avoided. To show the complications one can encounter, we will consider the attempt made by Habermas

(2003) to ethically assess emerging technologies for human enhancement, specifically from before birth. The German philosopher struggles to make a judgement for these technologies while remaining post-metaphysical, thus making the outcome troublesome. Habermas's case is also presented as a good example of how efforts to balance essentialist and iconoclast understandings of the human being result troublesome. We follow the clues of Sharon's (2014, p. 76) diagnosis as she states that: "The intensity of the human enhancement debate becomes more understandable when it is framed in terms of a profound and incommensurable disagreement about the nature of human nature…". We will review the texts contained in *The Future of Human Nature,* and a critique of those very texts made by Daniel C. Henrich (2011).

Habermas sets off by reaffirming his post-metaphysic position. This very first act is symptomatic not only of Habermas's difficulties, but in general of the philosophical core in today's struggle to define humanity. He even resorts to state that theories as important as Rawls's are set in a post-metaphysical framework. We do not share this consideration: the very original position stands on necessary, undisposable assumptions of the human as being capable of reason, of will and of communicating with others. These conditions, as important as they are, can only be deemed in a pure form from a metaphysical standpoint. Actually, the same happens with Habermas's theory of communicative action: there are necessary conditions the participants of communities must fulfil. One could wonder on whether it is possible, and convenient, to declare such requisites, to link them with what being human is, or perhaps, with what being a person is.

For Habermas (2003, p. 93) there is a controversy between those who understand human nature from the languages of physics, neurology and evolutionary biology, and those who

understand human nature from religion and metaphysics, even if the proposals that arise from the later take stance from anthropological facts. Under the condition of postmetaphysical thought, the ethical self-understanding of the species, which is inscribed in specific traditions and forms of life, no longer provides the arguments for overruling the claims of a morality presumed to be universally accepted. But this 'priority of the just over the good' must not blind us to the fact that the abstract morality of reason proper to subjects of human rights is itself sustained by a prior *ethical self-understanding of the species, which is shared by all moral persons.* (Habermas, 2003, p. 40)

However, most likely because of his own philosophical positions, in this work dealing with genetic engineering of human embryos, Habermas does not attempt a definition or exploration of the concept of human nature. He does recognise the term as problematic, but hurries to mount his ethical proposals on a non-discussed comprehension of the concept. For Habermas, the word 'nature' tricks him into the dichotomy of what is natural and what is artificial. And nature, identified with the biological, is the only aspect of human beings which remains constant: "They [the questions about prepersonal human life] concern not culture, which is different everywhere, but the vision different cultures have of 'man' who —in his anthropological universality— is everywhere the same." (Habermas, 2003, p. 39) For Habermas, biology, i.e. human nature, is the common ground from which culture embodies. Unfortunately, Habermas does not point out the form in which culture raises from human nature. We can infer that within the natural self of man there are certain fixed attributes, and certain random attributes; or certain fixed attributes which vary in their degree. We can infer this because Habermas is worried about the possibility of making a child gifted for music, or mathematics, and how this could affect the moral perception of

him or herself. Apart from the ethical assessment, which we are not interested in following here, it is evident that, for Habermas, genetic engineering would allow altering a nature-given ability, intelligence, which is present in human beings, although in several degrees.

From these natural attributes, Habermas perceives that the intervention on them could greatly affect personal freedom. He thus estimates that the arbitrary heredity of the genome lies as material foundations of our freedom, and this problematizes genetic manipulations as threats to that freedom: "The perceived, and dreaded, advances of genetic engineering affect the very concept we have of ourselves as cultural members of the species of 'humanity' —to which there seems to be no alternative." (Habermas, 2003, p. 40). This conception goes as far as to establishing the concept of birth as a reason for being able to embrace change: "In acting, human beings feel free to begin something new because birth itself, as a divide between nature and culture, marks a new beginning." (Habermas, 2003, p. 59). Based on such considerations, he warns against a very likely instrumentalisation of human nature through genetic engineering of unborn humans. "The danger for such a person (prenatally genetically modified) is that she is no longer capable of understanding herself as the undivided author of her own life, and thus feels bound by the chains of the previous generation's genetic decisions." (Habermas, 2003, pp. 91-92)

Henrich has identified well the problem with Habermas's argumentation:

> In discourse ethics, Habermas held a quasi-transcendental status of autonomy and (in contrast to Apel) denied the necessity for any 'meta commitment for morality' (2001, 76ff.). Since humans have found themselves in a social and thus normative context ever since, he has not taken a situation into account in

> which we have to assess our morality as a whole. Yet, in light of biotechnology challenges, this has changed: Habermas now assumes that deontological accounts are inadequate to answer these kinds of ethical questions. (2011, p. 265)

And, at the foundation of this problem, he recognises the lack of a clear model for the human being. Henrich does not follow that trait, though. Neither does Habermas (2003, p. 80), despite recognizing it in the postscript as one of the main objections to his main claim: "The third objection casts doubt on the premises of postmetaphysical thinking, and recommends instead the adoption of rather strongly ontological background assumptions for the 'species-ethical' context in which morality should be embedded." Further, Habermas does not provide explanation or proof of how a 'defence' of human embryos against genetic intervention, manipulation, or usage, could be done without metaphysics. And Habermas should have really done so, considering that (1) his argumentation depends heavily on a metaphysical distinction between the natural (genome) and the artificial (culture), but he does not explain how these two are related, or why he places freedom as sourced from the natural part of the human being (Habermas, 2003, pp. 13-14, 22); (2) he dares to utter metaphysical claims such as that law and morality share the same direction as science and technology, without specifying which direction that might be (Habermas, 2003, p. 24); (3) he suggests personal identity has biological foundations, but does not explain how (Habermas, 2003, p. 27); (4) he claims to be looking for a "conclusive and neutral solution" suitable for "competing worldviews" in regard with embryos' destruction and prenatal genetic diagnosis, but disregards the fact that some of these worldviews include strong metaphysical premises which directly establish the dignity of the embryo

(Habermas, 2003, p. 38); and (5) he asserts the embryo has a "quasi-subjective nature", and humans an "inner nature", without explaining what these can be, or how could we understand them post-metaphysically (Habermas, 2003, p. 50).

The main problem that Habermas faces then is a lack of clarity when he uses terms such as human nature and human identity. As Henrich (2011, p. 263) says:

> The fact that he does not argue from a strictly deontological point of view gives rise to the question why we should be moral at all. This kind of question is typical for non-deontological approaches such as Aristotelian or anthropological ethics. Therefore, the quest for an anthropological and not only action-theoretical understanding of 'human nature' becomes important. Yet, Habermas still (as in his earlier writings) refuses to address this issue…

For Henrich, however, the problem resides in that Habermas turns to a teleological scheme of argumentation when facing biotechnologies, while trying to comply with his traditional deontological framework. The turn makes Henrich seek for Habermas's anthropological sources, which he finds in George Herbert Mead and Arnold Gehlen. The first, according to Henrich, provides an explanation of phylogenetic development of human beings in a pragmatic perspective; the second, to link morality, through reason, with human nature. "The problem, however, is that Habermas does not explicitly address the relation of nature and reason —either in a theoretical or in an anthropological manner." (Henrich, 2011, p. 265).

But the problem is more fundamental than as portrayed by Henrich: why is Habermas forced to use teleological arguments? Answer: inside his deontological framework, he has

been cornered by biotechnologies for human enhancement, and he has been forced to reach for conceptual resources out of his self-formed tradition. By recurring to concepts such as 'species-ethical self-understanding' and trying to apply it to embryos, Habermas enters a realm of ethics in which he cannot keep avoiding essentialist-oriented questions towards what it means to be a human being, a person, and to have an identity; yet, he does avoid such questions.

Habermas presents a typical case of how emerging technologies for human enhancement are discussed without suitably considering the anthropological background of our discourses. We call not only for the recognition of such backgrounds, but for their examination. For most cases, a preconception of the human being operates within different discourses. As already stated, these are often labelled as humanist, post-humanist and anti-humanist. Complexity arises, of course, since each of the positions contains a large number of distinct specific views. For instance, within humanism we can include Habermas, Arendt and Jonas, whose positions differ greatly. In the meantime, in posthumanism thinkers as diverse as Sloterdijk, Stiegler and Althusser may be included. There are fewer authors that could be labelled as antihumanist, such as Nietzsche and Marx. Curiously, they are often subjects of debate, trying to identify if they were really antihumanist, humanist or posthumanist. In what follows, we attempt to draw the generalities and distinctions within each of these contemporary anthropological philosophy positions, in order to better understand what each of them may imply for emerging technologies for the radical elongation of life.

2.3 Humanism

Several experts (Luik, 1998; Abbagnano & Fornero, 2004, p. 562; Kraye, 2005, p.477; Blackburn, 2008, Cortés & Martínez, 2014) agree on what seems to be a broad understanding of humanism: it counts on a special dignity of human beings, conferred most likely by human reason and freedom. In particular, it also designates a cultural movement originated in the Renaissance which promoted an ideal of education, in a certain fashion under the Greek concept of *paideia* and the Roman one of *humanitas*. Although this second meaning of the term definitely influenced the former, more general one —most notably expressed in Pico's *Oratio*—, in the present work we aim to better understand the outcomes of the most general sense when coping with emergent technologies for radical life elongation. In this section we consider the basic introduction of the above-mentioned experts along with the anthropological considerations of classical philosophers to scrutinize the position of contemporary self-proclaimed humanists. The objective is to present a wide and problematic approach of humanism from which we can set our inquiry of its effects.

As Pinn (2013, p. vii) acknowledges, there are many types of humanists, thus many types of humanisms. The label 'humanist' is one of the most abused terms in the history of western thought, which has caused the term to become highly equivocal. Still, thinkers such as the ones affiliated in the American Humanist Association, mainly from the United States but also from the United Kingdom and The Netherlands, assert that despite the plurality, one can picture humanism as "…a system —however difficult to capture fully— for fostering the shape and content of human life." (Radest and Derkx, 2013, p. x). They propose that humanism underlines three basic qualities of the human being as the basis for

his dignity: freedom, reason and morality. The three of these, in a very Kantian manner, are intertwined, albeit no further explanation of this is given in the volume.

It is clear those qualities stand for human dignity, although their meaning remains obscure. When we say a 'humanist' claims human beings have a special dignity, a lot still needs to be said. Thus, the equivoque resides, mainly, in what we may understand for the term 'human dignity', what its source and constitution may be. The different explanations create the spectrum of humanism, which has multidimensional criteria from which we can classify the type of humanism we are dealing with. Hence, different authors provide a unique chart for different types of humanisms.

One of the most commonly used dimensions to track the affinities and differences is time. The most complete, though rough, time-like picture of western humanism would go: classical antiquity *⁄→ Middle Ages ↗→ Renaissance → Enlightenment ≡→ Contemporary[15]. The time dimension helps to understand how ideas about humanity originate and are appropriated or ignored from generation to generation. However, it does not provide us with the actual description of the human being, and can easily drive us into erroneous progressive conceptions of ideas. It can also mask the fact that often different conceptions of the human are at stake at the same time period, and that a popular conception is by no means a better thought one.

The time dimension is important to trace certain dominant ideas, but it should not be our only criterion. Humanism can be either ideology or philosophy; thus, another important

[15] Classical antiquity seen as the origin (*) of humanism, which inherited (→) its humanism to the Middle Ages. The Renaissance pretended a rupture with the Middle Ages (↗), but undoubtedly inherited traits from it. Enlightenment is commonly regarded as a culmination of the Renaissance intention, but Contemporary humanism has multiplied (≡) its positions due to revisionism and a bigger academia.

criterion is whether humanism is one or the other. For ideology, here we understand a fixed core of ideas which endorse certain human praxis, one which once established is rarely questioned. On the other hand, philosophy is an open enquiry, a search for truth and knowledge with no other purpose than the love for knowledge. The demarcation between ideology and philosophy then is that ideology has a predetermined usage, whereas philosophy does not. Nevertheless, philosophy is not equivalent to scepticism. Philosophy, as an enquiry for knowledge, can allow itself some small triumphs, as long as these are estimated as ever-revisable. As an honest, yet situated, quest for knowledge, philosophy must embrace what has been tested to be accountable knowledge. What can be attested as accountable knowledge varies because the methods for accounting for it also vary. Nevertheless, there is not a philosophical path which is without epistemic grounds. Even the most extreme sceptic positions, such as those represented in antiquity by Pyrrho of Elis and Sextus Empiricus, or in modern times by Hume, still have a starting point and an intention. But it is always possible from within or outside a given philosophy to call such grounds into question, and to generate new grounds, or not —which may be the main difference between sceptic and non-sceptic philosophies—.

In accordance, humanism as philosophy should stand on certain grounds. Philosophical inquiry must examine all possible sources of knowledge to describe or know something. Following Radest (2013, p.16), the human can be described as a bio-social animal, as an autonomous being, as an entity that creates and uses tools to shape both the environment and the self, and that neither gods nor history set boundaries to human possibilities. These grounds come from different study areas, and are attested through different methods:

biology, sociology, philosophy, history. A complex, demanding, bordering, and still congruent image of the human being appears from such studies.

But is the difference between ideology and philosophy, both as possibilities of humanism, tantamount to philosophy being powerless? Are we doomed to get lost in discussions about human value or dignity? Cannot philosophy strive to inform praxis, or is it always doomed to become a form of ideology? Radest (2013, p.27) thinks it can, yet it might not:

> …action without intelligence is blind; intelligence without action is helpless. A humanism that fails to grasp that fact can only wait for its replacement. But modern humanism, becoming aware of itself in a confusing yet fascinating and variegated world, can prepare the way for its successor. That is the future in the post-modern world.

Either as a philosophy or an ideology —albeit each with very different implications— Pinn argues humanism, with its central core as already described in Kantian terms, is especially useful as a life framework. With this, Pinn (2013, p. 40) means that humanism "…provides a life orientation that takes seriously everyday occurrences… it gives us reasonable insights into the world, and perspective on how to move through the world."

But for humanism to remain a philosophy, and not to become a dogma, all of its grounds need to be open. We can follow Kant's building of the human dignity to explain what is meant with this openness. When Kant formulates his categorical imperative, it rests on the faculty of reason alone. For Kant, reason implies to comply with certain laws of thought while being aware of those laws applying. One of these laws is, precisely, the categorical imperative. However, reason needs not to be species-determined, and here rests a type of

openness. Despite knowing none, we have easily imagined countless of other species organisms as practitioners of reason. Over debates of what we understand for reason, some could argue some species like dolphins, chimpanzees or even octopi share important traces of reason with humans. This often goes as far as proposing for them a level of dignity as the one humans gloat on. One of the main arguments against such considerations is the impossibility to determine that these species have morality. To determine one's dignity, being able to solve mathematical problems or to choose where to go does not seem as important as being a moral agent.

Still, what we want to highlight is that not all moral agents would need to be members of the human species according to Kant's philosophical proposal for morality. For some, though, this Kantian way of thinking was leaving something very important outside of the picture of humanity. When refuting this Kantian vision of morality, philosophers as Nietzsche or Marx show another sense of the openness any philosophy requires. Marx's and Nietzsche's critiques to idealism, though very different in motives, scopes and intentions, curiously have a central element where they come ashore: the body. In the quest for understanding what humanity is, the emphasis in material conditions and Dionysian morals means that elements as culture, desires, needs and urges, hormones, tools, and so cannot be ignored if attempting to have an accurate idea of what being human is, and if it implies a dignity, and of what kind.

The critique to the dominant view of the human being in the Enlightenment has thus derived in a wide discussion about the determining elements for an understanding of the human being, dignity, and even of the solidness of such concepts. The vast plurality of humanism, even in the philosophical stance, signifies a large set of ideas struggling and

reinforcing among themselves. The core of these discussions is aimed at the most important criterion to understand a type of humanism: the ontological, or I would argue ontotheological, dimension.

The ontological dimension refers to the justification of material and/or spiritual substrates —if any— that can explain or define the human being. An ontological dimension for describing a humanist position requires explaining the grounds of their positions. If humanists affirm that the human being has a certain dignity, they must provide a critical explanation for it. What is this dignity? On what does it reside? What are the consequences of having it? But ultimately, such grounds will appear to be ontotheological for two reasons: 1) because the examined grounds have genealogic and transcendental implications, and 2) because such grounds are often unattainable for the possibilities of mere reason, and partake in what Wittgenstein would call our world-picture. It is necessary to provide an explanation of these reasons.

As Aristotle taught, explaining implies being able to give account of the origin. When we reflect on the nature of the human being, in the sense of a type of definition or essential characteristics, this reflection connects irremediably with the origin of the very same human being, both as a collective and as an individual. But aiming for an explanation of the origin of a statue is a very simple task if compared to giving account of the origin of humanity. Ultimately we rely on two possibilities: chance and plan. The last one is for sure the most popular one among any population, including an imagined population of all philosophers: somehow, the life of human beings is part of a cosmic plan (even if the plan is to let him be free). The former one, in contrast, is not only the least popular one, but also

the most difficult to sustain: the occurrence of human life is the result of fortuitous natural events. There is no reason behind our existence.

With origin, along comes destiny. The concept or even an intuition of the human being implies that our possibilities as species, and more vaguely as individuals, are drawn from such a concept. Loosely following Bostrom (2009b), three scenarios can be sketched: annihilation, perpetuation and transcendence. Annihilation stands for the end of our existence, most likely first as an individual dead, but also the wipe-out of our species. This annihilation would be permanent, as stated by the biological law of irreversibility. Otherwise, we would most likely be referring to a type of perpetuation. Bostrom esteems this possibility as the least likely to occur, but there are reasons to disagree. Perpetuation, as portrayed by Bostrom, implies a stagnation of humanity, which of course is impossible. But given a cyclical time conception, perpetuation could mean a recursivity even of our individual lives. Our other very popular possibility is transcendence. Bostrom, as a philosopher, considers that the only possibility for transcendence is in posthumanity. Nevertheless, and as distanced as they are from philosophy, we do not mean to disregard that most of humanity believes in a supernatural type of transcendence. Indeed, Christians, Muslims, Buddhists, Hindus, and many other religion followers do believe that death is not equivalent to annihilation, but that we can transcend to an upper state of communion with God or the Absolute.

From origin to destiny, two factors complete our anthropological setting: the medium and the timeframe. From whatever origin humanity may have, and to whatever destiny we arrive, the media to achieve such destiny can be classified into two types: supernatural forces, and natural forces. The first refers to mystical powers, which with or without human

will and action, will lead to whatever destiny deemed as possible. Natural forces are explained, reasoned, and their implications should be shared by any rational being in an unbiased setting. Evolution may be one of these forces as much as technology. Then, if we attain a cyclical or a linear timeframe, it drastically changes our ideas about humanity. A cyclical timeframe cannot allow esteeming annihilation as a possibility for humanity, whereas, as Bostrom argues, perpetuation indeed becomes highly difficult to conceive in a linear timeframe when we think on a scale of hundreds of thousands of years.

The resulting scheme of a cosmo-philosophical anthropology shows how the conception of the human being has ontological roots. The scheme also shows the implications between the conception of the human being and our worldview. The conception of the human being is thus not only ontological, but ontotheological, since it partly arranges our world-picture. Following Wittgenstein (1972), it results in an absurdity to try to establish which conception has pre-eminence over the other: the one concerning the human being, or the one concerning the structure of the world. All of these interweave constant and simultaneously from all of our life experiences. Parts of the resulting fabric may move with new experiences, while others do not; some may be as old as human life, while others are added with scientific discoveries and life-changing experiences.

The shown complexity of the matter, both in extension and depth, should be enough to warn out against the simplification of the term ‘humanism’. Still, authors may present humanism as a broad flag under which to guide a moral tide that reaches for human rights. Despite being an image with many gaps (for instance, our knowledge of the biological base of consciousness remains a mystery), it can allow to “…appreciate the plasticity of humanism and acknowledge the manner in which fluidity and flexibility with respect to the

nature and meaning of humanism afford greater opportunity for it to make a difference in the world." (Pinn, 2013, p. xi). From this standpoint, thinkers may argue in favour of the long-dealt battles of education and health for everyone. But such a conception becomes easily an ideology, from which caution is advised if truth wants to be found.

We can evidence the oversimplification of such broad sense of humanism not only by stating its complexity, but also by following some of its consequences. In this case, the proposal of Pinn, Radest, *et al*. (2013) has also an important imprint for which to keep alert: it is set as facing religion. Throughout all of their arguments, the different authors present humanism as an alternative to religion, with two possibilities: either as an ideology which replaces religious belief, or as philosophy, which questions religious belief. Upon reflection, their 'humanist system' may not be as inclusive as they would pretend. The problem resides in that what they understand for reason, freedom and morality has indeed different implications for them than for so-called religious (be them Christian, Jewish, Buddhist, Muslim, etc.) humanists.

Thus, when considering their opposition against religion, the nature of the basic qualities of humanity that they defend becomes clearer. These characteristics still follow the enlightened goal of autonomy as the self-determination of the humans. A more specific idea behind is that the autonomous human recognises the lack of reason behind religious believes. As Radest (2013, p. 5) acknowledges, contemporary humanism is a direct heir of the enlightenment, which in turn is "…an incarnation in *naturalistic* and *democratic* terms of the Classical, Catholic and Renaissance humanisms that preceded in the West." Human attributes of reason, as exemplified by science and freedom of enquiry, are validated as the

only methods of knowing, in frank opposition to fideistic positions. Secular humanism is hence a more appropriate name for their proposal, even if fragmentation is again stressed.

It is important to stress this fragmentation out. The differences among different groups self-identified as humanists, but which have different conceptions of the human, reveal much of the current debate on, for instance, emerging technologies for human enhancement, or even particularly what can be said of those to radically increase our lifespan. On one hand, we can consider Radest's humanism that may portray a potential transition to posthumanism, a position scarcely shared by religious humanists:

> The rich textures of eighteen-century enlightenment, nineteen-century idealism and transcendentalism, and early twentieth-century humanism ask for their successor. Yet, the size and speed of things these days make replies to that plea a mystery. Perhaps, then, reliance on the word may serve as a place-holder for something not yet available, a next humanism, a humanism for the post-contemporary world that we cannot yet know. (Radest, 2013, p. 6)

Radest´s (2013, p.15) proposal rests in humanism viewed as Wittgenstein's ladder: what we understand to be the conditions for *dignity* become wider and wider. Each humanism faces, sooner or later, conflict with itself. Science provides more and more elements that make one wonder whether humanism, viewed as speciesism, is problematic. Attributes deemed as exclusively human, such as intelligence, moral sensitivity, the use of languages as sign and symbol, is found in other species.

Where conceptually different types of humanisms encounter difficulties, the proposal might be for humanism to be an inspiration for practical choices. This might be the opinion of

Radest, as we have seen, and Derkx also regards humanism as a world frame which helps us to accept, endure and embrace life *as it is*. But life *as it is* endlessly changes, and humanism then again needs to be open for changes. From this very revealing assumption, Derkx goes on to engage in a matter all too central for us: the research on radical life extension.

In principle, Derkx (2013) declares himself in favour of the possibilities for extending our life period. Individual and collective wellness includes the conservation of life. People often endure heavy struggles to keep on living, and these struggles are highly valued as life conquests by society in general. If we can live longer, healthier lives, that is something to pursue in accordance with our common values. At the same time, he does not refrain to criticise extreme positions about life extension, such as the one of Aubrey de Grey. Even if such a project should not be disdained, he argues for more fundamental problems which should be solved from a humanist scope. To invest enormous resources for drastic live extension while millions of human beings die because of easily treatable deceases becomes a selfish task.

Derkx embraces a wide interpretation of what human enhancement should mean. The priority should be put into bettering the lives of the millions of persons who currently live under what is fairly called infrahuman conditions. But that does not mean that we should relinquish to obtain a higher life expectancy or even an indefinite lifespan. With time, and if materially feasible, this objective should be pursued. Conservation of life may be regarded as instinct, but Derkx reinterprets it as a human principle, a cultured instinct which has nourished our medical sciences. And science may have a chance in providing for this radical, or indefinite, life extension.

This is an altogether important topic for humanists. On the one hand, we have authors like Derkx who flirts with the idea of a 'greater humanity', freed from the limit of ageing, and death from ageing. On the other hand, humanists as Dale McGowan (2013, pp. 108-120) propose seeing death as a human asset. In an argument which reminds us of Heidegger, McGowan considers that the idea of death as finitude shapes our human endeavours into achievable timescales. "I am both conscious and mortal. That is a bad combination that puts me and incidentally you in a rather desperate fix." From such a condition, our possibilities as individuals arise. Humanism has important implications for such possibilities. For many, religion has been primarily a fix for the conundrum that death represents. Religion sets a worldview and provides the object of faith, the words one must practice to escape from despair. McGowan argues that humanism can also provide with some perspective and even comfort to human beings in regard to their finitude. Facing against religion yet again, humanism makes an emphasis on a true finitude of life, for we cannot rely on the afterlife. This true finitude makes life more valuable, a spark between the preceded and following abysses. Life is precious because it is scarce, it has a limit. "Death, not life, is our natural condition. This is the extraordinary moment, the departure from the norm." (McGowan, 2013, p. 115).

McGowan is for sure a secular humanist, in as he clearly distances himself from any faith. Nevertheless, when weighing the value of death, he might be more related to religious humanists than to other secular humanists. Hence, the topic of death and emerging technologies for radical life extension brings to the surface radical difference amongst otherwise unified groups, and brings together humanists from different initial perspectives. Another topic as such is superhuman intelligence. But these possibilities for the human

being do not meddle with what we have identified with the classic attributes of the human: reason, freedom, morality. Then, what are the criteria of difference among these different humanists?

The difference among these views resides not in the attributes conferred to human beings: in general, all will agree on a list of what constitutes human dignity. The naming of such constitution often results in definition: by standard definition procedures, when I establish what something is, I am also stating everything that is not what the defined thing is. For human beings this implies that when I state that a human being must be moral, free and reasoning, I am encircling human beings on certain boundaries. These boundaries, resulting from aiming to a definition of what being human is, lead to further differences among different humanists.

The defining of human being dates back to the origins of western thought. In what is perhaps the most well-known passage from *Politics* —which we have already alluded before—, Aristotle (1997, §1253a27) writes: "But anyone who lacks the capacity to share in community, or has no need to because of his self-sufficiency, is no part of the city and as a result is either a beast or a god." We would like to argue here that Aristotle's explanation of the human being is far more comprehensive than traditionally understood. For communality presupposes a shared language, a capacity for communicative action, and the exercise of a soft reason. In a nutshell, Aristotle provides the dominant depiction of the human being.

Therefore, under a root analysis of Aristotle's proposal, his understanding is quite comprehensive. Nevertheless, there is something else that needs to be addressed. Aristotle

demarks human beings from both beasts and gods. Towards beasts, human beings have a capacity to share in community which animals would lack. Here we need to consider the deeper meaning of community, rooted in man being political, i.e., communicational, moral and reasoning. But we shall not miss the other part: towards gods, the human is separated as not self-sufficient. If we direct our vision towards what is above humans, we can certainly say that humans are defined by limitation. Aristotle of course values this limitation from the political being of humans. If someone is self-sufficient, then she/he has no need for the community, thus becoming non-human. It appears as limitations and not only capacities are fundamental when achieving to understand the human being.

Human nature as dignity, based on reason, freedom and morality —which found its maximal expression from Kant's formulation in Hegel's (2005, p. 47) interpretation: I am not moral because I am a person, but I am a person because I am moral— somehow faces the critique received from the defenders of the material and of the body. Here is where we find the limitations. But aren't limitations as limitations constituent of everything that lives and exists? The relation of limitations with our being human is an important theme for our research, which we cannot fully pursue now since it would run us out of topic. We shall return to it in the following chapters.

Now very well, consider another fundamental limitation: death. Philosophers such as Heidegger, St. Augustine, Camus or Marcus Aurelius have made death an important topic for their reflections. Humans and animals both die. A fact so universal that, without much reflection, it is the most famous example of a syllogism, *Barbara*: "All men are mortal, Socrates is a man, ∴ Socrates is mortal." However, according to widespread theology, gods do not die. A connection between gods' immortality and their lack of politics can and

should be established here. It is to stay alive that we must relate to others: the unsociable sociability so famously proposed by Kant.

In an era where AI is sought and human beings conduct research to modify their nature and overcome their limitations, we reaffirm that the need for reflection about the human being becomes necessary. Our ideas of the human being have changed with scientific discoveries. An evolving *imago humani* is evident, but has the evolving no limit? During the XIX and especially the XX century, a socially informed humanism has been mounted on a biologically informed humanism, and this notion often struggles with a transcendentally informed humanism —whether this be religious or not—. The struggle can be for the conservation or revolution of the experience of being human. As aforementioned, the transition of humanism to posthumanism is a most pressing possibility; at the same time, the resistance from certain humanists to enhancement technologies represent an important part of the debate nowadays.

An analysis and synthesis of diverse positions become desirable; on the other hand, an exploration of what posthumanism could mean, as opposed with transhumanism for instance, is also needed. But before entering such matters, first an account of antihumanism must be given, so that the associations and dissociations between humanism and posthumanism might be fully conceived.

2.4 Antihumanism

As it has been stated, any kind of *–ism* is plagued with reductionism and equivocity. In the case of humanism, we have outlined different senses of the word, named thought traditions associated with the term, and underlined difficulties among their conceptions. We have also

suggested that one of the main breakpoints among different humanists is related to the confrontation of a more scientifically grounded understanding of the human being through biology. This more materialistic understanding of the human being plays along with some emerging technologies for human enhancement which hints into the possibility of a higher humanity, a posthumanity.

However, before being able to present the topic of posthumanism, some precisions around antihumanism must be made. Without clarification of what antihumanism has been within philosophical anthropology, we could fall short for comprehending the posthumanist positions. A word about Marx and Nietzsche has been already said in the previous section. Debates have been conducted on whether their criticism of Enlightenment humanism makes them antihumanist, posthumanist, or merely humanist with different criteria of what humanity is. In a certain sense, it is all a word game in which the charge of meaning we give to the different labels explains the different positions. It is clear that both Marx and Nietzsche were critics of idealism and a Christian-soul oriented anthropology; it is also clear that from such a critique and its consequences for morals and society, they propose the appearance of the communist and the *Übermensh* as the focus of a new era in history. However, the relation of such character with many traits that we have proposed for establishing a human nature remains uncertain.

Following Davies (1997), Fornero (2004), and Ferrando (2013), antihumanism has been a reaction to the Enlightenment, allegedly beginning with Nietzsche and Marx, to whom we would add Freud following Ricœur's (2008, p. 33) famous description of these three thinkers as the three masters of suspicion. These thinkers' critiques are very dissimilar, and could often conflict among them; yet, certain affinity has been found. What Ricœur

analyses as the hermeneutics for dismantling consciousness, results in a heavy critique to the grounds on which the idea of the human being had been built over centuries. This heavy critique has been picked up by an army of thinkers during the 20th and 21st century. In the following lines, we provide a somewhat commonly accepted affinity between two pairs of thinkers, to outline the motives and operations of antihumanism. The pairs are Nietzsche-Foucault and Marx-Althusser.

Nietzsche and Marx are selected because, as quoted above, they are regarded as the main thinkers who introduced the suspicion against the conception of the human being from the Enlightenment. This suspicion was carried into the 20th century by many philosophers who took upon Nietzsche or Marx. Nonetheless, Halliwel and Mousley (2003) argue that it was French critical theory that for the first gave shape to an antihumanist stance. Following this note, we choose to examine Foucault and Althusser as among the most influential in this group. We will also be able to see how their initial antihumanist positions arrived ultimately to the gates of posthumanism.

Nietzsche's critique to humanism is perhaps the most complex, thorough and clear from a thinker in the 19th century. His critique can be divided into three fronts: the epistemological, the moral, and the ontological critique. The first refers to the attack towards the idea of man as a subject, in the Kantian sense; the second, to its moral consequences, explicitly in the form of human rights; and the third, to the everyday structure of the human experience.

In *Human, All Too Human* Nietzsche expressed his view about Kant's transcendental idealism:

> Our feelings of space and time are false, for if they are tested rigorously, they lead to logical contradictions... When Kant says "Reason does not create its laws from nature, but dictates them to her," this is perfectly true in respect to the concept of nature which we are obliged to apply to her (Nature = world as idea, that is, as error), but which is the summation of a number of errors of reason. (Nietzsche, 1994, pp. 26-27)

According to Nietzsche, Kant was right in assuming that the laws of nature are placed upon the world by man's reason, but Nietzsche denies Kant's assumption that this faculty of reason is an ahistorical, transcendental faculty. Where Kant's categories are, as it were, set in stone, the laws of Nature imposed by Nietzsche's Reason are those same elements which develop as a product of the evolutionary survival mechanisms of a species. Our ideas of time, space, substance, number, the laws of logic, etc. are all imposed upon the world because they have proven beneficial to the preservation of our species and not according to any independent criterion of truth. For Kant, the necessity of the form in which we perceive the world is ruled by the impossibility of escaping the categories of intellect through which we are limited in any such perception. For Nietzsche, this necessity comes only from the historical summation of our past errors of reason. Thus, in *The Will to Power*, Nietzsche clearly claims that the form of the particular intellect of modernity is the product of practical need:

> To what extent even our intellect is a consequence of conditions of existence - : we would not have it if we did not need to have it, and we would not have it as it is if we did not need to have it as it is, if we could live otherwise. (Nietzsche, 1967, p. 273)

We are tied to a set interpretation of the world as the result of our erroneous faith in a reason that has evolved as a history of species-preserving errors. And since this reason is historical, it can also change, even at will according to Nietzsche.

Just as Kant linked his epistemology to his ethics, Nietzsche was to bind a critique of morality and ethics to his critique of the transcendental subject. If our reason is the result of errors in historical preservation, the categorical imperative is the zenith of all of these errors. It is also one of the most studied matters in Nietzsche's philosophy, for which we may very well rely on Brian Leiter's (2015) account of it. If there is no natural prefixed setting for reason, the reason must be an affirmation of life, the will to power. And moral reason is an essential part of this much-needed affirmation of life. Nietzsche's all-too controversial critique of what Leiter calls 'morality in the pejorative sense' rests in arguments that allegedly prove (1) that the human is not a free agent as understood by idealism, (2) that motives for actions are concealed and (3) that each human being is unique. Each of these theses ends up breaking the traditional image of the human being; the third thesis even dismantles the possibility of an image of the human being as nonsense.

However, this very last thesis (3) remains disputable, and even contradictable, with Nietzsche's ontological critique of the human being, by which we mean the critique to what everyday man could change to become a *higher* human, the *Übermensch*. In *Beyond Good and Evil*, Nietzsche (1966, p. 260) somewhat summarizes what he understands for such a man:

> The noble human being honours himself as one who is powerful, also as one who has power over himself, who knows how to speak and be silent, who

> delights in being severe and hard with himself and respects all severity and hardness.

Thus, to this day Nietzschean scholars wonder and debate on whether a description of the higher human can be made. However, no matter how rare and unique these higher humans might be, they are still recognizable for Nietzsche, and one is forced to conclude that what Nietzsche praises and pursues as such count for characteristics which can be identified and shared, even if they manifest themselves in very different ways. His appraisal for Goethe or Burckhardt, no matter how different they were from one another, shares certain criteria which can evidently be emulated —albeit not repeated—.

Nietzsche is famously a philosopher who can be set against himself. This leads to the fact that during the 20th century so many different interpretations of Nietzsche appeared. In terms of antihumanism, one of the most important of such interpretations was made by Foucault. His impact in the humanities and social sciences turns him an indispensable voice in the matter, at least to complete the progression of ideas from Nietzsche into our time. The French philosopher owes Nietzsche much of his scope for the deconstruction of the human.

Following Roger Paden (1987), Foucault's antihumanism is fundamental to understand his work. Foucault himself was quite clear about his regards on the matter from very early in his career, as we can read directly in *The Order of Things* when he talks about the modern invention of the concept of the human being:

> And that appearance was not the liberation of an old anxiety, the transition into luminous consciousness of an age-old concern, the entry into objectivity of

> something that had long remained trapped within beliefs and philosophies: it was the effect of a change in the fundamental arrangements of knowledge ... Man is an invention of recent date. And one perhaps nearing its end.
>
> If those arrangements were to disappear as they appeared, if some event ... were to cause them to crumble, as the ground of classical thought did, at the end of the eighteenth century, then one can certainly wager that man would be erased, like a face drawn in sand at the edge of the sea. (Foucault, 1973, p. 387)

By 'man', Foucault refers to a specific idea about the human being, product of the arrangement of modern episteme. For instance, his studies about madness, science, and discipline, are tantamount to proofs of the contingency of humanism: "Explanatory humanism entails an essentialism of reason, but if Foucault's arguments and histories are correct, reason, because it is the changing product of social practice, cannot be the human essence." (Paden, 1987, p.126)

Foucault's proposal afterwards, not fully developed and partially considered as neglected, was the development of his *genealogy*, a reading of social practices in which transcendentalism and so the human subject are denied. If human nature is socially constructed, and knowledge cannot be grounded in the human subject, but rather is itself social constructed, what remains is the atomisation of human affairs.

Because of the consequences this conclusion has to social sciences, Dew (1989) Wolin (2006) and Golder (2007) have considered that Foucault himself was pushing towards a return of the subject, in a soft version, by the end of his life. Paden himself considers that

the unfinished work of Foucault was not a return of the subject, but to develop an alternative to humanism. Thus, we read:

> The plurality and incommensurability of these structures, by threatening relativism, undercuts the attempt to ground knowledge. Therefore, this attempt to ground knowledge in a structure uncovered by historical investigation, this attempt to complete the analytic of finitude, fails. Foucault's argument against structuralism, it should be stressed, is not part of an argument that the humanist project is an impossible one. (Paden, 1987, p. 136)

Paden infers that Foucault's genealogy, as the method without content, could fill the gap left by humanism. We must evidence, however, that this radical critique to structuralism, of which Paden gives several proofs as present in the work of Foucault, still leaves many strings untied: Is it possible to develop a surface history of social conducts and affairs without falling into an empty mere-description from which any claims to regularities are impossible? Can a genealogy avoid falling into a new type of humanism? Foucault has succeeded in problematizing humanism, and has suggested an interesting method of studying humanism, but these questions must be answered if genealogy is to be a vital alternative to humanism.

Contemporary to Foucault, Althusser also carried the banner for antihumanism, picking it up not from Nietzschean thought, but from Marx. His lifetime struggle —against Marxists and in a certain sense even against Marx— to achieve a comprehension of Marxist materialism goes through the examination of the pivotal notions of science and ideology. By esteeming the value and roles of science and ideology we can know the path to the

knowledge of the world. And the transformation of the world, echoing from the eleventh thesis on Feuerbach, is the transformation of the society, and of the individual. Thus is the human being at the core of Althusser's thought.

With Lewis (2014) and Nemeth (1980), we can recognise two distinct moments of antihumanism in Althusser,[16] each loosely identified with structuralism and post-structuralism respectively. The Althusser previous to the writing of *Philosophy of the Encounter* had conceived ideology as a mere illusion which cannot provide truth. Philosophy was lined up with ideology in this. On the other side, he perceived science as the source of truth, and thus the source of validity. According to this previous understanding, only a scientific study of man can provide the knowledge we need for his correct interpretation and subsequent transformation. On it laid the rise of scientific materialism, far superior to other forms of thought. The Althusser of *Reading the Capital* accused humanism, as traditionally depicted from its Renaissance and enlightened sources, of being a mere ideology, which must yield under what scientific materialism can reveal of the human being. In a certain sense, Althusser understood Marx to have been an antihumanist, in the sense that he had criticised the classic depiction of the human being as a bourgeois ideology, which needed to be replaced with the scientific truth of what the human being is. Knowledge of real men cannot be had through humanism but only "…on condition that we do completely without the theoretical services of the concept of man" (Althusser, 1977, p. 243).

The operation as recognised by Althusser meant that for Marx a hard conception of the human being, that which came from the ideology of the enlightened humanism, was

[16] Setting aside the young Christian Althusser, who seems not to have undertaken any critique of classic humanism.

replaced by another hard conception of the human being, that provided by scientific materialism. The scientific 'conception' of the human being would be aside from the ideological one because it is always improving, as science reveals more of it; in other words, truth develops. Perhaps the ideological conception of man cannot be removed completely, but its threats can be identified by marking them down. And while doing so, science can continue to provide the necessary truths for the transformation of the world.

This antihumanism is only theoretical, but remains to be humanism in practice. This division between theory and practice generated a harsh reaction from more conservative Marxist philosophers. From the critiques of Dzioev, Gak, Saraxova, Kozlovskij, Kecan, Samarskaja, Greckij, as expressed by Nemeth (1980), two main arguments of opposition to this antihumanism can be perceived. On the one hand, that ever in Marx's thought the overcoming of alienation is necessary. Such overcoming is in the form of freedom, which is the original nature of human beings. But such conception of the original nature of man remains to be philosophical, outside of a scientific domain. On the other hand, the soviet philosophers make a case for the importance of individuality for the development of human history. An irreducible element of personality and circumstances inscribes then in the possibilities of historical materialism:

> If it makes sense to speak of a scientific humanism, i.e., to say that the divorce of science from humanism is not nearly as sharp as Althusser asserts it is, one might then expect, reciprocally, that genuine theory and science can be humanistic as well. This is in fact precisely what we find Greckij claiming, and it is the basis for the Soviet claim that Marxism can be both a science and a humanism. In Greckij's opinion, Althusser's view on the theoretical status of

> humanism "leads to an obvious contradiction between theory, which is erroneously proclaimed 'non-humanistic', and humanistic practice" (Nemeth and Greckij in Nemeth, 1980, p. 373).

These critiques required an answer. By the time Althusser wrote the texts contained in *Philosophy of the Encounter*, his aim with Marxism had changed: what was a search for consistency of Marxism became a work of rectifying and advancing Marx's ideas. Through critiques and time, Althusser came to recognise that science is rooted also in ideology. With that, the very idea of ideology, even of Marxism in general, evolved. Although Althusser still deemed himself as a Marxist, something not typically Marxist arises from his new claims. The abandonment of both historical teleology and a strong concept of the overcoming of alienation, as argued in *Marx in his Limits*, would signify that Althusser in fact esteems Marx in the broad humanist tradition. In the meantime, he proposes a new Marxism, which according to Lewis (2014) would follow the next theses: (1) matter is all that exists and (2) chance or the aleatory is at the origin of all worlds; however, (3) it is also true that the patterns which constitute and define these worlds can be known, described, and predicted according to certain laws or reasons. (4) New worlds and new orders themselves arise out of chance encounters between pre-existing material elements. Therefore, (5) these reasons are contingent and can only ever be known immanently.

As a result, the worth of ideology, and consequently of philosophy, changed. Althusser still considered that a set of beliefs about the world, labelled as ideologies, contribute to the preservation of the unfair *status quo*. But there are also some other beliefs of the world that, considered as philosophy, aim to revolution. The object of philosophy is that which is not yet but which could be. The truths philosophy can generate are contingent and offered in

opposition to other competing truths. In science, for instance, this means that a different science is possible and in fact different sciences coexist. Where ideology has a conservative role, philosophy responds with creativity, exploring other possible futures.

By examining a political order not from the perspective of its necessity but with an awareness of its contingency, philosophy may be able to think of the possibility of its transformation. It is now a matter of will and chance, and not of destiny: despite how reasonable it might seem, philosophy is just a voice among others. So Althusser attributes a very limited and unpredictable power to the philosopher. However, Althusser argues that it is also the only one adequate for political practice that does not, like idealism, merely serve to reproduce existing relations.

What would this mean for a conception of the human being? For starters, we face a renewed importance of human freedom and intellect. Humanity is projected into the future. Our present conditions are important only as they are a setting point for our transformation. Even if we are constrained in our circumstances, the openness of our historicity appears limitless. Circumstances themselves are objects of human agency. The command for philosophy to transform the world becomes first and foremost a command to transform ourselves. But this entire revolutionary uproar neglects any deeper anthropological considerations. It would appear as if Althusser returned to a humanist position, but this is never clarified. Consequently, there is an absence in Althusser's considerations: biology. Busy with the social and political, and in a very Marxist fashion, he neglects the role that our natural arrangement plays in human affairs. Even further, he neglects the possibilities of our science in biological matters.

After this recount on antihumanism, we must repair on a central aspect of it: so-called antihumanists have been critics to a specific anthropology; even more precisely, to the subjectivation of the human being and to a certain ethical-political setting for humanity. Antihumanism has been crucial to denounce a type of humanism, yes, but it has opened the door to other humanisms as well. Any antihumanism, none of which has been mentioned here, that would try to determinately annihilate an image of the human being, would become a radical scepticism that would contradict itself.

As a result, antihumanist positions as the ones presented need to be a posthumanism at the end of the road, and any posthumanism needs to remain a type of humanism. Antihumanism has been an important rational critique to a static image of the human being, an image which can end up being dangerous for life. Distinctions and affinities among humanism and posthumanism must be recognised to understand what is at stake here, and to dismantle certain false discourses which attempt to show posthumanism as an iconoclast, even apocalyptic proposal. Two generations of thinkers, Marx and Nietzsche, Foucault and Althusser, provided strong arguments against ankylosed conceptions of the human being. They also provided some hints on a path for the posthuman. The travelling of such a path is our generation's task.

2.5 Posthumanism

Early in the 20th century many *thinkers* who can be labelled as plain humanists, yet not being secular, became aware of the defiance that technoscience could commit against the norm of what being human is. The word *thinkers* is stressed here because the condition for thinking is freedom —being lost, one might say—, and their freedom of thought can be

debatable when high commitments to faith precede any thought. Nevertheless, their efforts to deal with the technoscientific changes and perspectives, from their worldview, can only be assessed as genuine. The worry of a —perhaps further— corruption of the human being due to technology was all reasonable, and can be partially shared even with secular humanists, as already stated.

It is within these *thinkers*, that the following thought of Martin Buber can be inserted and thoroughly shared:

> But it has not been sufficiently observed that in such a transference [from a faith-inspired worldview to a scientific-inspired one] the element of trust cannot be taken over at the same time. Faith in creation may be replaced by a conviction about evolution, faith in revelation by a conviction about increasing knowledge, but faith in salvation will not really be replaced by a conviction about the perfecting of the world by the idea, since only trust in the trustworthy is able to establish a relation of unconditional certainty towards the future. I say, not really replaced, that is, not in and for real life. (Buber, 1947, p. 169)

Buber's idea is quite suggesting: faith, despite how criticisable, offers a salvation plan. With faith, we can live *knowing* that we will transcend. And this transcendence shall be personal: it is me who will live on. My active, aware, unitary, untransferable and somewhat cumulative experience as a human being may be everlasting. Transcendence through some sort of legacy (either descendants or works) is a consolation price compared to personal ever-living. Faith also provides purpose and direction. And technoscience cannot offer that drive, can it?

Maybe not alone by itself, but posthumanism has considered possibilities, presumably based on technoscience, which can rival with religions in this aspect. Posthumanism introduces and examines the idea that through the development of diverse technologies we can reach a status that "frees us" from some of our so-far "natural" limitations. This is imprecise, of course, for posthumanism in fact starts by questioning the divide of nature and culture, and it has also proposed that there is no need of freeing the human being because he is already the manifestation of such freedom. Thus, I would like to add two important precisions here: first, that posthumanism is not equal to transhumanism. Just as we have distinguished between an ideological and philosophical humanism, this distinction can be clearer here: transhumanism is an ideology, whereas posthumanism is a philosophy. After the academic contributions led by Ranisch and Sorgner (2014), this position should be clear for anyone concerned with the topic. Of course, both are nurtured by the development and foresights of technoscience, but they deal with such phenomena in a very different way. A clear proof of this distinction resides on the fact that most literature which uses the term posthumanism in a self-attaining way is clearly placed within a critical tradition. On the other hand, literature that uses the term transhumanism is often pamphleteer and the term is justly placed as central in the Humanity+ association (2009). The fact that the latter term is preferred by political associations rather than by mere thinkers stresses a difference we wish to emphasize and build further on.

Secondly, posthumanism, as a far-fetching philosophy, includes much more than technoscience within its analysis scope. Perhaps the main concern of posthumanists is ethics as a means to transform our morality; but along in the way other topics and subjects result of interest: economics, biology, geopolitics. Posthumanist thought reaps from the

critical appraise of complexity in human reality and the will to power to deploy its comprehension of our worldliness and the possibility of change. In this sense, posthumanism considers —just as Marx did— that our current socio-techno-economic state is a platform for our emancipation, not as the restitution of any dreamt golden age, but as a heroic creation, to use the Nietzsche-inspired formula of Mariategui.

The death of God, nihilism, opened the door for our self-creation. If humanity regards a longer lifespan as valuable is because of a will to do so. Sisyphus wants to push that rock once and again. And so have we done: according to PWC (2018), healthcare is, and has been for decades, the world's second industry by R&D spending; it is also the highest-cost sector by percentage of revenue. Even when facing such costs, world life expectancy and quality of life have increased through the decades since the mid-19th century. Thus posthumanism can very well argue that technoscience has successfully begun to emancipate the human being from so-called natural boundaries.

But even if we now can live longer, think better, and perform stronger[17], no one would conceive that technoscience can *save* us. Upon consideration, a first question regarding what salvation can mean must be addressed. For most religions, salvation is the redemption of human beings from a fallen state. Whether it is a suffering, an improper state, or falseness, each religion offers means to free us from such a state. Often, the ultimate step of such salvation comes after death. And after death, at least for the two most populous religions —Christianity and Islam—, eternal life shall come. Then, salvation is also from

[17] A genealogy of human enhancement is yet to be made. From the mastery of fire, literacy, exercise routines, math operations, diet plans, the abacus, the use of drugs, surgery, etcetera, etcetera, the weight of each technoscientific development in the aftermath of what being human has been still needs to be done. It will be a colossal task that can rely on several historic studies, but that cannot be congruently conducted without our current task: a critique of what being human is and could be when facing human enhancement.

death, which often is also associated with the fallen or impure state. Buber's claim for the uniqueness of faith in salvation certainly points toward a salvation of this kind, because he stresses the futurity of such salvation.

Therefore, in Buber's speech, faith is religious. Technoscience distances itself from faith because it involves no blind trust, but certain proofs which bring warranties. However, technoscience inspires a certain type of faith: not in what technoscience does, but what it will do. As within religions, faith in technoscience might be of different magnitude and consistency. Faith in the occurrence of interstellar journeys is not the same as faith in the discovery of a cure for AIDS. The fostering of emerging technologies requires a certain amount of faith, but religion is out of the equation.

Posthumanism, taken as a philosophy, is not equal to faith in science, or to discredit for it. Posthumanism inquires and assesses, opening and closing doors based on thought. As Kant attempted in *Religion within the limits of reason alone*, the effort is put into guiding onto what is reasonable to expect and pursue from the development of technoscience. Particularly, considering the understandings of the human being, what sense can be made out of attempts to make us live much longer? Or making a mountain out of a molehill, what's the sense of reaching for immortality behind the understandings of ourselves?

Up to what point is this unrestraint possible? What are the new limits, if any? How do we know them? These are questions that posthumanism is currently facing. Bostrom (2009) argues that a scenario in which humans, as a collective, could live for more than 500 years should immediately be termed *posthuman*; unfortunately, he does not provide the reasons for such claim. What human beings would/could do with an average of 418 extra years of

life to consider them past the human status is an important question. What is the difference of living 100, 500, or 1,000 years? Answers need to contemplate life-time management and conditions, but above all, we need to consider the conditional technical challenges. I believe that the needed technical progress is what Bostrom has mostly in mind when declaring that humans living 500 years or more would be *posthuman*. The level of technological development would mean important changes in our conducts and physiognomy. It is very difficult to determine the nature of changes, since not only one type of technology might lead us to such long lives.

The elongation of personal lifetime is an on-going process that, while on track, has not tagged a post-human label on us yet. As such considerations enter the uncertainty domain of future studies, the technical, economical and societal factors are speculative. Therefore, and with enough techno-scientific thrust, I propose to exacerbate the question to raw-face our humanity: purely theoretically, could we achieve an ever-living state? Would this mean something to us as human beings? What? Are there reasons to esteem this as an evil by itself?

Evading death while continue living within our unique life experience is truly a salvific enterprise, competing with religious plans. Technoscientific salvation is perceived, perhaps, as the biggest coup-attempt from posthumanism to former humanisms. The idea of earthly-continual-immortality is defiant of some positions within classic humanism. The value and status of humanity have been linked with its finitude. *All men are mortal*; the *guilt* of Barbara, as I may name it, falls greater as it is evidently the Major Premise which has the charge of an uncontested truth. But, as a matter of fact, projects regarding immortality are seldom embraced by posthumanists. Even Heidegger, a philosopher deemed as a

cornerstone of postmodern thought, regarded our finitude as a condition for the *Da-sein* to be authentic. Death, at least as the end of our existence on the surface of the Earth, is taken as a law of nature. Nevertheless, death is most generally feared, undesired, and evaded. Some even draw religions as a reaction to our fear to death, deep in connection with our humanity.

However, the status of death as a not-renounceable attribute of life, and human life in particular, is increasingly being discussed (Cholbi, 2016). The on-going extension of lifespan and the scientific 'prophets' of immortality have made the discussion even more vivid. The debate has been oriented so that:

> …philosophical discussion of these questions [regarding immortality] have been dominated by analysis of a famous argument against immortality posed by Bernard Williams (1973): Either immortality will inevitably become tedious or (in order to avoid such tedium) we would have to undergo large-scale changes in our desires and personal projects, changes that would render the resulting personalities *impossible* for our current selves to identify with. (Cholbi, 2016, p. xii)

As Altshuler, Fischer, Ruben and Cholbi (2016) illustrate with their discourses, the debate has centred on the one hand on the controversy of whether goods and evils might become impossible when living an immortal life, and what changing personalities are and would mean for an immortal *human*. However, the questions of how immortality might be linked with human nature are increasingly significant, but they are not addressed. For instance, Altshuler (2016, p. 199) cites Scheffler (2013, p. 100) stating that:

> Such *creatures* [immortal beings] would be *fundamentally* different from *us*, because "the aspects of life that we cherish most dearly —love and labour, intimacy and achievement, creativity and humour and solidarity and all the rest— all have the status of values for us because of their role in our finite and bounded lives.

Despite these appreciations, none of these authors contemplates that, if the change is as deep as they regard it (please recall on the italics in the two previous citations), then we must reflect not merely on personalities or punctual values, but rather on what it is to be human entirely.

In the midst of such discussions, we can find that not only what being human is at stake, but also our comprehension of death. Is death a flaw, or is it just a natural part of life? One of the possible translations of classical dictum *Errare humanum est* goes like this: being flawed is to be human. Are flaws an essential part of our humanity? Perhaps death is not a flaw: despite our increased lifespan —when compared with people from the Middle Ages —, we wouldn't stop considering ourselves all too human. But even if it is not a flaw, it is definitely a limit: a constraint to our earthly affairs. Death is the end of our conscious power, i.e., agency. And such a loss, while not being a flaw by itself, could be estimable as bad (Belshaw, 2016 and Beglin, 2016).

Technoscientific salvation is not the sole idea of posthumanism, but it is one of the most important ones within it, and the one presently at the spotlight when dealing with emerging technologies for radical life-elongation. Through its example, it is possible to provide a comprehensive framework of technoscientific action which forces us to see what is at stake.

In a sense, it is not as important to determine whether the human being can achieve immortality as it is to comprehend the quarrel regarding the constitution of being human. To this effect, and amounting to the comprehension of posthumanism that has been proposed lines above, we can consider the discourses about posthumanism by some leading authors in the field.

Tamar Sharon (2014) studied different contemporary philosophers from which she elaborated a map of posthumanism. The map consists of four areas: dystopic, liberal, radical, and methodological posthumanism. From the critique of these areas, she proposes a new, advantageous one: mediated posthumanism. Sharon's proposal might present valuable novelties for the ethics of technology, but we will not join her in that objective because it is not in the scope of the present work. Instead, we will focus on the part of the work that deals with the classification and commentary of posthumanism.

There are several problems with her categorisation of posthumanism. The first and foremost seems to be that she never actually defines posthumanism. She cites different definitions of the posthuman, but not of posthumanism. Would posthumanism just be any discourse about the posthuman, independently of how the posthuman is understood? This does not seem to be the case, because she counts as posthumanist certain thinkers who never use the term posthuman, namely those she considers dystopic. Despite the lack of a direct definition, we might be inclined to understand posthumanism with Sharon as the criticism of the subject-object paradigm which essentialised a particular conception of the human being. This conception is criticized for proposing reason, freedom and agency, as the definitive parameters for being human. However, Sharon herself denies that such

criticism takes place in dystopic and liberal posthumanisms and we are thus left again without an embracing definition of posthumanism.

To clarify, let us consider her four divisions of posthumanism with more detail. Sharon says dystopic posthumanism is a type of bioconservatism because based in an alleged biological unity and identity, it reaffirms the unitary, modern conception of the human being. This already seems an unfitting description for any kind of posthumanism. This oddity is confirmed with her choice of thinkers in this division, such as Habermas or Fukuyama. She indeed asserts that her classification is odd: "This is true especially for dystopic posthumanists, who can in a sense be seen as “antiposthumanists”." (Sharon, 2014, p. 7) How is it that they are antiposthumanist posthumanists? They are, she argues, because they reply to posthumanist interests and discourses. But this is going too far, forcing categories to fit. It would be as calling all posthumanists humanists, just because they are reacting to the humanist paradigm. Our conclusion here is that this category is not rightfully established. They could be more rightfully placed against posthumanism as humanists or bioconservatives.

Her next category is liberal posthumanism, which she explicitly assumes as what we have identified as transhumanism. After reflection, we would prefer to keep transhumanism as a separate category based on our own criteria. This is so because —and here we follow Hauskeller's (2015) critique of Sharon's categorisation— we too appreciate that transhumanists are not opposed to a conception of the human being as flexible and open to technologies. In fact, and again in the same way as Hauskeller (2015), we would consider transhumanists would very much adhere to the traits of the human being Sharon ultimately proposes for her mediated posthumanism. This is therefore no useful differentiation, and we

would rather adhere to our distinction of transhumanism as an ideology and posthumanism as a philosophy.

As we already advanced, her radical posthumanism proposes "...that emerging biotechnologies are contributing to a deconstruction of foundational discourses based in terms like “nature” and “the human”." (Sharon, 2014, p. 5). We already saw, however, that this does not seem to be exclusive from other posthumanisms proposed, except for the dystopic one, which we doubt to be posthumanism at all. On the other hand, methodological posthumanism is the pragmatic result of radical posthumanism since it pursues "...to develop better conceptual tools for studying science and technology in society rather than developing a new posthuman ontology." (Sharon, 2014, p. 6). Even if this is merely a problem of categorisation, we prefer to attach to ours. We will thus only recognise these two last categories as posthumanist.

As a result, we can at least agree that posthumanism would seem a philosophy striving for a new ontology of the human being. Sharon indeed recognises in her text a conceptual void left by posthumanism’s critique of the modern human conception. Accordingly, she calls for a clarification of what human nature means. This would appear to be aiming for an ontological study of the human being. However, she shifts the focus from the ontological plane to the ethical plane. She states: "The important question that we need to ask becomes, not if and how terms like “human” and “nature” are re-naturalized or re-essentialized, but if the re-naturalizations that are taking place in specific cases are *positive* ones." (Sharon, 2014, p. 11, cursives added). This shift values re-naturalisations in terms of their creativity and productivity for users, i.e., a pragmatic ethics. This anticipates from the very

introduction that her main concern will be how to make functional the different concepts at play in posthumanism, especially in connection with emerging biotechnologies.

Despite her calls for conceptual clarity, we observe that Sharon's main concern turns out not ontological but focused on ethics of technology. But even if her main concern is shifted, we still found references to the concern of what being human is. Unfortunately one can find a lack of distinction between the concepts of subject, identity, personhood and human nature, none of which are defined or explained. In many cases Sharon uses such concepts indistinctively, which generates confusion. When referring to subjectivity and then going into identity, one cannot help but wonder if these are equivalent or if their introduction brings new elements to the discussion. By using such concepts, the ontological is also unavoidably blurred within the cultural, the psychological and the epistemological.

Although Sharon's work is full of cautionary notes against simplifications, at the end we are left with the main impression that humanism is equal to the modern paradigm of subject-object. She questions both modern subjectivity as an originary position as well as the consequential radical separation between human subjects and technological objects. And we are guided into considering that posthumanism is chiefly "...based in a rejection of the humanist categorical distinction between autonomous human beings and a world of objects." (Sharon, 2014, p. 8). Ultimately, Sharon (2014, p. 164) would seem to suggest her critique of subjectivity amounts to a critique of human nature. Sharon does not contemplate that humanism is not equal to modern subjectivity. Even if we considered subjectivism as a type of humanism, it is not the only option for humanism, and we would argue that, after the 19th century, it is not even the most celebrated one outside German idealism.

As we have seen, Sharon began an ontological enquiry of the human being, but took a turn into an ethical proposal. Such turn was supported by a certain analysis which we unfortunately esteem unfocused and confusing. Furthermore, her estimation of humanism as a defence of a modern, mainly epistemological paradigm seems misleading. In the end, Sharon does not offer a model to the human uniqueness, although she indeed recognises it. If this research was to reply to Sharon's book, it would begin by asking: Why is Tamara Sharon a subject, but not her computer? And this question would remain on focus only if we could make equal what it fundamentally means to be a human being to what it means to be a subject. This is something we cannot assume at the moment. We can agree that "The humanist notion of an autonomous, fixed and unitary subject comes to light in this context as a by-product, an illusory effect of this division, rather than some true essence of human beings." (Sharon, 2014, p. 8). But such notion in fact seems very limited even within humanism. As Sharon recognizes, this has been possible through the critique of the subject-object paradigm. But the idea of a human essence, or nature, is not dependent on the subject-object paradigm. How does a 21st-century post-dualistic (subject-object, nature-culture) human nature looks like?

According to Butterfield (2012, p. 18), any understanding of the human needs to be explicitly posthuman. The main reason for this is that *other* humanisms have failed in falsely universalizing certain conception of the human, thus providing an excluding definition. Therefore, for her a posthuman view of the human being is one that does not offer any definition of the human being, fundamentally not a normative one. But this comes with an already known problem: on the other extreme, Butterfield accuses postmodern thinkers of often making the understanding of humans so liquid, that no identity or

pertinence can be drawn from it. The attempt is "…to maintain a position that is anti-essentialist but without abandoning the possibility of describing the human altogether." (Butterfield, 2012, p. 23)

But to hold such a position seems rather difficult. Butterfield follows Sartre in what she regards as his attempt of describing a common human condition instead of a universal human nature. The human condition consists in certain *situations* and *structures* which are common to the human experience. Sartre accomplishes such a description of the human condition by transcending the dichotomies of individualism/collectivism and freedom/necessity. This transcendence, i.e., a proposal which accomplishes to grasp comprehensively elements which previously caused strain, is obtained by facing the following two *common* elements of the human *condition*: a Marxist-Existentialist account of the embeddedness of human experience in materiality and the dynamic inter-creation of the individual and the social through the Sartrian conception of 'Objective Spirit' in which 'work' or 'praxis' play a mediation role. In between these two elements, certain topics of importance to human existence are sketched: embodiment, existential craving for meaning, the capacity of flourishing, freedom, necessity, and autonomy.

By such means, the aim goes into "…rejecting absolute or foundational accounts of human *nature* in favour of concrete descriptions of the human *condition*, as the situation common to all human experience that sets the context for our praxis." (Butterfield, 2012, p. 129-130) One might remain, however, suspicious of a change of name —condition instead of nature — which does not lay out the reasons for such a change to be made. What is the difference between talking about human nature and human condition? Butterfield does not answer. If "Each person lives these common conditions." (Butterfield, 2012, p. 132), what is holding

us from considering these conditions as part of human nature? Following this proposal, could we find a human apart from an embedded materiality and individual-social intertwineness? How has this position advanced theoretically from an Aristotelian view of the human as a political being?

Perhaps the only difference rests in a possibility: that the 'human' could reach a condition in which no embedded materiality and no individual-social intertwineness was still in motion. But then our question has not been advanced at all! Butterfield's objective, to have a comprehension of the human which transcends the dichotomies of the individual and the social, means nothing to someone with a slight notion of Aristotelian anthropology. For the Greek, and especially for Aristotle, the individual and the social are bizarre constructions. But then our question remains: was Aristotle wrong, when he said that a being which was not political was either a beast or a god, but not human?

Butterfield's posthumanism is short, and does not actually break the humanism barrier. As she unwarily utters, what she calls 'posthumanism' is only more refined —or more original, if we consider Greek thought— humanism. The problem, which I believe is widespread, rests in the reluctance of facing if there is such a thing as human nature and the consequences of such an answer.

Rosi Braidotti (2013) embraces the changes that in western thought have resulted in the deconstruction of the concepts of subject and individual, just as Butterfield. However, Braidotti understands that posthumanism reaches farther ahead. For starters, she clarifies what posthumanism means:

> In academic culture, on the other hand, the posthuman is alternatively celebrated as the next frontier in critical and cultural theory or shunned as the latest in a series of annoying 'post' fads. The posthuman provokes elation but also anxiety (Habermas, 2003) about the possibility of a serious de-centring of 'Man', the former measure of all things. (Braidotti, 2013, p. 2)

Posthumanism is then again seen as a philosophical milieu through which many topics and methods run by. The milieu becomes a topic itself, and then we are forced to make some sense of it. Braidotti explores ideas of around a dozen scholars which engage one way or another with de-centring of 'Man' (Braidotti is a disciplinary feminist, and she will hold onto the term 'Man' instead of 'human'). She concludes that a core, foundational, ontological notion for posthumanism, often overlooked, is that: "Life, simply by being life, expresses itself by actualizing flows of energies, through codes of vital information across complex somatic, cultural and technologically networked systems." (Braidotti, 2013, p. 190)

From this observation, made possible by our accumulated technoscientific knowledge, Braidotti conducts a heavily Spinozian-Deleuzian deductive-"rooting" reading of nature, subject, society, technology, death, and theory/academia. The following critique of how *we* treat animals and the environment (in a very wide sense), how populations are held in misery and seclusion, how necropolitics and biopolitics interact, and how *we* must change the way we theorize, all lead to a proposal that is, above all, political. Braidotti's main purpose is to call upon political action —of which theory is considered part— in the directions she has drawn.

Braidotti's discourse is an excellent sample of *avant-garde* posthumanism. As such, it is an excellent example of its problems as well. First, there are the oversimplifying and triumphalist aspects of it. Following Elizabeth Grolsz, they argue that "…evolutionary theory deflated humanist pretensions and was a precursor of the crisis of human 'exceptionalism', which has by now become manifest." (Braidotti, 2013, p. 147). However, when they propose for humanities to become 'posthuman', they seem to forget the awe-ful 'theoretical buildings' of Teilhard de Chardin, whose efforts to align faith and science resulted in controversies and new ways of conceiving human history. The only mention of de Chardin by Braidotti to disqualify him as a 'linear evolutionist' is overlooking the debate generated by his work, especially the reviews by Huxley (1955), Medawar (1961), Dobzhansky (1973), and Wilson (2012). Especially Wilson, as an evolutionary biologist, calls into attention two important matters for us: first that de Chardin, although often dismissed as a scientist, remained widely read for his spiritual character; second, that he provided a comprehension of life-universe as complex-interrelated phenomena, very much as Braidotti intends to do!

My point here is that de Chardin arrived to similar theoretical conclusions, without going all 'posthuman'. He observed humanity, human evolution, and articulated the noosphere concept, without hesitating if the tag 'human' needed to be abandoned. And it is not that the tag is unimportant: 'human' represents more than enough to reach the Omega Point. A similar critique could be conducted by quoting Hegel, but de Chardin's case is incisive because of the triple occurrence in him: scientist, religious, thinker.

Another problem is the hiding of undeniable humanist principles. This comes at most to the surface when she addresses the inheritance of Marxism:

> ...Marxism and its socialist Humanism taught us that objectification is indeed a humiliating and demeaning experience for humans in that it denies their full humanity [...] the nexus 'money-power' is for Marxists a form of inhumanity and the key social injustice of capitalist modes of production. [...] Marxism was, from the methodological angle, an anti-humanist theoretical movement that argued against natural essences and debunked the naturalization of differences as a power strategy. (Braidotti, 2013, p. 106)

Braidotti assumes Marxism as a conquest of thought which fosters her own speech. Still, she overlooks that Marx had an idea of full humanity. In fact, the concept of alienation — inhumanity and 'key social injustice' in Braidotti's terms— could not work without it. Therefore, Marxism cannot be an 'anti-essentialist theoretical movement' because it depends on an essentialist understanding of the human. This essence is the Kantian autonomy and freedom, the cornerstone of enlightened humanism and human rights.

This inconsistency is described by Sharon (2014, p. 163) when analysing radical posthumanism, in which she includes Braidotti. She explains that problems surge between the ontological and the political claims of this type of posthumanism because the critique to the modern subject does not produce an alternative from which to start political actions. Indeed we observe that much of Braidotti's said anti- and subsequent post-humanism is built against a modern and above all enlightened humanism that is denounced as wrong, oppressive, crushing, blind, and unfair to anyone who is not in a position of power. But her same aims can be reached through a purely modern enlightened discourse. And in fact, her own objectives could not be reached *without* the basic humanist notions of reason, freedom, autonomy, and politics. Braidotti's conclusions illustrate this.

The ‘post-human subject’ is material-vitalist, politically located, but extraneous to determinative civilizational figures (Braidotti mentions the *Phallus*, *Logos*, *Reason*, or heterosexual normativity as these figures). “Movement and speed, lines of sedimentation and lines of flight are the main factors that affect the formation of a non-unitary, posthuman subject.” (Braidotti, 2013, p. 189) Up to here everything seems fine. However, from here she proposes certain political action, and a type of ethics: a sustainable ethics which rests in inter-connection, rendering the well-being of others as our own well-being.

Now well, if we observe, we can certainly see that the lion and the gazelle, the walnut and the root fungus, Vesuvius and Pompeii, the asteroid and the planet, do not interact among them in any ethical way. Cosmic balance may very well be tantamount to cosmic chaos. It is only the ‘human’ who can be ethical. Why is that? Timidly, I must say: because of reason. Evolving reason —which may not be exclusive to our species, may not be considered as a finished faculty, and does not exhaust what the human is— is what allows us to build a world, ethics included. With reason comes autonomy, freedom, politics; with reason comes power. Braidotti conducts a severe critique on reason (most likely the enlightened understanding of it), but does not explain if other models of reason are available to us, and how.

I understand Braidotti, and agree with her, in that humanity needs to place itself more humbly in front of the universe. However, since she attacks reason without proposing an alternative, I see no way in which her proposal comes into operation. When she denounces advanced capitalism because of its commodifying effect on humans and considers vegetarianism as an ethical possibility, it is impossible to give coherence to these positions without classic humanistic values and conceptions.

As a result, within the matters Braidotti mishandles, the treatment death receives is key for our topic. She criticizes a 'fixation with death' in modern western philosophy, in which Heidegger and Agamben are placed as tokens. Instead, personal life should welcome death as 'another phase in a generative process'. My death is part of the cycles that life as *zoe* requires to endure. Under this conception, we are 'freed into life' and the narcissistic capitalist ego is disintegrated. Without such ego, our personalities should enact a *zoe*-centred egalitarianism for the well-being of everything.

With our capitalistic ego on target, Braidotti persists in the use of mortality as a trait of humanity. She proposes to repurpose the sense of our death: "Because humans are mortal, death, or the transience of life, *is written at our core*: it is the event that structures our time-lines and frames our timezones, not as a limit, but as a porous threshold." (Braidotti, 2013, p. 131) This self-renouncing in favour of the universe, similar to Buddhism's teaching in several ways, is an important argument against radical life-elongation which we must take into account. However, it is also not far from humanism, as we will see in the following chapter.

An obvious and unmentioned critique to cryogenics —a transhumanist commonly defended practice— could be conducted from Braidotti's ideas. Only the capitalist egomaniac could pursue such a waste of money, one could conclude. Again, the problem is that such valorisations depend heavily on humanist values, such as altruism. Although the necessity link between values such as altruism and the 'moral subject' is debatable, what remains true is that universalism of such values without the 'moral subject' is not possible. Therefore, it is still not clear what posthumanism could entirely mean in front of humanism, and therefore contradictions appear.

While we are alive, other contradictions arrive: “The proximity to death suspends life, not into transcendence, but rather into the radical immanence of ‘just a life’, here and now, for *as long as we can and as much as we can take*.” (Braidotti, 2013, p. 132) The last words of this quote, taken into the context of emerging technologies for the elongation of life, might appear even transhumanist. We can attach them to her appreciation of the aftermath of technology in this time and age:

> “The limits and limitations of posthuman bodies must become the object of collective discussions […] in a manner that does not assume the centrality, let alone the universality, of humanistic principles and anthropocentric assumptions. We now need to learn to think differently about ourselves and to experiment with new fundamental schemes of thought about what counts as the new basic unit of common reference for the human. […] …these extensions and enhancements of what bodies can do are here to stay. Are we going to be able to catch up with our posthuman selves, or shall we continue to linger in a theoretical and imaginative state of jet-lag in relation to our lived environment?” (Braidotti, 2013, p. 196-197)

She has explicitly kept distance from any transhumanist agenda, though. Embodiment and a deep social solidarity are her buffers against the deliria and egoism of transhumanism.

At this point, Braidotti’s critique of reason would seem to play against her distancing from transhumanism, for which she relies on traditional humanistic values. As she argues for an ethics closer to a more universally-oriented thought, we have wondered what type of ethics we can observe in the cold, bare universe. As Braidotti proposes to jump into the

posthuman era, we are left with many doubts about what is left behind and how it is left behind. Posthumanism is an open debate about the limits of our being human and the possibility of overcoming such being. But up to now it appears to be impossible to overcome: many of the aims drawn by posthumanists appear to be 'all too human.' Antihumanisms conducted severe critique on humanist systems but have been unable to provide operative alternatives to humanism. Central to our inquiry, death as human defining, and the possibilities of overcoming it, appears to be an excellent standpoint to reflect from. After all, we do not intend to answer the question 'Should humans be able to live forever?', but to analyse its techno-anthropological bases.

2.6 Corollaries

Our review of contemporary humanism reveals that, among the different thinkers, two trends are distinctive: on the one hand, ankylosed conceptions of the human being, which are unfit to deal with emerging biotechnologies (Sharon, 2014); on the other hand, thinkers who remain to call themselves humanists, but who given the contemporary challenges employ ideas that pertain more commonly to posthumanism. This leaves us wondering what the validity of contemporary humanism might be. On the other hand, posthumanists embrace a more fluid, de-based conception of the human being, but run into inconsistency between this conception and their needs for ethical-political action, or challenges when quarrelling against concrete biotechnologies, such as design babies.

There seem to be fundamental theoretical complications in these recounts. For these reasons, we will continue ahead with a more in-depth analysis of the humanistic and posthumanistic thought of our selected philosophers: Hannah Arendt and Hans Jonas in

chapter 3, to examine the philosophical grounds of humanism; Peter Sloterdijk and Bernard Stiegler for posthumanism. We aim to gain more thorough grounds for our enquiry by examining their well-thought positions about the human being and its intersection with technology and death.

Chapter 3 – The problem for the fundament of the human being in Hans Jonas and Hannah Arendt

3.1 Introduction

The source of humanism ought to be as old as human consciousness[18]. From the origin of self and group identification, through the definition of the human being as 'biped without feathers', up to the Universal Declaration of Human Rights, a long path of thought and action has been travelled. To talk about a perennial humanism is a growingly complicated endeavour, but its feasibility is still in the interest of diverse groups. As it was shown in the previous chapter, contemporary humanism presents certain clarity about its agenda and topics. It also visualizes goals which are at gamble because of the blurriness of its theoretical grounds.

In the previous chapter, we reviewed the current status of humanism, especially in connection with modern technology and its effects in our conception of the human being. We saw how humanism has an important, though not fully disclosed role in the discussions over human life elongation. Hence, the American Academy of Anti-Aging Medicine, facing discredit from various medical fellows, concluded in 2002 that "…the death cult of gerontology desperately labours to sustain an arcane, outmoded stance that aging is natural and inevitable. […] Ultimately, the truth on aging intervention will prevail…" And those who might consider stopping ageing feasible might still defend its convenience largely

[18] This is, of course, an affirmation that does not pretend to be idealistic. There were determinant material conditions which enabled not only human consciousness, but also the identification of other humans as 'the same as I'. The intricacy of material and ideal elements is such –being *per se* a proof of humanity– that a drastic separation of reality into these two categories is no longer possible. However, in our current endeavour, because of its nature and object, ideas play a major role. As Manero (2009) has exposed, the *De las Casas-De Sepúlveda* debate in the sixteenth century provides a good example of the interaction between the struggle among ideas and the disposition of the matter.

based, yet again, in what is better and proper to human beings. Thus, amid the debate, Adams (2004) recalls on the shift in the perception of what human biology is and what we can do with it as a fundamental element of all positions; at the same time, Caplan (2004) inquires about our conception of ageing and death as natural and normal phenomena. He draws to the importance of adjacent terms such as the *right to die* and to *die with dignity* as signals in medicine of the natural and normal perception that death has in our society. Although both their critiques provide helpful insights to the debate[19], it is noteworthy that yet again any of them goes into questioning whether human nature is bound to decay and death; and they are even farther away from considering what human nature might be and if it is a proper concept to handle the subject.

A more fundamental treatment of the issue is still missing. Thus I aspire to gain insight on the outcomes that humanism might have on emerging technologies for the radical elongation of life. For this purpose, I have selected Hannah Arendt and Hans Jonas, whose thought centres in the human being while also being heavily conditioned by technological development. This chapter aspires to comprehend their conceptions about the human being and how those conceptions affected their judgements on technology, keeping an eye set on the implied consequences for emerging technologies for radical life elongation. I will show that their philosophies provide an advantageous point for reflecting about life elongation under a label that cannot be other than humanist. After gaining such a critical comprehension of 'humanism', we can attempt an assessment of emerging technologies for human lifespan elongation from their conception.

[19] In particular, Caplan's (2004, pp.279-28) reasoning that under evolutionary theory ageing and death are not functions or purposes of alive beings, but by-products of the selective forces of evolution.

3.2 Arendt: afraid of humanism

Before commenting on Arendt's thought about the human being, a warning must be done: Arendt's conception of the human being is complex and falls into contradictions throughout her work, even within a single manuscript. But it is not only the human being which ends up so contradictorily fragmented in her thought: it is a sample of her entire philosophical proposal. This portrays her more as a Platonic philosopher than as an Aristotelian one, able to present a range of different ideas about a subject, but with diffuse scope. As a result, when we follow her reflections, we will be inevitably required to write some comments of her thought as a whole.

At the beginning of *The human condition*, Arendt (1959, pp. 11-13, 302) indicates that she shall not write about human nature. Following the anthropological enquiring of Augustine of Hippo, she narrowly recognises that there is a human nature, but denies our possibilities to understand it. She affirms we have no grounds to consider that there is a human nature even if that also implies that we could not deny it. If there is such a thing, only a god able to speak of a 'who' as of a 'what' could define a human. Apart from the connexion to Kantian phenomenological theory, it is important to stress out that, for Arendt, at this early point in her work, human nature is made equivalent to a definition of the human being.

The matter could have stopped there for the entire Arendtian thought. However, further into her work, Arendt resumes this topic:

> The moment we want to say who somebody is, our very vocabulary leads us astray into saying what he is; we get entangled in a description of qualities he necessarily shares with others like him; we begin to describe a type or a

> "character" in the old meaning of the word, with the result that his specific uniqueness escapes us. This frustration has the closest affinity with the well-known philosophic impossibility to arrive at a definition of man… (Arendt, 1959, p. 161)

The resuming includes a shift, for Arendt seems to be applying the Augustinian formula to an individual in as he is unique among the human race, thus not being precisely concerned of what makes him a part of humanity. Even if she establishes the affinity of this conundrum with the impossibility to define 'man', this shift introduces a new element that is not human nature, and which we can identify as personal identity, in the sense that there are no two human beings who are identical. This is indeed an important element of Arendtian philosophy, linked with the freedom we have from birth. Arendt goes further into detail:

> This unchangeable identity of the person, though disclosing itself intangibly in act and speech, becomes tangible only in the story of the actor's and speaker's life; but as such it can be known, that is, grasped as a palpable entity only after it has come to its end. In other words, human essence —not human nature in general (which does not exist) nor the sum total of qualities and shortcomings in the individual, but the essence of who somebody is— can come into being only when life departs, leaving behind nothing but a story. (Arendt, 1959, p. 172)

Arendt here takes decisive terminological grounds. She considers human essence as the result of a tale of a single human life, the story[20] (which we do not know if it is potential, factual or shifting) of acts and speeches that gives testimony of the person's identity, uniqueness. This identity becomes unchangeable only when the person is dead, and the story of his life has been closed, so to speak.

The shortcoming of such conception of human essence, especially when we place it in front of what could be the hermeneutics of life-story, is a topic for another moment. Instead, and even if her purpose is to differentiate nature from essence, we can focus on a precision made by Arendt: human nature in general does not exist. *In general* here means that there are no general characteristics that define and cluster each of the individuals of our species. By using the concept of 'essence' in such a way, differentiating it from 'nature', Arendt enters in conflict with most philosophical traditions.

Thus, with Arendt we run into two possibilities when addressing human nature. The first possibility is tuned with Augustine. In Kantian terms, human nature is simply outside of the subject's possibilities. We can suppose there is a human nature, but there is no way of defining it. The connection between Augustine and Kant is not explicitly addressed by Arendt, but it becomes relevant in our reflection. In the midst of what we can deem as the idealism of both authors, one dependent on the mind of God, the other on the *noumenon*, there hides human nature. But the mode on which their idealism sets our impossibility to know our nature is radically different. Augustine makes it an onto-theological

[20] Although Arendt omits its relevance, the use of these literary terms remits to hermeneutics. Only through a hermeneutical examination can the story of the life of someone be compared to his identity. But such considerations, by means of concepts such as the circle of interpretation, immediately lead to conflict with Arendt's pretensions of "completeness"; for, who would tell the story of the dead person? See Gadamer, 2004, p. 267 ss.

impossibility, whilst Kant makes it a noumenic-epistemological impossibility. Does Arendt stick to Agustine's theological idealism or does she recourse to Kant or other option?

It is difficult to declare what kind of subject is Arent considering, but it is undoubted that her interpretation of the mentioned Augustinian passage is mediated by Heidegger's analysis of the question about Being[21]. Heidegger's critique of the history of metaphysics definitely sets the tone for Arendt's conception. In such fashion is how, even if she says human nature is not knowable, she is able in fact to state what does not constitute human nature: human activities or capacities, or even their meticulous enumeration, cannot be equal to human nature. For if someone could withdraw all of these activities and capacities from the being, existence can still be human, or so she esteems. From this claim by Arendt we are also forced to rule out any type of performativity as the source of humanity.

There is no conflict in that Arendt can declare what human nature cannot be, while also declaring that we cannot identify it. It can be very difficult for me to define what an emerging technology is, but even before I do, I can firmly establish that a 1969 Camaro or walking are not types of emerging technologies. This philosophical principle of the reverse negativity of definition depends on the fact that I have at least an intuition of whatever I am negatively describing. This first possibility will leave us with an important remainder: no definition of the human nature is possible, but we are able to allude and consider it in certain ways.

[21] Arendt's doctoral thesis about Augustine was directed by Heidegger, whose knowledge of Augustine was consistent with it being a source of inspiration for *Being and Time*. The abyss between God and humanity presents certain parallelisms with the relation of the *Da-sein* and *Sein*. For this, see Fritsch, M. (2006) Cura et Casus: Heidegger and Augustine on the care of the self. In *The Influence of Augustine on Heidegger: The Emergence of an Augustinian Phenomenology*. [Craig de Paulo, Ed.] Lewiston: The Edwin Mellen Press.

The second possibility is to deny that there is any meaning when we say 'human nature' simply because there is not any human 'nature', as she does when she proposes a shift in the discourse from 'human nature' into a 'human essence'. This possibility is reinforced by Arendt at moments, but enters in severe contradiction with other ideas throughout her work. I will discuss this further ahead. In any case, it is clear that Arendt does not think that the concept of 'human nature' is appropriate when talking about human beings. So, instead of human nature, she proposes to speak about the human condition. The difference between a human nature and a human condition is the contingency of the latter. The most extreme change in this contingency, according to Arendt, would be the departure of human life from planet earth to somewhere in outer space. But not even this departure, which according to Arendt (1959, p. 12) would lead us to a forceful change in labour, work, action, and even thought, would draw us apart from being human beings. Thus, she affirms that the only thing she dares to say about human nature is that we are conditioned beings.

So leaves Arendt the situation in the opening lines of her *Magna Opus*, but that we are conditioned beings has further meaning than Arendt would admit. To fully understand the implications, we must reflect on what Arendt means by human condition. It is clear that the human condition has little to do with an animal condition, or a non-living thing condition. But it is also clear that Arendt wants to distinguish principally nature from condition, and not human from animal or rock. Thus Arendt dissects the human condition into two possibilities of life-existence: *vita activa* and *vita contemplativa*. And then she presents, as if a first of a twofold-parted condition, *vita activa* as constituted by labour, work and action. When considering each of these activities, Arendt (1959, p. 9) mentions per each activity a

condition that matches: to labour, the sustaining of human life itself; to work, worldliness; to action, plurality.

We can certainly imagine a scenario in which each of the mentioned activities become extinct, but can we imagine any human being without life, without being worldly, or without being unique/alike —the last meaning: constituted by plurality—? In other words, up to what point are these conditions contingent for human beings? One would imagine a further clarification of what condition here means would follow, but unfortunately she does not provide it. We can try to infer it, though, from the way she uses the term and how she demarcates it. There are two senses in which 'condition' can be used by her: as 'setting' and as 'requirement'. The first refers to a circumstance that happens to be present whenever a human is spotted; the second refers to characteristics without which the human would be different (providing we confer that despite how different the conditions are, the human prevails).

These two senses cannot be easily separated, for a setting can hardly be completely dissociated from what a thing is —especially with human beings, thus the Ortega (2000, p. 45) aphorism "I am myself plus my circumstance…"—, and acts as a type of requirement, and a requirement either projects on the setting or is part of it. A complete separation requires explicit clarification, which even then is at stake of not overcoming the relation of the two senses of the term. Arendt, however, does not even make such a separation. When she considers those as "…conditions under which life on earth has been given to man." (Arendt, 1959, p. 9), this expression remits directly to the ideas of both setting and requirement because the condition is placed as life *on* earth. If humans start living outside

Earth, as Arendt admits could very well happen in the future, such conditions cease. The setting-requirement remains then true for as long as the human being lives *on* Earth.

I would like to argue, however, that Arendt is here misplacing the contingency of the activities into the conditions themselves. Indeed what she conceives as labour, work and action may not only be drastically altered —as have been across ages, lands and cultures—, but could come to a complete end if, for example and as she says, man was to live in outer space. Similarly, it has not been impossible to imagine human beings who, oppressed by our own creations, are forced into a status where no labour or work is required, and action becomes a rare occasion for liberation. But these are not the conditions but the activities we enact in front of certain conditions. The cease of these activities does not mean that the conditions Arendt has in scope have vanished. For, how can we think or see a human being without life? This is impossible; as it is impossible to see a human being who would not be worldly or unique/alike.

The situation above is followed after the case for humanity presented in *The Matrix*. There is, yet, another popular case presented by science fiction, but propagated even more by transhumanists, that can fit as an illustration here: conscious life as a robot. The android —a term here used to point out the awareness of a robot— can die by its destruction, cannot be disentangled from his surroundings, and can identify h'self from others. Even if the robot is prominently software, these conditions remain certainly necessary for h's existence. As defended by roboticist Martine Rothblatt (2014), there are reasons to fear the enslavement of conscious robots, if they come to exist. These reasons come from the fact that such robots would undoubtedly be able to be free, which arises from the human condition as depicted by Arendt.

Considering such imaginary examples, the android and the technologically oppressed human dreaming in deceit, against the three main conditions proposed by Arendt is enlightening. Is this robot alive? Is such a human alive? Are they deprived of worldliness, or do they both indeed engage with the world in a unique way? And is not their plurality secured by their uniqueness, yet also by their openness to otherness? It is my presumption that the conditions proposed by Arendt are not in fact tied to living on Earth, but to living as humans.

Thus, such examples provide images for the conceptual blurriness in which we end when approaching with an Arendtian anthropological framework. Different notions which arise from the debates, such as consciousness, life, humanness, identity, and personhood, cannot be easily demarked. Such concepts become quite relevant in some of Arendt's main formulations, such as her reflections around natality and beginning. Apart from their own opacity, these concepts appear to be entangled with each other in multiple ways. She specifically dealt with human nature, and dismissed it in favour of an individuality that would be marked by the human condition. But in attempting such strict division between nature and condition, the other close concepts at play reveal inconsistencies. Previous examination of these topics has revealed impasses which have led to criticism by several of the scholars devoted to Arendt, such as Benhabib and Isaac. Curiously enough, little of such criticism has gone into detail of how her depiction of the human being affects what can be said of the human being through the work of Arendt.

Among the concepts which can reflect the situation before described, natality and plurality are the most distinct and original ones amongst Arendt´s theory. They are also concepts which connect directly with our topic because natality is linked to mortality as the

generational replacement of individuals and plurality comes from our natality throughout time. Regarding these concepts, Arendt indicates:

> …each man is unique, so that with each birth something uniquely new comes into the world. […] If action as beginning corresponds to the fact of birth, if it is the actualization of the human condition of natality, then speech corresponds to the fact of distinctness and is the actualization of the human condition of plurality, that is, of living as a distinct and unique being among equals. (Arendt, 1959, p. 158)

In this remark, Arendt calls to our attention the importance of identity, which she has made equal to human essence. As it was already said, her conception of human essence is, without much care, heavily removed from the philosophical tradition in general. It is partially indebted with the *Existenzphilosophie*, as a construction of the human being which only stops when one's life end[22]. But when Arendt attempts to replace it for 'human nature', a new problem opens. That existence precedes essence in an individual is by no means in dispute with the fact that such existence ought to be characterized by life, worldliness, plurality. Isn't the 'who' each person is, his identity, an on-going and situated life-story, which is supported by human nature? Arendt *monadizes* each human being within its own identity as its own nature, starting with her conception of natality. Benhabib (2000, pp. 64-67) suggests that at the bottom of such conundrum of concepts was Arendt's

[22] It is symptomatic that such conception of human essence and human life, as if we have the need to understand the life story of a person as a whole, is well connected to Williams's critique of immortality. According to such argument, immortality for human beings is undesirable because we would have to undergo large-scale changes in our desires and personal projects, changes that would render the resulting personalities impossible for our current selves to identify with (Williams in Cholbi, 2016, p. xii).

fear for totalitarism to grasp a description of human nature as what the human being must be[23].

Given the reasons to doubt of Arendt's categorical rejection of human nature, and considering how some of her conditional anthropology might in fact be suitable for speaking of the nature of the human being, the following passage is charged with new meaning:

> Philosophically, it seems that man's ability to take this cosmic, universal standpoint without changing his location is the clearest possible indication of his universal origin, as it were. […]…we may one day be able to look upon the age-old enthusiasm of philosophers for the universal as the first indication, as though they alone possessed a foreboding, that the time would come when men would have to live under the earth's conditions and at the same time be able to look upon and act on her from a point outside. (Arendt, 1959, p. 246)

Here Arendt writes about one of her renowned concepts: the Archimedean point. To close her reflections on the human condition, Arendt summons this figure using an aphorism by Kafka: "He found the Archimedean point, but he used it against himself; it seems that he was permitted to find it only under this condition." Arendt considers this point was a requisite for modern science to develop as it did. Its development is linked to our conception of nature, including the human nature. It is as Logan (2001, p. 49) has explained it, in direct connection with the philosophy of Heidegger: "Arendt's work […] follows

[23] Benhabib reminds us that Arendt intended for her work to be read as a unity. As such, she proposes that her ideas regarding the human being did not begin with her theoretical analysis regarding the enlightened humanism, but with her recount of the extermination camps and how the idea of humanity was useless inside them, but useful for the Nazis to justify their atrocities.

Heidegger in describing the history of humanism and its supporting metaphysical philosophies as an accumulation of a world of appearances, a "world view," that only appears to be natural."

Thus, Arendt's depiction of the Archimedean standpoint reeks to the myth of modernity in Heideggerian terms. Its connection to her critique on human nature explains the basis she shares with authors of her generation such as Jonas or the Frankfurt School. But independently from them, Arendt was heavily concerned with what an "objective" image of the human being had permitted. While the architects of modernity had associated a growing awareness of humanity with progress, civility, and peace, from the perspective of the mid-twentieth century such optimism was no longer possible. The two world-wars had ferociously demonstrated a truth that the reigning political ideologies had long denied: "how great a burden mankind is for man" (Arendt, 1978, pp. 234-35). Arendt's impressions were evidently mediated by her own experiences during World War II, especially with the Holocaust; thus she recalls how survivors of the death camps attest that "…the abstract nakedness of being nothing but human was their greatest danger" (1973, p. 330). And, in *The Origins of Totalitarianism,* it came to this devastating conclusion: "The world found nothing sacred in the abstract nakedness of being human." (Arendt, 1979, p. 299). Therefore, Arendt (1979, p. 293) considered that the horrors of both world wars demonstrated conclusively the emptiness and ineffectuality of the discourse of human nature; once deprived of citizenship, the stateless individuals were deprived of their human dignity. In short, Arendt (1973, p. 279) considers the inalienability of human rights a blatant mistake, a mistake so terrible and profound in its consequences that it enables her to

write in her 1945 essay, *Organized Guilt and Universal Responsibility*, about "…the terror of the idea of humanity" (Arendt, 1945, p. 20).

This rejection meant that human dignity —still cherished by Arendt— could no longer arise from any natural condition or given set of prerogatives. Instead it must be the result of action. The theme of dignity is highlighted in Arendt's 1946 essay on existentialism, in which she invokes Kant's idea that "…in every single individual humanity can be debased or exalted." In this spirit, she recommends the philosophy of Jaspers, which "…sounds the appeal to my freedom [which arises] through communication with others, who as my fellows and through the appeal to our common reason guarantee the universal." Jaspers retains Kant's cosmopolitan ideal, but instead of grounding it upon rational necessity, he bases it on the efforts of feeling, thinking, speaking human beings. Furthermore, by maintaining —according to Arendt— that man inhabits "islands of freedom" in a "discordant" universe, Jaspers sees that human dignity can only be realized in partial, limited ways, in a world that we can never master. This is why the "…spaces of freedom and dignity [emphasize the plural] are islands in a tumultuous sea and do not cover the entirety of the earth. (Arendt in Isaac, 1996, p. 66).

The previous confirms that Arendt's assertions about human nature are fundamentally not anthropological or ontological, but moral and political. So, while I completely agree with Arendt in that human rights are simply not natural, from that it does not follow that there is nothing which we can identify as human nature. Isaac (1996), following Arendt, explains how contrary to an ethical modern tradition that goes from Locke to Kant, there is a possibility to maintain human rights separated from any trace of human nature. Human dignity needs a new guarantee which can be found only in a new political principle, in a

new law on earth, whose validity this time must comprehend the whole of humanity while its power must remain strictly limited, rooted in and controlled by newly defined territorial entities (Arendt 1973, ix). Human dignity is an ethic-political construction, and not a characteristic of human nature. As Arendt and many other thinkers after the Second World War acknowledge, the Kantian project of the natural human rights has failed. Thus the linking of human dignity and human nature is disputed. However, and I insist, this does not mean that human nature is inexistent.

This, however, does not entirely explain Arendt's rejection for a concept of human nature. In this regard, Arendt's main concern was, as it is famously known, for humans to be instrumentalised under our scientific possibilities. The failure of the natural human rights led Arendt to fear that such a concept of human being might become instrumental. For instance, she estimates that technoscientific advances may lead us to a world were speech loses its power, a characteristic that already determines the scientific world. Could not we see in this loss of speech the equivalent to some sort of dehumanisation? Arendt in fact speaks of the narrative structure of human action as an *inter-actio*, but naturally she never confers any linguistic trait of the human being as a trait of humanity. Why cannot we affirm that our nature would be lost in such a scenario? Does not such a loss have moral implications?

Unfortunately, questions as these are impossible to sort out in purely Arendtian terms. One needs to advance from Arendt's self-imposed anthro-philosophical limitations. But this is in fact already a commonly transited road for Arendtian scholars. When commenting on these passages from her work, Benhabib (2000, p. 126) identifies 'tensions and vacillations' in Arendt's concept of action. I make mine her support for a Heideggerian reading of

Arendt, which considers that her interest was mainly to develop the political side of Heidegger's philosophy. However, we will next read some cases of technological analysis made by Arendt which show that, when subsuming our technological challenges to the political, Arendt is inevitably caught in the double discourse of the use of human nature.

Our world is what we make of it. But, remounting, humans are the only ones who can make world. The potential plurality of human condition that Arendt vehemently proposes can only arise from this disposition human in which beings are. Arendt's analysis, despite her waiver for human nature, cannot overlook that a palm tree or a dog cannot create world. Human beings are world creators, and so could cyborgs or gods might be.

We must face the fact that the human capacity to produce and endorse the horrors of totalitarian states is included in what constitutes being human. Reasonably, her shock for the events in the Second World War made her reject a romantic version of human nature. But even "…Arendt emphatically rejects the idea that totalitarianism is the necessary outgrowth of modern humanism" (Isaac, 1996, p. 61). In his analysis, Isaac implies that other *humanism* is possible, and even necessary, in Arendt. Based on what I have presented, I would even argue that a hidden humanism haunts Arendt's ideas, for she needs to still defend a certain state of naturalness from what she perceives as the attacks of science and technology.

And so, we arrive at another trait of the human condition on which Arendt comments slightly, although it is of utter importance for our enterprise: the current lifespan. Considering that scientists could very well extend it far beyond one hundred years, she judges such attempts as "…a rebellion against human existence as it has been given, a free

gift from nowhere (secularly speaking)…" (Arendt, 1959, p. 3). She compares such possibilities to destroying *organic* life on Earth. She ends up recognizing the possibility is pre-eminently a political matter more than a scientific one, up to the point that she doesn't doubt that such a task can be feasible.

Isn't it odd that Arendt would characterize the attempt to extend the human lifespan as 'a rebellion against human existence'? What is the point of dismounting the concept of 'human nature' when rebellions against our 'existence' are being pointed? And she, again, speaks of human existence as something 'given' to us. More clarity comes as she is forced to precise in the parenthesis that she is secularly speaking when she refers to it as 'a gift from nowhere'. Arendt's words indicate how what she calls 'human existence' is considered something precious that cannot be explained in mundane terms. The preciousness of human existence, as it is given, may explain how she turns out to be so fundamentalist in this topic, up to the point of comparing such aims to the destruction of *organic* life. Back and again, why is she forced to specify that the life to be destructed is organic? Is Arendt considering inorganic life? How? These questions link directly to one of the conceptual blurriness and entanglements which I refer above: our conception of life. While we might have androids, cyborgs and robots in our mind, Arendt's confinement to the secular could provide a different line of thought. This line is, however, so wide that it seems very difficult to address. For if we start enquiring about God and its alive-status, a very different train of thought, focus and work must be conducted. Arendt herself does not pursue such a project, but hinted here and there towards it. Still, if it is licit for us to conceive such a project, it is equally licit to consider the cyborgs to come as alive; and who knows, maybe the Messiah is a cyborg.

But Arendt does not go into most of the perplexities that these considerations arise, and she even falls short from the scope we now have. Let us repeat that she is *only* considering the extension of human lifespan well beyond 100 years. Imagine if one would make her consider as a scientific goal a 500-year lifespan, or immortality! I believe Arendt would esteem these as follies in the best case, or detrimental objectives in the worst. This belief is not based on a mere hunch, since Arendt indeed elaborated her thought around both concepts of immortality and death. It is of chief importance that we examine her ideas around these two concepts to better understand her stance on being human.

To speak about immortality, Arendt turns to Ancient Greece, but brings a guest: Judeo-Christian theology. In the middle of an immortal universe with immortal gods, "…mortality became the hallmark of human existence." (1959, p. 19); so she establishes a conceptual contrast between the human being and the cosmos. Humans are the only mortals in the universe in virtue of their individuality. She proposes that a recognizable rectilinear life from birth to death is what makes us mortals. Despite this difference between gods and humans, Arendt stands by the anthropomorphism of gods as having "…the same nature, and not simply the same shape…" (Arendt, 1959, p. 19) as human beings. This appears to be a reference to the possibility that humans have to reach a certain form of immortality, for Arendt then clarifies that through our deeds, with fame and glory, humans can achieve a type of post-*ipso-mortem* immortality. Arendt then introduces the topic of God's eternity, perhaps to complete the picture. Ancient gods and humans, in their own ways, could be immortal, but only the God of Abraham is eternal.

This passage raises some questions and opens certain tracks for thought. It expresses the similitude of humans and gods, and brings forward the idea that immortality is not entirely

veiled to human beings. This explanation matches the consequent distinction that Arendt brings between humans and God, for humans are not of the same nature of God, but only made after God's image. But here we ask again: had not Arendt limited to express herself secularly? Be as it may, the fact remains that the concept of human nature could not be avoided. Arendt's inconsistency when dealing with human nature is confirmed. After the vehement rejection of the concept by Arendt, its recurrent use cannot be overlooked. Its usage, even when rejected, creates a significant gap of meaning; for instance, Arendt omits in her appreciation an almost unavoidable deduction: our life-story, as such, is only possible through consciousness.

But Arendt's main concern is to argue that human beings can pursue immortality, although in a very narrow sense. Arendt is not contradicting Heidegger's teachings about being-for-death and the importance of finitude for human beings. The pursuing of such immortality is only to be accomplished by the greatness of our actions, and not through our work. For Arendt, this model remains strictly Greek and strictly political. Human beings can achieve immortality while dying, and remaining in their succeeding generations by means of their deeds. In this aspect, her critique of a scientific project for an extended lifespan remains congruent with her idea of immortality.

As a matter of fact, Arendt supplements this view when talking about death. Thus, she states that "…to die is the same as "to cease to be among men,"…" (1959, p. 20) Death completes the cycle of life started with birth, and provides an essential world element:

> The birth and death of human beings are not simple natural occurrences, but are related to a world into which single individuals, unique, unexchangeable,

> and unrepeatable entities, appear and from which they depart. Birth and death presuppose a world which is not in constant movement, but whose durability and relative permanence makes appearance and disappearance possible, which existed before any one individual appeared into it and will survive his eventual departure. Without a world into which men are born and from which they die, there would be nothing but changeless eternal recurrence, the deathless everlastingness of the human as of all other animal species. A philosophy of life that does not arrive, as did Nietzsche, at the affirmation of "eternal recurrence" (ewige Wiederkehr) as the highest principle of all being, simply does not know what it is talking about. (Arendt, 1959, p. 96)

The return to the classical sources is anything but idle within Arendt's conception of life, birth and death. One of her most noted characteristics is her critique of modernity. On contrast, her appraisal on antiquity is so deep that it can be described as romantic. Nonetheless, Benhabib (2000) does not hesitate to call Arendt 'a reluctant modernist'. Her quarrel against modernity, and in favour of antiquity, contains important elements to understand Arendt's anthropological stance. How is this? Well, at the core of her undesired insistence on modernity are human rights. This is evidenced by her often-quoted idea of 'right of having rights', up to the point that "Arendt's entire work can be read as an attempt to work out theoretically this fundamental right to have rights." (Birmingham, 2006, p. 1) Arendt presented a classical juridical conception of human life which would be a model for our troubled times. Whether that of a slave or a citizen, human life was to be valued and defended. And this conception was inserted, as seen, in a wider world vision.

The topic of life has several ramifications in Arendt's work, which also connects with what being human is. But Arendt wanted to apply those ideas into the XX century. Referring to the possibility of *creating* life, Arendt says that it is a blasphemous idea in every Western or Eastern philosophical tradition. Then she adds:

> The thought loses its blasphemous character, however, as soon as we understand what Archimedes understood so well, […] that no matter how we explain the evolution of the earth and nature and man, they must have come into being by some transmundane, "universal" force, whose work must be comprehensible to the point of imitation by somebody who is able to occupy the same location. It is ultimately nothing but this assumed location in the universe outside the earth that enables us to produce processes which do not occur on the earth and play no role in stable matter but are decisive for the coming into being of matter. (Arendt, 1959, p. 245)

Apart from the summary trial that Arendt has conducted on all philosophical traditions, what Arendt is telling us here is that modernity has been able to find a standpoint from which everything is reachable, the Archimedean point for work. In a way, Arendt is referring, without entirely knowing it, to the possibilities of cloning and editing genes. Up to what point is the process Arendt describes equivalent to a so-called desacralisation of life, of nature? It is so, because it places the origin of life within the state of normal human affairs. At this point, Arendt needs not to assess further any scientific project which could have this aim. Her analysis of the human condition, in favour of the greatness of human action, speaks louder, and indeed aligns against the over technicalisation of human affairs.

Upon my inspection, Arendt's discourse of the human condition seems to be stamped with essentialist traits difficult to match with her rejection of human nature. This is what Benhabib (2000, pp. 123-124) has called Arendt's phenomenological essentialism, as a consequence of her idea that each human activity has its proper place in the world. Whatever comprehension of the human being Arendt had, which I presented here, it runs through these quarrels. Thus, it is difficult to fully demarcate human nature from human condition, as Arendt wishes to do. Let us consider this now: "I confine myself, […], to an analysis of those general human capacities which grow out of the human condition and are permanent, that is, which cannot be irretrievably lost so long as the human condition itself is not changed." (Arendt, 1959, p. 6) These general capacities are the ones that allow for the fundamental activities of labour, work, and action, to be. But from where do these activities arise? From our facing certain conditions, such as life itself, worldliness, plurality, natality, mortality, the Earth. But for Arendt to maintain her dualistic nature-condition position, she must emphasize: "The conditions of human existence […] can never 'explain' what we are or answer the question of who we are for the simple reason that they never condition us absolutely." (Arendt, 1959, p. 13) And here is where the questioning to Arendt is unstoppable: how can natality, worldliness, or life itself not condition us absolutely? Arendt cannot answer this question, because it would cede into what she fears: hinting onto what in fact determines us absolutely.

It is clear that Arendt believed in a concealed human nature which could not be demonstrated by rational means. Renouncing to it proved counterproductive to Arendt´s moral interests, thus she kept it under a veil. This creates a sort of folded conception of the human being in Arendt. The resulting folds, nevertheless, do not meet on several occasions

as we have seen. We will later examine what are the consequences of this for our present subject.

3.3 Jonas: an incomplete humanism

At the very beginning of his influential *The imperative of Responsibility,* Jonas (1984, p. 1) writes: "All previous ethics […] had these interconnected tacit premises in common: that the human condition, determined by the nature of man and nature of things, was given once for all;…" Here Jonas esteems ethics at the exit gates of an unexamined understanding of the human being, as the present thesis does; he also esteems the human condition as mutable, and he would at least seem to say that the nature of things and the nature of man are mutable themselves. From these opening lines, it would seem that Jonas considers the study of the human being as the imperiously philosophical pending issue. But, in fact, his most famous work does not go into forming any philosophical anthropology.

Even if the problem of human nature is not treated by Jonas in this work, he does provide certain hints and directions on the subject which mainly lead to other of Jonas's work: *The Philosophy of Life*. The search for understanding Jonas's anthropological stance runs thus between both works. His imperative is an ethical proposal, but according to Jonas it depends on his philosophy of biology. In our eminently pragmatic time, Jonas's imperative has caught attention because it tells us how to act; but the path that leads from the grounds of such imperative to Jonas's conception of life and the human being has been scarcely explored. And yet, it shall prove to be decisive when fully understanding Jonas's proposal. For if Leibniz asked why is there being instead of nothing, and Camus asked why to choose life over death, Jonas chooses a question in the middle ground to situate his inquiries: why

is there life at all? Thus, in the following lines, I propose to go from the questioning of Jonas's imperative into his philosophy of life, to learn more about his conception of ourselves as human beings.

We do know that Jonas endorses certain conception of what can be considered an 'essence' of humanity. When Jonas (1984, p. 43) says that "Only the idea of Man, by telling us *why* there should be men, tells us also *how* they should be.", he indeed confirms the inclusion of at least a performative idea of the human being in his thought. And when he warns about the perils of the *homo faber* taking over the *homo sapiens* as the ideal of humanity (Jonas, 1984, p. 9), he does imply an alienation rather than a just a shift in being human. Therefore this 'idea of Man' must have an objective dimension somehow. But from where do its features come?

All through *The Imperative of Responsibility* a further explanation of what Jonas implies with his "idea of Man" is needed. His critique on the utopia of the coming "True Man", mainly a critique on the Nietzschean *ÜberMensch,* would not be possible without such objective dimension on the background. Only then he can state that the ideal which Nietzsche was pursuing is in fact in the past, and not only in the future. The same goes for his critique of Marxism, with his denouncing of the 'technological man' —central for all of Jonas's discourse— and his belief that global Marxism could not overcome individual egoism. And, we need such an explanation especially with the bio-ontological grounding of his imperative. When Jonas grounds his imperative on the future of human life, he portrays the organisms' self-preservation —what might be called an instinct, with no less difficulty— as an onto-axiological affirmation of life. But, given that this biological feature

is not exclusive of humans, but shared instead by every living being, how does it find a place within Jonas's 'idea of Man'?

Jonas does not answer such a question, since it is perhaps a peripheral matter in his quest for a responsibility imperative. He had other concerns at that point: within his objective of establishing a new ethical imperative that can face the technological challenges of our time, Jonas goes at great length to analyse the possibility of an 'ought' in 'is', or in other words, a deontology which comes from ontology[24]. I have already mentioned that Jonas attempts this on the biological tenet and what is left out from such argument. But there is still an anthropological matter that could be at play on such quest: Does the search for the 'ought' demanded from 'is' and the reflection about the nature of the human being have common grounds? Jonas does not make such connection. He does not explore if there are anthropological implications on his argument. For the sake of overview, I shall immediately conduct a selected summary on Jonas's ideas.

To ground his imperative, Jonas recognises what he calls two dogmas in philosophical tradition which need to be disproved: that there is no metaphysical truth and that no path leads from 'is' to 'ought'. From such a set, the questioning of an ontological status of value also arises, i.e., if value exists on its own right, and not only as a result of valorisation or, in the terms Jonas uses, subjectivity. If there is value independently of any subjective valorisation, then a *metaphysical* truth and an 'ought' which follows from 'is' are found at once. Value is eminently determined by ends and purpose; therefore, immanent purposive

[24] Along with 'ontology', Jonas also uses the term 'metaphysics' to refer to this fundamental 'is'. Sometimes 'metaphysics' is used to name 'immaterial' fundaments, while 'ontology' picks up on Heidegger's more general conception of Being. The use of these terms, however, is not made explicit and one might even suggest that some elements of the philosophy of life that Jonas pretends would be more justly named 'metaphysical' in the Heideggerian sense of 'the oblivion of Being', such as the amebae´s *freedom*. For this, See Heidegger, 2008, pp. 28-32.

ends are tied to immanent values. Although 'purpose' is deemed as an exclusively human phenomenon, Jonas argues that it is possible to challenge such conception. Through a phenomenological analysis of the biological acts of walking and, especially, digestion, Jonas concludes that such mechanisms, as an integral element of being alive, present the case for immanent purposes of life. Life, survival, is then deemed as a *summum bonum* because it is the state to which life projects. Such a *good*, as immanent to life, ultimately acquires the trait of responsibility for the human being, giving origin to Jonas's imperative.

Up to here the summary. What can be learned about the human being from such connection between deontology and biology, ought and is? I understand Jonas's ethical proposal as a re-foundation of Kant's moral philosophy. Where criticism to its idealism would diminish Kant's categorical imperative, Jonas comes up with new grounds in the biological world. However, we must emphasize that it is founded in the biological world and not merely in man alone. Despite this, the reader of Jonas is left with the idea, never expressed by Jonas himself, that man has a special place within the alive. After all, it is only humans who enact the imperative. But what is the character, condition or nature that allows such a force to be impelled upon us? Is the description of humans as "possible agents in general…" (Jonas, 1984, p. 44) the furthest we might advance with Jonas towards the content of such idea of 'Man'?

Calling human beings possible agents in general does not advance on the idea of the human being past Kant; not even past classical characterisations of the human being. But Jonas seems to go further indeed. He states through his assessment of modern technology that the human being has started to change nature itself, and that the human being might also itself be an object of reshaping τέχνη. Jonas also tells us that there is a connection between nature

and the *summum bonum* for which human beings are responsible. Nevertheless, he does not provide an account of how such connection is made. Thus, we face the question of how are then these 'agents in general' inserted in the new technological reshaping, and which is our connection to nature and life in general.

The answer is not in *The Imperative of Responsibility*, but in *The Phenomenon of Life.* Life is made here the main philosophical problem that concerns Jonas and it is intrinsic to the elucidation of the human being. A great deal of Hans Jonas's conception of the human being could be condensed into a (post)modern mystic interpretation of the famous Protagorean maxim: man is the measure of all things. He himself states that a re-appropriation of the said maxim is called for under our best understanding of life (Jonas, 1982, p. 23). In the first instance, Jonas does not hold an anthropocentric position. The world does not reflect the human being. It is instead the human being, as a life-form, who participates of life. But he not only participates of it, but participates consciously on it. We can feel and know what being alive is. This argument, which echoes a tradition that starts with Bergson, going through Teilhard de Chardin, leads Jonas at the beginning of his work to reconsideration about our biological knowledge.

The reconsiderations start from the very beginning of human history, the recollection of our earliest conception of life. Jonas tells the history of our conceptions of life and death with sufficiency, going about our ancient conception of the universe as alive, of life as the originarily-perceived state of the world: a world in which spirits were in everything and tributes towards mountains, rocks, and elements were needed. Under this context, death, and not life, was the great mystery. This original panvitalism became compromised with the event of death, which was tamed as an appearance, a transit to another state of life. The

central cultural position of funerary rites is the testimony of the dealing of humanity with death. The taming lasted until the dualism of matter and spirit took full form also as the body-soul dualism, an explanation that legitimized death as the primacy of matter became more evident to western thought. The result was the more recent conception of life as an exception in the universe; the new "mystery", we might say, is life and not death. What we and Jonas might see as the current dominating conception considers that the natural, common state of existence is inert, and life is the oddity. Mountains, rocks, chairs, asteroids and moons are inert, and only a lesser proportion of the universe is alive. This second conception has its roots in the wake of western thought and it has been affirmed by modern science. Jonas shows great sympathy for the first option, although he at no moment states that one or other option is the correct one. At gunpoint, Jonas might be forced to say that the second option is evidentially true, but that the first option hints us into more fundamental ideas about life.

It is the dialectic relation between both positions which brings more light into a philosophy of life. By bringing up such an ancient conception of life, Jonas aims to show that life needs not to be regarded as an exception in the universe. What life is, the possibility to answer such a question, goes through the tension that both 'panvitalism' and 'life-exceptionality' expressed in their intertwining along history with the body-mind dualism. To deal with death, the 'panvitalist' conception had the resource of the spiritual, the true ever-living entity which can be opposed to the body, to the material which actually depicts death. Death is apparent, but life endures and reigns over the universe. The 'life-exceptionality' conception considers inertness (although Jonas calls it death, as we will discuss later) the reigning state in the universe, and tries to explain life in terms of such inertness.

Jonas makes a problem whether we will recognise lifeless matter as the primal state of the universe —of existence—, if life is reducible to non-life; or if we instead would consider life as a principle for ontological explanation. Jonas acknowledges that scientific materialism is closer to overcoming dualism, but still fails in comprehending and explaining life. Any kind of dualism must be overcome through an originary comprehension of existence, of everything that exists. This overcoming shall come by, first, proving that all life has a dignity equal to that which has been only conferred to human beings and, then, by establishing the integrity of life in the cosmos.

Before continuing with Jonas's arguments, I feel compelled to make some clarifications about the terminology he uses. He often refers to three couples of terms in very close connexion: Existence-Inexistence, Being-Non-Being, and Life-Death. The connexions among such terms become awkward and even misleading at some point. For instance, after saying that the 'panvitalist' conception could only understand being as living, Jonas says the following about the exceptionalist position: "Modern thought… is placed in the exactly opposite theoretic situation. Death is the natural thing, life the problem." (Jonas, 1982, p.9) But the latter is, in fact, not the exact opposite theoretic situation from the first, as that would be if being could only be understood as non-living. This has been never a dominating view in science, with extreme mechanicians as the only possible supporters of such position. Instead, what Jonas could say is that for modern thought death is the natural, established state of the universe. But even this is not true, and, as Jonas correctly esteemed, can be denied. This is, Jonas (1982, p. 12) indeed understood that it could be far-fetched to say that modern thought understands the basic state of matter as dead, because death presupposes life. But Jonas replies with what can only be seen as a genetic fallacy: "But in

fact, though it is forgotten, the cosmos once *was* alive as perceived by man, and its more recent lifeless image was built up, or left over, in a continuous process of critical subtraction from its fuller original content…" The primitiveness of the panvitalist worldview is taken wrongly as a proof of legitimacy. Jonas does not go into questioning the legitimacy of panvitalism´s claims, and instead offers it as a support for adhering to modern thought a view of the universe as dead, in place of inert. Even if in the general scheme Jonas does support a balance between both worldviews, in this particular case he does insist on plainly misleading over the true scientific problem of dealing with living matter, which goes for instance through the debates about reductionism, which Jonas blatantly omits. The misleading use of "death" instead of "inert" will have repercussions in the outcome of what Jonas intends to understand for life and the humanity within.

The theses that Jonas's panvitalism proposes create a conflict with the current dominating worldview, especially within the diverse sciences. This conflict, as much of the dominant conceptual frames around modern science, proceeds from the critique of anthropomorphism that took place in the days of modern science institutionalisation. Following and strengthening mind-body dualism, the division between *res cogitans* and *res extensa* entirely detached matter from the reality of thought. This scheme sustained Bacon's critique of the pursuit of final causes within science as one among the totems of the tribe, as well as Hume's critique of the laws of causality. However, cracks on this dualism are evident and:

> …when dualism departs and the *res cogitans* in its organic foundation becomes itself part and product of unitary nature, Bacon's reference of final causes to the "nature of man" ceases to have the extrusive effect it had in the dualistic

> setting; and finally the doctrine of evolution, now inseparable from modern monism, obliterates any vestige of the dividing line on which the whole argument of contrasting "nature" and "man" rests. (Jonas, 1982, p. 37)

Jonas clearly favours this idea, but he still states that the debate on this matter is open: our options are, apparently, to either accept what is revealed in the human as a fragment of some general evidence regarding all life and, ultimately, the universe, or to extend the prerogatives of mechanical matter into the heterogeneity of life, which for Jonas would mean to alienate man and deny his basic self-experience of life. We will see ahead that this is in fact a false dilemma fallacy.

We may now continue with Jonas's argument for the integrity of life. To proof the dignity of all life he intends to demonstrate that freedom, a mark almost always associated exclusively to human beings, is present even in the simplest life forms. "…if mind is prefigured in the organic from the beginning, then freedom is." (Jonas, 1982, p. 3). For him, even bacteria have freedom. He admits as well that some concessions must be allowed for the concept of freedom to be counted as participating in basic organisms like bacteria; but he also indicates that we should still be able to recognise that it is indeed freedom what we encounter in such organisms: "Freedom must denote an objectively discernible mode of being, i.e., a manner of executing existence, distinctive of the organic *per se*…" (Jonas, 1982, p. 3).

As we pay close attention to this requisite he demands from what he calls freedom in all living beings, we will discover that the problem with Jonas proposition is that he amounts life to being free and, as a result, he does not conquest a distinction between both concepts.

But we do not need to make a whole exegesis of these lines to know this, since Jonas further elaborates the lack of distinction he proposes between freedom and life.

Thus, Jonas considers that the implications of Darwinism in ontology, and in a philosophical theory of life, have not been yet fully assimilated. As Jonas recognises, Darwinism supposed to the *res extensa* and *res cogitans* dualism a greater deal than any previous metaphysical critique. But he considers that the blow delivered by materialism also opened a great dilemma for itself: the situation of the mind:

> The *continuity* of descent now established between man and the animal world made it impossible any longer to regard his mind, and mental phenomena as such, as the abrupt ingression of an ontologically foreign principle at just this point of the total flow. (Jonas, 1982, p. 57)

The culmination of the Copernican Revolution that this presupposes could mean, as Jonas writes, the *raison d'etre* of existentialism. But it can also mean that the *inwardness* classically assigned to the human being is, in fact, pertinent to all life: "Where else than in the beginning of life can the beginning of inwardness be placed?" Jonas (1982, p. 58) asks himself. All animal kingdoms, through all of their complexity levels, would exhibit this inwardness according to Jonas. Furthermore, this inwardness is linked to the teleology of the organism: "…there is no organism without teleology; there is no teleology without inwardness; and life can only be known by life." (Jonas, 1982, p. 91) This quote summarizes Jonas's conception of life, which we need to present with some detail here in order to see how it determines his own conception of the human being.

By means of metabolism, life forms are emancipated from the immediate identity with matter. This emancipation is named as the freedom of form by Jonas; the non-living are tied to a form to continue in existence (remaining), while the living must continually actualize their matter while preserving their identity through form (reaffirmation). This reaffirmation leads to the openness of the living form, its transcendence into the future. Thus, metabolism shows that the organism is forced to exercise this freedom to continue existing (what Jonas calls the antinomy of freedom at the roots of life); it also shows that the living is always in a world, surrounded by what it is not itself. The organism's reaffirmation and transcendence into the future reveal *us* its inwardness —whether it is called 'feeling', 'sensitivity' or 'response to stimulus'—; however infinitesimal or faint the inwardness of an amoeba is, Jonas assures it is there.

This understanding grants all life, all living forms, with freedom, emotion and purpose. Yet, Jonas does not intend for all life to possess the same degree of such qualities. Through motion and perception, what animals lose in security in contrast to plants, we gain in individuation. This marked individuation rises up to the "…*basic* separation between subject and object…" (Jonas, 1982, p. 102). Indeed, Jonas's position strongly supposes, perhaps more than he realized, the Cartesian subject. As such, for his critique toward cybernetics' materialism[25], he writes: "It is I who let certain "messages" count as "information", and as such make them influence my action." (Jonas, 1982, p. 119). Jonas treats the messages as objects at the service of the subject. This kind of filter reminds us of

[25] For Jonas, the critique of philosophical cybernetics is an important step towards refuting certain materialism of his time. Not central to our argument, it can be summarized in the words of Lundberg (2013, p. 74): "Jonas's specific diagnosis is that it [cybernetics] confuses the carrying out a purpose with having a purpose."

Husserl's phenomenology, which allows the subject to commit such *epogé*, but which does not overcome the dualism that the division of subject and object suppose.

Nevertheless, one would expect for Jonas to draw a line between human beings and the rest of the animal kingdom. Indeed, he does by the means of image-making[26]: those who can represent, to whatever degree of dexterity and with whichever materials, are human beings. Jonas proposes the principle of mental separation of form and matter as grounding of such imaging. Image-making entails certain control of the human body towards an objective which is strange to biological purpose. This strangeness from the biological is a token of human freedom.

In general terms, this is Jonas´s philosophy of life and its corresponding part of philosophical anthropology. Some problems with the arguments have already been pointed out and should now be addressed. The most comprehensive issue within Jonas´s position is his reliance on the subject-object paradigm, which especially takes pre-eminence in his use of inwardness. But what is this inwardness that Jonas recognises in the human being, which he still contrasts with 'unfruitful outward demonstrations'? There is no answer to this. We are simply compelled to believe in it, to see inside us and discover it. And if that was the end of it, *à la Descartes*, it would be perfectly fine. But then we are conducted to the inwardness of others, and not only of other human beings, but to the inwardness of cats, flies and amoebae. Without any *sign* of this inwardness —which we are forced to concede as a countersense— Jonas can only rely on a certain imagination.

[26] Even if Jonas does justify his preference for this 'proof of humanity', he does indeed also mention other options to be found in his heuristic exercise, such as tools, tombs or heaths. See Jonas, 1982, p. 157

Jonas advances from this inwardness of the living into freedom by means of the individual´s independence of matter —through metabolism— and the *thrust* of living. Allegedly, the amoeba is free because it does not depend on a specific form or matter to live. It has become free from the form of the inert. This formula seems effective because it freely plays with the very complex concept of freedom, but saying that the amoeba is free because it lives comes as non-sense when we are able to equally say that the amoeba is condemned to be alive.

It would be good at this point to remember the reasons Jonas had to concede freedom to all living beings. He thought that freedom would be the guarantee for the dignity of life, because, he thought, freedom grants man his dignity. When Jonas refuted what he called philosophical cybernetics he omitted that such refutation did not include other forms of determinism. As during his work he barely mentions instinct as part of the freedom life brings, he neglected an important difference between humans and the rest of the living. He overlooked that humans can decide to stop living, unlike amoebae. If we would say that the instinct to live is present in all the living, then humans can willingly go against such instinct. What this possibility engages is what we could truly call freedom without any concessions, and this freedom is that which many philosophers have considered as a symptom of human dignity.

Surprisingly, this *faux-pas* in his philosophy of life does not represent a problem for his imperative of responsibility precisely because the imperative concerns only the human world, which should already trigger suspicion on his claims of the amoebae's freedom. But does it affect his critique on technological human enhancement? After all, as Hauskeller (2015, p. 39) states "…Hans Jonas (1903–1993) was already a "bioconservative" critic of

the human enhancement project in the late 1970s,…" and this certainly included radical life elongation. In fact, Jonas particularly contended radical life elongation by saying that death is a necessity for life. Jonas would say that life is essentially mortal, cannot be any other way. The argument goes as follows. For Jonas (1982, pp. 81-86), metabolism as the basic level of all the living is the most basic freedom. All life has freedom; it is part of what it means to be alive. But Jonas warns us that freedom has a price. It comes with the burden of necessity and danger, the greatest of which is the danger of annihilation. Metabolism is both ability and need: being becomes emphatic through the threat of its negation. This is why death is essential to life.

What happens when one considers that this freedom Jonas is referring to is not what we would normally refer to as freedom, but some construct of his own, one that refers to a freedom from matter identification? It happens that this "price" that we pay for freedom seems disjointed. It is matter, again, difficult to address to both humans and amoebae. We simply cannot be set in the same category to this regard. And this can be severely noted when, in need for precise arguments against the project of radical life extension, Jonas turns not to his philosophy of life, but to the Heideggerian *Sein zum Tode* as his source for arguments.

We can begin reviewing Jonas's critique on human enhancement with this question: "Who will be the image-makers, by what standards, and on the basis of what knowledge?" (1984, p. 21). This is asked to the human enhancement advocates in general, demanding the end to follow, the pursued model for the enhancement. However, such a question makes no sense when Jonas has clearly favoured the idea of a human essence, even if he does not fully disclose which it might be. We could completely embrace a human enhancing technology

and still comply with the imperative of responsibility. Specifically considering radical life elongation takes an exercise which surpasses our current objectives, mainly because of environmental considerations. However, if we consider the current debates between neo-Malthusians and its detractors[27], it becomes clear that the end of that debate is still a toss in the air.

Furthermore, such restrictions might only apply if we were to consider the rights of the unborn to be born, the right of generational succession, i.e., another hot open debate with no clear champion. This actually leads into works which Jonas published last century at the end of the '80s and the beginning of the '90s. There Jonas fully addressed what he titled *The burden and blessing of mortality*, a conception of death as a collective benefit — mainly due to the value of generational succession— and individual death as a burden which, still, carries the benefit of driving us to certain objectives (again, the Heideggerian *Sein zum Tode*, dead, temporal limitation, as what leads one to resolution). As an attached argument, Jonas also considers that human enhancement would violate a human basic right, namely the right to ignorance. He states that not knowing who we are, or who we are meant to be, is a precondition of freedom. The human enhancement advocates, nevertheless, have never claimed that humans should become preconditioned. On the contrary, human enhancement is meant to extend our freedom.

We again realize that the gap missing is a precise definition of what needs to be treasured, our humanity. Apart from our symbolic being, with Jonas, we also achieve the following:

[27] In her recent study about Malthusianism, Tobin (2018) showed that Malthusianism only took effectiveness as Neo-Malthusianism as a result of the technological advance after WWII. On the other hand, Ojeda, Sasser, and Lunstrum (2019) have argued against neo-Malthusians pointing out that the vast majority of environmental pollution in the world comes from rich minorities, making it a problem of consumption levels and the resulting inequality rather than of the number of human beings on Earth.

“Life means material life, i.e., living body, i.e., organic being.” (Jonas, 1981, p. 25); our corporality, we are bodies. And it strikes us yet that Jonas did not become a philosopher of corporality. On the contrary, his comprehension of materiality was completely off. His programmatic vision of evolution, in which he attempted to extend human dignity to all the living, wrongly attempted to impose a philosophical charge into evolutionary biology. As such, it makes sense that when he considered that all evolution had a plan, a *τέλος*, then anything interfering in such plan, such as technological human enhancement, is perverse. Jonas was profoundly devoted to warning against technological disaster while he failed to grasp the openness of evolution and of human future in general.

3.4 Corollaries

The critiques exposed previously cannot be taken as the critiques of two cases of philosophical entanglement. The works of Arendt and Jonas show —even if preconditioned— two legitimate philosophical efforts to provide some sense to our time; our shared time, since their concerns still align with ours. Through their humanist conception of the human being we have scoped into their positions for the radical elongation of human life. However, the conception has resulted flawed in both cases, although for different motives: in Arendt, a fear for not declaring what the human being might be; in Jonas, a disregarding of human creativity and openness towards the future. It is remarkable, yet comprehensible and not a mere coincidence, that both philosophers included a critique to the technological quest for immortality within their major works. The weight of death in our philosophical tradition is still colossal.

Already from the philosophies of Jonas and Arendt we can outline a conceptual formulation for what the human being is. Three conditions which Arendt conceptualized are more than mere conjunctures for the human being. They are essential to us and such appreciation must lead to go a step further. Hence we argue that these three conditions presented by Arendt, natality, worldliness and life, are more fundamental than circumstantial. This formulation shall be wide enough to allow for different species and entities to join humans in our babellic discourses. We have learned that any human being has a beginning, a point in which they started to exist and from which they develop. Any human being is an agent, has a level of freedom and responsibility over his actions. However, agency does not mean that the human being is entirely or even predominantly unconditioned. All human beings are worldly creatures. This means we are material, but also that we interact with our world and, even more importantly, create world: we are capable of creating meaning. This creation of meaning can only be performed by linguistic means. The linguistic capacity of the human beings, in terms given by Jonas as symbolic, implies indeed the possibility of conceptualizing and truth. This linguistic capacity shows also from its genesis the subject self-awareness.

However, these essential characteristics of the human being, which intertwined we might consider human nature, do not prescribe what the actions of such a being must be, not even his physical or biological constitution. Human nature in such terms is a set of characteristics met by people from all cultures, races and ages. They are inclusive of anyone who needs and demands this inclusiveness. They are a broad basis of what we could deem as the human dignity, even if such dignity does not amount to any sort of pre-given rights. Corporality, natality, life, worldliness, awareness, freedom, are all manifestations

which could be potentially shared by conscious robots. And, since they have arisen from the evolution of past species, the inclusion of other animal species should be considered and open to debate.

Such characterisation of the human being, along with the critique to several arguments that we have presented, generates important notions around human nature which must be taken into account when thinking about human enhancement, and particularly about radical life elongation. In principle, death does not seem to be a must in human nature. We can conceive a being with the mentioned characteristics who is not bound to die. Not all humans need to be mortal. This does not mean that all humans should evade death. It is just that the idea of potential immortality and human nature are not incompatible. If we propose that everything that has a beginning also has an end, we will certainly be forced to admit that such a statement is an extrapolation of our limited human experience and reasoning. Being our experience more limited, we can better trust our reasoning in such field. By doing so, we will easily discover solid doubts about the end of things such as matter or motion.

Regarding the broad conceptions of human nature, our analysis has so far explored but one of the two possible general frameworks. Even if some conclusions have been forwarded, these might need corrections or even get discarded when we take into consideration the post-humanist scope. This must be our last task before coming to conclusions. At our time and age, only by considering both the humanist and post-humanist frameworks might we have a sufficient comprehension of ourselves to grasp the worth or waste of human enhancement projects such as the attempt to radically elongate human lifespan. We might be tempted to infer that post-humanism is in sync with trans-humanism and, therefore,

promptly in favour of technological human enhancement. This might be because posthumanism, as the philosophical conception which aims to de-centre any conception of the human being, is often understood as the position of 'since there is no centre, everything is allowed'. It might thus come as a surprise that notable post-humanists have argued against technological human enhancement. In fact, posthumanism has been a fierce critic of transhumanism. We will examine this situation in the next chapter.

Chapter 4 - Posthumanists for life-finitude?

4.1 Introduction

There are countless ideas in this world, even if we are quite rigorous regarding what we understand by an idea. The minority of such ideas are more frequently replicated and are more successful and transcendent than the rest. In the field of philosophical anthropology, posthumanist ideas are successful newcomers. Posthumanism is a relatively new framework for philosophical anthropology, with its deepest roots in Nietzsche, Freud and, arguably, Marx. Even if posthumanists employ quite an amount of words trying to show that the traits which can be deemed as posthuman were staged since the very dawn of humanity, or what is the same: that humanism has been a charade, a mechanism of concepts which at most has been helpful to get life past; even so, we cannot overlook that it is in our day and age that our understanding of the human being has increased its stakes, and that it is calling for a worldwide change. The nature of this change remains, however, a big question for posthumanists.

As we have discussed in chapter 2, posthumanism has become a strong philosophical competitor alongside humanism. So far, we explained the appearance of posthumanism mainly as a philosophical process. Indeed, the growing presence of posthumanistic ideas is linked to the fallouts of humanistic thought in the last century, maybe even as a product of its exacerbation. The increased difficulty to characterize the human being inside humanism, and the unwillingness of some to do so, is at least partially responsible for posthumanistic ideas. But this is half the story of posthumanism's success. The vast majority of the ideas confined in written pages do not get to exercise the leverage of posthumanism. Even with

successful thinkers, such as Nietzsche, we find that all their ideas are not equally successful. The cultural transcendence of the *Übermensch* for instance, is uncontested when compared with his idea of the eternal recurrence. The (potential) application of an idea makes it more popular. And this is what has happened with posthumanism. As Verbeek (2008, p. 242) puts it, referring to our current times: "The modernist metaphysics behind humanism, however, appears to be ever less suitable to understand what is happening around us." I would add that not only to understand, but also to evaluate and eventually endorse technological novelties. Posthumanism seems to be an anthropological philosophy stance widely shared by technology enthusiasts. I do not imply that certain thinkers accommodate philosophically to an agenda. It is most likely the other way around: posthumanism appears as the coherent and rational theoretical stand, from which a certain reading of technology follows. This reading matches what happens with technology around us.

Such reading, I assume, remains rightfully problematic in many cases of philosophical analysis of technologies. To explore posthumanist thought in detail does not mean to study the solution of the problems posed by humanism; it can mean to deepen their trouble. This can happen deliberately or not. As we saw in chapter two, some authors who approach posthumanism, without trying to develop it, seem to find a theoretical deadlock when attempting to construct a political or technological proposal for action. This is one of the reasons I have considered it important to examine contemporary posthumanism from the thought of two of its main portrayers. I hope that a detailed study of the development of posthumanism in philosophers Bernard Stiegler and Peter Sloterdijk will throw light into the gaps that are often seen when posthumanim is invoked. However, I mainly aspire to

gain insight into the outcomes that posthumanism might have on emerging technologies for the radical elongation of life. This chapter thus aspires to comprehend the conceptions of Sloterdijk and Stiegler regarding the human being and how those conceptions affected their judgements on technology, keeping an eye set on the implicit consequences for emerging technologies for radical life elongation.

4.2 Sloterdijk: acrobats not far from the ground

The characterisation of Sloterdijk's posthumanism and its implications on the plausibility of emerging technologies for life elongation is a lengthy task. He is not only a prolific author. On top of that, and differing from the authors we have previously explored, he consciously and explicitly has made of posthumanism the cornerstone of his thought and he has linked it with a distinct conception of technology. He is also a quite notorious and polemical author, who has generated a great deal of primary and secondary literature. At the same time, and for the same reasons, such a characterisation is simplified as his thought around our topic is tidier and more transparent. This does not deny us, however, the effort of interpreting his thought from his own perception of the idea or possibility of technologically-enabled human life-elongation.

Thus, I present in what follows a characterisation of Sloterdijk's posthumanism almost as a selected summary of his *Critique of Cynical Reason*, *Rules for the Human Zoo: a Response to the Letter on Humanism*, and *You Must Change Your Life*, along with complementary comments from his critics. As Sloterdijk has been sufficiently clear on this subject, and most of the works about Sloterdijk mainly wish to dispute his ideas, I will mainly present secondary literature in the sake of aid for our critique. Further ahead, when we go into his

assessment of human-life elongation, we will hopefully have reached an enriched point of view.

At the beginning of Sloterdijk's chain of original thought, back in 1983, we find the seminal ideas regarding what can be called posthumanism. Sloterdijk (1987, p. xxvi) is emphatic on his starting point: the time for metanarratives —to use the concept coined by Lyotard— has finished. Sloterdijk mentions but a few: God, Theory, Praxis, Subject, Object, Body, and Spirit. It can be shown that here, albeit unmentioned, a narrative of the human being also finds its righteous place among the obsolete totalizing ideas:

> …the illusion of a transparent human self-consciousness has been systematically destroyed. […] The old "rational psychology" with its theory of *memoria*, of the capacity to remember, is no longer compatible with this view of consciousness. In the process of enlightenment, human beings become more and more deeply involved in the self-evidence of the enigma that "there is still something else there." (Sloterdijk, 1987, p. 49).

The death of rational psychology occurred after Freud's work demolished the centeredness of reason in the human *psyche*. As a result, Sloterdijk (1987, p. 53) argues that his critique exercise is "…in an intimate relation with what is "really the case" below the surface." The resemblance of this critique to an unmasking reminds us that no trivialisation of the truth of matters is taking place here. As part of his critique of cynical reason, Sloterdijk has placed the human being in the centre of his critique. He needs to unmask what the human being has pretended to be.

As such, he goes on and states: “Human life moves a priori in a natural artificiality and an artificial naturalness (Plessner). This realization […] shows that human beings, as they are, live "unnaturally." What was natural in them was "lost" and became "distorted" and "misshapen" through civilization.” (Sloterdijk, 1987, p. 53) This call to Plessner will determine Sloterdijk’s thought as posthumanist. But one needs to be careful when approaching this idea in Sloterdijk. We need to focus on the last sentence of the quote to notice that Sloterdijk’s understanding of Plessner’s quote still demands clarification. Sloterdijk omits the ‘a priori’ carefully written by Plessner, and says that what was natural in men was lost and distorted. We need to question ourselves whether any sort of alienation is being here proposed or whether Sloterdijk fully endorses the position by which naturalistic thinking serves only as a utopian source of inspiration. In this tenor, he says that “…what "Nature" gives us has to be recognised as neutral and nontendentious so that every value judgment and every tendency can, without doubt, be understood as a cultural phenomenon.” (Sloterdijk, 1987, p. 57) Thus, in the nature versus nurture debate, Sloterdijk would seem placed on the side of nurture, but he is still in the debate. As such, in Sloterdijk’s critique of the Rousseau’s ‘victim theory’, we find an unavoidable position regarding human beings: we are, first and foremost, agents, but extremely conditioned. Each and every one of us lives in a conditioning society with a conditioning nature. And he even deepens the separation of nature and civilisation when he says “…how human beings become what they are socially... proves nothing about their essential being.” (Sloterdijk, 1987, p. 55). This is blatantly shown in the radical difference of possibilities in human beings: from “…that the human being can communicate ecstatically with the cosmos…” (p.466) up to “humanity’s ‘will to night’, a universal regressive tendency as an element of humanity. In the eyes of the stupid, God is stupid. The people want God to be stupid. A

God who understood chemistry and relativity physics would not be to their liking. Luther said: Deus stultissimus." (p. 495) But this versatility of us humans does not clarify the problem of human essence, because on the one hand Sloterdijk seems to be disregarding any natural origin of it, but on the other hand he also seems to disregard any connection of our social being with human essence. And then, we can also quote him stating the following: "According to the wiseman, one should let the animal live, insofar as it is a condition of the human." (Sloterdijk, 1987, p.168) and even: "The human being is based on the animal." (Sloterdijk, 1987, p. 262)

Where do all these thoughts leave Sloterdijk's posthumanism? Despite such confusion, Sloterdijk dares to state that: "These insights are today common knowledge in philosophical anthropology. In the meantime, they have been morally neutralized and have become detached structural viewpoints." (Sloterdijk, 1987, p. 53). From this great charade, Sloterdijk insists on getting to the core of the human pit. To this respect, he remains nonetheless a Socratic philosopher because he acknowledges that getting to know ourselves, also as human beings, holds the key of our future. When he retells how the working class came to a consciousness of human rights, he also tells how such consciousness has not faded in what is left from the working class, but it has now been successfully unmasked as false consciousness. And such false consciousness is a source of cynicism, the grand topic of his first major work.

From his reflections upon cynicism, it is clear that a return to an innocent time is no longer possible. Instead, Sloterdijk proposes to follow the path of *kynicism,* the unmasking of the metanarratives. To show this path, Diogenes the Dog is Sloterdijk's greatest source for inspiration from antiquity. Within the passages that Sloterdijk comments, his interpretation

of the lantern-handed search for humans in broad daylight calls our attention. From the episode Sloterdijk construes a moral and a political critique directed to the Greek citizens of the *polis*. Accordingly, "…the philosopher with the lantern declares his fellow citizens to be social cripples, misformed, addicted beings who in no way correspond to the image of the autonomous, self-controlled, and free individual according to which the philosopher tries to shape his own life" (Sloterdijk, 1987, p. 163). But it does not appear as an ontological critique of the human being. In fact, Sloterdijk supposes that the one holding the lantern was the human he was searching for. His critique, Sloterdijk esteems, is merely ethical and not anthropological. Maybe that is the reason that Sloterdijk connects here with the idea of 'citizen of the world', as expressed by Diogenes himself. If so, the literal translation used by Sloterdijk "I seek a man" is evidently surpassed by the tradition's translation: "I seek an honest man", however disputable this translation is.[28] Apart from this famous episode, Sloterdijk considers many other anecdotes of Diogenes which exhibit an ambiguous misanthropic-philanthropic endeavour. It is not clear for Sloterdijk which predominates and perhaps it really does not take a stance in such terrain, but in that of citizenship and behaviour.

Nevertheless, the final *kynical* message of Diogenes for our time could be translated as the rejection of the superstructure. Sloterdijk (1987, p. 165) here manifests the rejection of seductions which bring people into servitude, and among such seductions he names

[28] The original text of Diogenes Laertius from which we know this anecdote reads so: "λύχνον μεθ' ἡμέραν ἅψας περιήει λέγων ἄνθρωπον ζητῶ." (R.D. Hicks, Ed., 1972, §6.2:41). Nowhere in the *textus receptus* can we find a reference that the sought human had to be "honest". However, in numerous recollections of the anecdote, the adjective is included. The inclusion or exclusion of the word 'honest' has repercussions on the idea the anecdote might be pointing to. Dumont (1989, p. 45) already suggested that Diogenes' search was a critique of Plato's Idea of the Human Being. This opinion has been subscribed by Lucien Jerphagnon (2009, p. 190), who explains that Diogenes ridiculed the platonic anthropological idea by finding no one who would fit it.

fortunes and fame, but also ‘hopes for immortality’. The cost to pay, says Sloterdijk, is too high: freedom, awareness, and joy.

We have reached here the point in which the recount of Sloterdijk’s philosophical anthropology reaches the aftermath, with effects in technology and our yearning for immortality. His discourse turns more political and sociological than anthropological, even if a clear anthropology is not stated. However, unlike his philosophical anthropology, his critique to technology and the immortality pursuit will remain on the same tone from the *Critique of Cynical Reason* up to the present. Because of this, we will continue our recount of *Rules for the Human Zoo*, the turning point of Sloterdijk’s posthumanism. Afterwards, we will return to what we can read as his critique of emerging technologies for human life elongation.

In *Rules for the Human Zoo*, Sloterdijk contested Heidegger´s understanding of the human being. He agrees with Heidegger’s critique of modern metaphysics which defined the human being as a rational animal. He also agrees with the characterisation of the *Dasein*, as the situated being always situated. But he profoundly disagrees with Heidegger’s disdain of the human corporality or biology. Heidegger put the emphasis in language as the house of being, as a broader essence of the human than that of sole rationality. However, Sloterdijk (1998, p. 46) criticized Heidegger for this limited analysis of human beings, describing it as certain blindness for space in being, or corporality in being. It is this blindness for the biological which rarefied Heidegger’s understanding of the human being as language, almost to the point of mysticism. Sloterdijk conducts a critique of humanism precisely by describing it as efforts to make human beings and human relationships *literary*, in the sense that they should be based in verbal forms. For Sloterdijk these efforts have failed and we

are forced back to the beginning of Heidegger´s analysis. The human is a being-in-the-world, *Dasein*, but before that he came into the world, he had to be born. From the moment we came into the world not only linguistic influences came upon us, but also purely material influences, such as our nutrition, the physical space we can occupy, or our biological traits. After some considerations, Sloterdijk shows how humans are 'impressionable animals'[29] and, hence, it is important for us to come under the accurate type of influences, for example those belonging to the credo of humanism. The label 'humanism' is —with fake harmlessness— the continuous battle for the humans, which is carried out as the struggles between taming tendencies and bestializing (Sloterdijk, 2017).

Due to our current and escalating situation, Sloterdijk underlined that post-war humanisms are born from illusions and he now reveals the reasons without which it was impossible to comprehend these humanistic tendencies. Nowadays, while the powers of humanism are receding, we face the increasing powers of technology —among which Sloterdijk (2009, p. 46) highlights biotechnology— of which we need to be more aware than ever. Even if we have shaped ourselves ever since we selected certain crops and certain livestock, the matter is becoming more pressing because of the speed and power of new technologies.

The answers to the pressing situation do not appear in this work. Sloterdijk merely showed that our biological collective and accumulated history, added to our increasing possibilities to alter our biological being, are strong signs that the implicit organisation of our reproduction has become explicit, and it might be best to consider our best courses of action. Biotechnologies are here, we cannot deny them. The possibilities they bring, the

[29] An idea that will be expanded and refined in Sloterdijk's works that followed *Rules for the Human Zoo*. His spheres trilogy is especially important for the details of this anthropology, going from a philosophical anthropology into a cultural anthropology. But concepts developed in other works, such as anthropotechnics and immunisation, are also key to understanding this new model of the human being.

power linked to them, calls not for passivity. “Because abstaining or omitting will eventually be insufficient, it will become necessary in the future to formulate a codex of anthropotechnology and to confront this fact actively.” (Sloterdijk, 2009, p. 26) Despite the cautious warnings, he received fierce critique from many intellectuals, mainly German, including accusations of him promoting Nazi thought. These critiques occurred mainly because of certain language use, such as referring to the “taming”, “breeding” and “selection” of human beings, along with the culture in Germany and Western Europe in general[30].

In a way, much of Sloterdijk’s work after *Rules for the Human Zoo* is a reply to his critics. It is also a detailing of his philosophical anthropology while exploring answers to the presented issue. Within the work of Sloterdijk, the general conception of the human being was complete at this point. Plessner’s quote, with its natural artificiality and an artificial naturalness, is taken to its right place, away from any temporal consideration. The nature-nurture debate is a farce. Human beings design their nature because it is in their nature to do so. We are designers. This is the main message of posthumanism, or at least in Sloterdijk’s voice. As we have stated, his *Spheres* only refined the details of this anthropology[31]. However, we can find some important considerations in *You Must Change*

[30] Much of the criticism against Sloterdijk derived from his use of the words *Züchtung* ("breeding", "cultivation") and *Selektion* ("selection"), associated in Germany with Nazi discourses. Sloterdijk rejected the accusation of Nazism, which he considered alien to his historical context. Still, his alleged usage of fascist rhetoric to promote Plato’s vision of a government with absolute control over the population did not help in Sloterdijk’s defence. An accusation of a simplistic reduction of the bioethical issue was also harsh, based on his vagueness of how exactly society would be affected by developments in genetic science. The controversy that followed escalated to the point of disqualification, having Sloterdijk denounced as fascist by Habermas. Sloterdijk, in turn, addressed an open letter to Habermas in *Die Zeit.* On it, he vehemently accused Habermas of stirring a public lynching. Besides the tavern quarrel, Sloterdijk accused Habermas of espousing a view of humanism that Sloterdijk had declared dead. Indeed, we could confirm the shortcomings of Habermas’s understanding of the human being in chapter 2. For more information, see Karacs, 1999.

[31] Human versatility and adaptability, mediated through design, are the core of Sloterdijk’s anthropology. The *Spheres* series offered the study of the ways that life, soul, being, and being-together have been conceived in

Your Life. This work can also help us reconnect to our consideration of emerging technologies for human life elongation.

Sloterdijk begins this work by explaining the immunitary constitution of the human beings, which is made both by material and symbolic practices (anthropotechnics). By this he means "…the methods of mental and physical practising by which humans from the most diverse cultures have attempted to optimize their cosmic and immunological status in the face of vague risks of living and acute certainties of death." (Sloterdijk, 2013, p.10) The first to see this was Nietzsche, who claimed the distinction between the asceticisms of the healthy and of the sick.

To better explain what he means, Sloterdijk presents various examples of humans and their immunisation practices. Among all, the case of Carl Hermann Unthan, a cripple in nineteenth-century Prussia, is the most clarifying one. Through great practising effort, Unthan became an outstanding violin player despite being born without arms. He became famous and travelled the world showing his talents and receiving applause. At the end of his life he wrote an autobiography. On it he told much of his adventures and recalled how people used to remark his zest for life. Sloterdijk places the virtue of the cripple in his will, which is masterfully projected in self-realisation. But he also recognises that such actions without the "crippleness" would not lead to such results. This is what the practices for immunisation do: they produce "…the better possibilities of being human." (Sloterdijk, 2013, p. 47).

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terms of inside, outside and the traffic between spheres. The important question is how much of our biological, genetic self we might alter. As we saw, Sloterdijk has omitted this issue since the criticism on *Rules for the Human Zoo.*

Sloterdjik states that, of course, all humans are cripples. And "…if humans are cripples, without exception and in different ways, then each one of them, in their own particular way, has good reason to understand their existence as an incentive for corrective exercises." (Sloterdijk, 2013, p. 59). The human being is "condemned" to perform immunity practices to live as a human. As we read these details concerning human beings, we are inclined to think that these practices are shared by humans in groups, at least per culture. After all, among such immunisation practices, Sloterdijk considers religions, the arts, economic activities. Yet, two warnings strike any reader. The first, a call for attention to the title of the work is made: You must change *your* life, and not You must change life. Sloterdijk (2013, p. 10) accentuates that his call is personal and not general. If there is to be a revolution, it needs to be of oneself. The second warning sits next to the first and this is no coincidence:

> Its object [that of ascetology in Nietzschean sense], the implicit and explicit practice behaviour of humans, forms the core of all historically manifest varieties of anthropotechnics - and it is questionable whether genetics will ever contribute more than an external modification to this field… (Sloterdijk, 2013, p. 110).

These clarifications manifest how Sloterdijk is still carrying the need to unmark himself from Nazism accusations. He does not discredit the potential of genetics, but he underlines that it is not counted among the decisive anthropotechnics. There are many other practices which are much more decisive, the ethical ones for instance.

Since here we reach the point connecting Sloterdijk's posthumanism with his examination of biotechnologies —including the attempts for life elongation—, it is a good place to summarize his conception of the human being and make a few comments. The human being creates h'self through anthropotechnics, these immunisation practices. They portray "…the autoplastic constitution of the essential human facts." (Sloterdijk, 2013, p.110). The practices and especially their result are not entirely decided by the agent. It is a life reaction to the circumstances which Sloterdijk, partially following Nietzsche, expects to be aimed to personal excellence. The *Übermensch* exists, but for it to come forth, Sloterdijk is not pointing to any generalised physical trait, but to mental personal traits.

This produces some important questions. If Sloterdijk has in mind cultural practices as shared as religions and then he reduces his exhort to a personal one, what can we make out of it? If the decisive anthropotechnics are not biotechnological, why have we been warned about them before? Apart from the eugenics ghost, is it not possible that each person conducts biotechnological augmentations which could be the equivalent of a violin feet-playing virtuoso? The only way to rightfully explore these issues is by advancing into Sloterdijk's critique of biotechnologies as applied in the human being.

To do so, we must take some steps back. As early as in his *Critique on Cynical Reason*, Sloterdijk appeared distressed about the possibility, and furthermore, the orientation of tomorrow's medical research. When referring to what is and can be done in the name of human enhancement, he claims: "The horrifying living experiments and notorious collections of skeletons in Nazi medicine will be "nothing by comparison." "*Nothing by comparison*": That is cynical one-upmanship, yet it simply articulates a tendency of reality". (Sloterdijk, 1987, p. 274) Even if ethics has played a major role in medical

research since the Second World War, there is no doubt about the catastrophic potential of merely conducting the needed experiments. The power that medical science can exercise in contemporary human life has come to the point in which even our own personal life choices can be questioned from the public and political spheres.

This power is inscribed in the general tendency of modern technology. Analysing one of the most relevant aspects of the enlightenment, Sloterdijk comes to explain how the subjectivity of the human being opened the door for the dominion of reality. And the terms in which this explanation comes speak loud to our task. The modern subject renounced to transcendence, and thus to the magic world. By doing so, it gained focus on the phenomena, and paradoxically achieved "…palpable realizations of ideas that earlier were possible only as magic, metaphysical, or occult ideas: flights into space, deep-sea diving, world travel, telecommunications, robots, thinking machines, rejuvenation magic…" (Sloterdijk, 1987, p. 347). Even if the idea is not continued by Sloterdijk in this point of the text, or at all in this work, we can clearly notice a distinction between all the elements in the list and the last one. Not even *thinking machines* are considered magical, whereas rejuvenation is.

Sloterdijk, however, does not continue this distinction and, instead, he goes on to describing what we gave away for our technoscience. All these *wonderful* realisations came with a price: nothing can be said about what could follow death. Death, says Sloterdijk, has become a node between being and nothingness. Gloomily, humanity had to take every kind of (given) meaning from itself; thus the nihilistic shock when one realizes that there is no given meaning but that we manipulate it and then "consume" it ourselves. When things have gone so far, the ultimate wisdom in the middle of meaninglessness remains only blind

self-preservation. (Sloterdijk, 1987, p. 348) And that is where we would very often seem to dwell. The need to avoid catastrophe seems imbedded in the political justification of technoscience. But this discourse has taken us, ultimately, to the inherent contradiction of realizing that this very technology is catastrophic. When referring to the great powers of technology, specifically of the atomic bomb, he says: “The principle of self-preservation is on the point of a world-historical overthrow that leads all induration and armaments ad absurdum. That is the twilight of the idols of cynicism.” (Sloterdijk, 1987, p. 325)

Sloterdijk has employed many words both praising and deprecating technology. But when we come to the technological frontier, both in power and time, Sloterdijk clearly stresses the hazard. The shocking realisation that ultimately technology is not our saviour but our heftiest threat has an advantage. It unmasks the pinnacle of modern cynicism and reveals the confronting abyss —what Sloterdijk calls the Buda of the west—. Sloterdijk takes the Heideggerian being-towards-death and brings it to a civilisation level. Confronted with this self-crafted ultimate threat, we become open to the possibilities of culture.

Unfortunately, the positive note does not continue in Sloterdijk’s discourse. He finds that this optimism has a sort of false consciousness at its core, which he names the bourgeois philosophy of technology. He recognises in it the trend of the Enlightenment of continuing the transcendental style of though. In fact, substitute transcendences have lined up to fill the gap left by the end of our given meaning: the unconscious, history, drugs and space travel are among those which Sloterdijk mentions. Many seem to run parallel with technology. Sloterdijk criticizes it as follows:

> The schema for thinking is this: Technology takes the "upper hand"; it "threatens" to degrade human beings; it "wants" to make us into robots. But if we pay attention and keep our souls in shape, nothing will happen to us. For technology is, after all, there for people and not people for technology. (Sloterdijk, 1987, p. 448)

Does this really read as a critique? What is the problem with this view? As revealed by the language selection, the problem is that such philosophy of technology is subsumed to the same instrumentalisation of thought as the dominant technoscience. It still works as a schema of thought, as if "souls" were to be kept in shape by some sort of exercise program. As if we could say: here, have these concepts, do these tasks, and you will become prepared to face our self-created menaces.

Without concessions to the validity of this critique, we can safely establish this is the dominant procedure in nowadays philosophy. If we would accept that this is a flawed strategy, is there a road out of this mess? Or is technoscience an unavoidable evil? Is there a true consciousness which can spare the damnation? Sloterdijk closes this work with no precise course of action. This would not be ensuing with his critique of cynical reason. He does, however, point to the ways of *kynicism* and especially to the examples set by Diogenes of Synope. The practice and teaching of virtue remain valuable. With the motto *Sapere aude!* cast away from its modern utilitarism, Sloterdijk shows that not all philosophical tradition is doomed under instrumental reason. Far from a programmatic accumulation of knowledge, true wisdom must push us to dare ourselves. "Only out of its courage can a future still unfold that would be more than the expanded reproduction of the worst of the past." (Sloterdijk, 1987, p. 546).

When this understanding of technoscience is pulled into Sloterdijk's later works, more light is thrown into his philosophical proposal. What can save us is the practice of certain "personal asceticism", which can be ascribed into certain categories, but does not imply any detailed formulation. It can be pointed out, shown, but it cannot be taught as a procedure to be repeated. Each human being must bring it into action and discover in it a unique mode of authentic living.

We acknowledge that this philosophical model should be criticised as individualistic and egocentric, oblivious of the power of the community and the importance of otherness. We can also insist on how Sloterdijk falls in a quasi-mystic conception of cultural practices which, as much as they can provide meaning to the life of individuals, would hardly address the collective global problems of our times. Such critique is, however, not our goal and we must move on to the specifics of Sloterdijk's critique towards the technological elongation of human life. The gist of Sloterdijk's position regarding the search for immortality has been already indicated. However, apart from the seclusion of these "technologies" as "rejuvenation magic" and his Heideggerian appraisal of death, there are a couple of precise mentions we must take into consideration.

In *Rules for the Human Zoo* there is no explicit mention of emerging technologies for human life elongation. The mention of biotechnologies for human enhancement is, in general, scarce but eloquent. We already said how Sloterdijk asks for an active reflection regarding such biotechnologies, within which he especially asks "…whether human beings as a species can transform birth-fatalities into optimal births and prenatal selection. These are questions with which, however vague and creepy they may be, the evolutionary horizon begins to glimmer." (Sloterdijk, 2009, p. 25). There is no explicit support for any eugenics

programme in the text, but the included allusion of the known Platonic programs for model societies may certainly cause discomfort. Nevertheless, we have already stated that in several ways Sloterdijk made important adjustments to his position, even doubting whether genetics shall play any important role in his proposed asceticisms. We must nonetheless ponder that the exclusion of genetics from these ascetic practices does not exclude biotechnologies from the general immunisation cultural practices that shape the human world. Sloterdijk simply turns a blind eye on them regarding any sort of axiology.

Biotechnologies for human life elongation do not even make the cut as shapers of our spheres. Instead, they are seen as mere mirages. While conducting a review of the October Red Revolution, Sloterdijk (2013, p. 391) focuses on how it was more an anthropotechnic movement rather than a political event. It was a time when all kinds of efforts were made to reshape the human being in several ways. Among all practices, merely conceived or actually exercised, a special mention is granted to the attempts for human immortality. The triggering ideas of a group of Russian thinkers are summarised as follows:

> Had mortal man not lived under the tyranny of outer and inner nature since time immemorial? […] Was it not necessary, then, to put the abolition of death on the agenda of a metaphysical revolution - and simultaneously an end to the fatalism of birth? (Sloterdijk, 2013, p. 396).

These ideals get linked to the Russian 'biocosmists' as much as to those he names as the current American techno-gnostics. Without going into any detail of the difference between ones and the others —i.e., the technoscientific differences between the biocosmists of the first decades of the twentieth century in Russia and the techno-gnostics of the end of the

century in the US—, Sloterdijk again disqualifies solely the intention as ridiculous. There is no further analysis or argumentation about the —let us concede— magical technoscientific procedures. Indeed, in a recent interview Sloterdijk (2016) charged against the idea of technologically implemented personal immortality, even against the idea of a very long life (which he situated in 200 years). Calling such idea a "childish belief", he considers that such attempts assault the "openness of death", and replaces it for a murderous society. We will return to these two contends later.

Sloterdijk´s disdain for radical life elongation attempts mainly leads us into pondering the distinction between technology and charlatanry. The distinction can only become clear if we go through what Sloterdijk thinks of modern technology. We can take into account the metaphysical judgement of technology, which mostly follows Heidegger's, as we have observed. However, we can also look into the most concrete consideration of technologies, not as a world system, but in the most common sense of the purposely human-designed means for an end. We already know that technologies are a part of those practices which constitute our immunology, a share of the human spheres. We must now consider what Sloterdijk says over the intertwining of technologies with the human being and how their role is passive or active.

The bond between modern technology and the human being has had two different interpretations in Sloterdijk's work, which have recently come to synthesis. A fierce critique to classic or bourgeois philosophy of technology was the departure point:

> This philosophy of technology pretends to be heroically optimistic because it conceives of humanity as the ongoing creator of the cosmos. […]. Technology

> thus appears as the promise of a total solution to problems. One day, the philosopher implies, technology will have worked off all misery. In an astoundingly shortsighted way, he overlooks the destructive aspect of "invention." […] At the heart of this theory stands a subject who can no longer suffer because it has become wholly prosthesis. (Sloterdijk, 1987, p. 457)

This false understanding of technology has been unmasked by philosophers such as Heidegger or the critical theory. Together they claim that "Mastery of nature is not the significance of technology but rather the clever mastery of the relation between humankind and nature." (Sloterdijk, 1987, p. 466) According to this view, humankind has entered a game of dominion in which it yields to the power of technology.

More than a decade later his understanding of technology began to shift. We have seen how *Rules for the Human Park* still warns of the dangers of technology —in that case, biotechnologies in particular—, but also certainly does not discard advantages of such technical possibilities of biological self-determination. In fact, Sloterdijk (2009, p. 24) argues that the advancement of the scientific powers will result in an unavoidable code for anthropotechnics. This code will, in time, reveal the hidden meaning of the *humanitas*: "…not just the friendship of man with man, but that man has become the higher power for man." (Sloterdijk, 2009, p. 25) Far from a fearsome *Cold War Buda*, technology becomes a catalyser for the unmasking of true humanism.

More recently this conception of technology has been refined by Sloterdijk. In what clearly is a reference to Stiegler, he writes: "Because the human being is now understood as the *animal technologicum*, every further advance in technology for application to itself contains

an inescapably binding *pro nobis*." (Sloterdijk, 2013, p. 332) Technology is not something external to us. The significance of technology is intimate to the human being. We can read an even clearer technological enthusiasm which reaches even metaphysical proportions: "Thinking and acting postmetaphysically means getting beyond the burdens of the old human condition with the aid of technology and without extreme ascetic programmes." (Sloterdijk, 2013, p. 422) This renewed praising of technology —which is neither naïve nor oblivious of the hazards within— comes with a more detailed consideration of the concrete possibilities of humankind. Based on the reductionism of life to information[32], and contrasting it with the Heideggerian being-towards-death, Sloterdijk reflects on the potential of biotechnologies applied in the human being. He comes to this affirmation:

> If these civilizing potentials were to be generalized, then the homeotechnological era would be distinguished by the fact that in it spaces of leeway for errancy become narrower while spaces of leeway for gratification and positive association grow. Advanced biotechnology and nootechnology groom a refined, cooperative subject who plays with himself, who is formed in association with complex texts and hyper-complex contexts. Here emerges the matrix of a humanism after humanism. Domination must tend in the direction of ceasing because, as crudeness, it makes itself impossible. In the interconnected, inter-intelligently condensed world masters and violators only still have chances for success that last little more than a moment, while cooperators, promoters, and eurichers —at least in their contexts— find more

[32] Sloterdijk here uses a type of reductionism which is much more complicated than he appears to recognise. A critique of the use of the concept exceeds our scope here, but for more information the reader can start with a brief introduction in: Jones, Richard H. (2013). *Analysis & the Fullness of Reality: An Introduction to Reductionism & Emergence*. New York: Jackson Square Books.

> numerous, more adequate, more sustainable connections. (Sloterdijk, 2017, p. 188)

If Sloterdjik has become so enthusiastic about the possibilities of anthropotechnics, or homeotechnologies, why is it that he still rejects the intentions of emerging technologies for life elongation? After all, he has traced a line between magic and modern technology in terms of their will and aims; in such connection he makes a decisive precision: magical thought has as a cornerstone the belief that there is no definite death (Sloterdijk, 2016, p. 214). Also, according to Sloterdijk (2013, p. 442), the original axiom of practising life was stated by Nietzsche and would proclaim: "…humans can only advance as long as they follow the impossible." Would not these two principles, one technological and one anthropological, give life-elongation at least the benefit of the doubt?

4.3 Stiegler: technological anthropogenesis

The philosophy of Bernard Stiegler represents a good counterpart to what we have exposed in Sloterdijk's posthumanism for two reasons. First, because while both recognise the importance of technology intertwined with what it means to be a human being, Stiegler has focused predominantly on technology, while Sloterdijk's focus departed from philosophical anthropology. This allows us to examine the same topics but in the opposite direction: how a philosophy begins by analysing the technological phenomena and then enters the ontological problem of the human being. The second reason is that the theoretical framework of both philosophers is significantly shared. Along with other authors he quotes, many from the francophone culture, he clearly frames his thought in the post-metaphysical scene.

Already in the first chapter we mentioned the originary relation that Stiegler established between technology and the human being. We will now present the reasoning behind such idea, along with Stiegler's considerations of (modern) technology and what we have labelled as emerging technologies for human life elongation. For Bernard Stiegler the relentless advancements of technology demand constant reflection from us. Despite several scholars who have devoted to reflecting on the topic of technology, scholars he knows and cites, Stiegler still considers technics as 'the unthought-of'. This is, of course, an exaggeration, but it also helps us situate his approach. Thus, he declares that: "We do not immediately understand what is being played out in technics, nor what is being profoundly transformed therein, even though we unceasingly have to make decisions regarding technics." (Stiegler, 1998, p. 21)

If Stiegler never abandons the topic of 'technics', inherited from the Heideggerian tradition, and therefore keeps in mind a broad concept of the concern within, at the same time it is also true that Stiegler is able to narrow our scope of technology to focus on the technological advances we have dubbed as 'emerging technologies'. Thus, he uses the Heideggerian term 'modern technologies' while making allusion to innovations such as genetic manipulation, but at the same time he indicates that in such technologies something even 'newer' appears, something not yet fully presented in Heidegger's terms. As we will point out, these 'newer' possibilities from emergent technologies is what remains unthought-of.

As Gadamer said, to keep on thinking is what Heidegger's heirs must undertake. To do so, Stiegler's departure point is what he appreciates as the outcome of Heidegger's and Habermas's reflections about technics: that the double character of technics which

empowers yet threatens the human being is essentially present in technology's state of the art as it manifests in our world. This would be: technics as a wide-open possibility with no pre-established direction. But for such threat to be real, to be effective, it must be characterized as a Damocles Sword hanging upon all humanity. Instead, it is often presented as a disease. Stiegler explains the problem of this characterisation in the following terms:

> The convergence lies in the fact that both [Habermas and Heidegger] see the *technicization* of *language* as a denaturation —as if it were a question of one instance "proper to humanity" perverting another instance "proper to humanity". What is considered perverse is the possible confusion of these "properties". (Stiegler, 1998, p. 13)

In the above, Stiegler rightly states the problem with this common critique towards technics, i.e. the idea that it might pervert humanity. If technics is a profoundly human characteristic,[33] how can it pervert humanity, or even other of its characteristics? Any such perversion might only happen because of an unbalance. Yet again, where are we to find this unbalance?

The answer resides precisely in modern technology, emblematically inside what is meant with such an important word as cybernetics. How did we reach for this term? Stiegler reminds us that the evolution of the Heideggerian *Gestell*, which we need to recap as an apparatus, is the evolution of the very human world. The etymology of cybernetics,

[33] Technics being associated exclusively to human beings is a controvertible statement as we might present with aid of the animalism discourse. The categorical differences made between human beings and the rest of living beings cannot withstand an evolutional description of reason or free will, which is shared with all living forms.

κυβερνητική, points to the same direction: “Technics commands […] nature. Before, nature commanded technics.” (Stiegler, 1998, p. 24) Then, the unbalance resides, allegedly, in that technics is held as master of nature. This state directs us towards a differentiation between nature and technics, nature and artificiality; a distinction which must be examined.

There is yet another duality that Stiegler uses to set into our topic, which is the one between nature and culture. Technics, however, is not regarded as part of culture, since he states that technics evolve at a different rate than culture. He specifies: “More accurately put, the temporal relation between the two is a tension in which there is both advance and delay, a tension characteristic of the extending [*étirement*] that makes up any process of temporalization.” (Stiegler, 1998, p.15) If technics is not part of nature, or culture, then what is it?

For Stiegler technics constitute a third genre, that of ‘inorganic organized matter’. As such, it possesses its own dynamics, irreducible to either biology or physics. From thinking the relation of technics with physics or biology, Stiegler argues that if life means conquering mobility, then technics is the pursuit of life, being a process of exteriorisation, by means other than life. This means that, as Stiegler keenly stresses, without such estimation of technics, Heidegger could not think about the constitutive role played by technicity for authentic temporality. However, Stiegler turns to the work of Gilbert Simondon about individuation and shows how it made it possible to think the originally techno-logical constitution of temporality. As a result, that inorganic organised matter reveals constitutive of both spatiality and temporality, which are the derivative decomposition of speed. If technics holds the key to nature for human beings, we are prompted to reconsider our status as natural beings.

From this new ‘command’ of nature that technics is, being also different from culture, Stiegler questions if human beings, as part of nature, become subjects of technology, or if we remain, in an anthropological definition of technology, masters of technology, and nature. Reaching this point, Stiegler recognises that the question regarding technology is, and has always been, also a question regarding humanity: “…Simondon, Heidegger and Gille express, each in his own idiom, a concern that they all share: that of envisaging a new relation between the human and technics.” (Stiegler, 1998, p. 22) At this point we must mention that some commenters consider that Stiegler rejects the importance of analysing the human being. But they seem to forget that this appears not as a rejection of the importance of what the human being is, but as a rejection of the modern human subject. As a matter of fact, Stiegler recognises that even in the most practical issues the human question cannot be avoided. For instance, when talking about genetic modification he states:

> …the “human question” is merely a very limited perspective on this fact. Nonetheless, the appearance of the human coincides with the rise of a sudden hegemony of the epiphylogenetic within the developing process of differentiation. “The human” is precisely this hegemony. And its “end”—preserving, above all, the word’s ambiguity—is [this hegemony’s] extension. (Stiegler, 2009, p. 161)

We will continue to show how the human question is relevant, yet limited regarding these affairs. The concept of human being, seen traditionally as a twofold piece between culture and nature, is confronted by a new possibility. This new possibility appears as new to us before the light of modern technologies, but has always accompanied the human being.

Stiegler reaches this conclusion after studying Leroi-Gourhan's paleontological proposal, where we can read the argumentation for "…an essential, and thereby originary, characterization of the anthropological by the technological." (Stiegler, 1998, p. 25). Stiegler also strengthened this argument by quoting Bertrand Gille, who says technics have reached the state of permanent innovation. This is a way of expressing the assumption that presently technics evolve differently from culture. As a result, the separation between the pace of technical evolution and that of cultural evolution is transparent, and it is only increasing.

As Stiegler seeks the originary of humanity, he explores the old philosophical statements on the question of the origin of humanity in Plato's *Meno.* Within modernity he also explores Rousseau's ideas about the origin of the humanity and, prior to artifice, the nature of humanity in *Discourse on the Origin of Inequality.* His exegesis concludes with an established critique of the metaphysics of anthropology. Therefore, in order to ask this question, he 'suspends' the historical assumptions, and constructs, over the facts, the narrative of an origin based on the onto-ontological evidence.

Stiegler argues that technics is responsible for forming the horizons of human existence. The history of philosophy has suppressed this fact and always operated on the basis of distinctions between τέχνη and ἐπιστήμη. The separation of τέχνη and ἐπιστήμη began with the political struggle between the philosopher and the sophist, who were accused by the philosopher for instrumentalising λόγος. However, we can very well make a stronger case that τέχνη precedes ἐπιστήμη. It is only on the basis of technological development that science can be created. Stiegler recognises that Karl Marx was the first thinker who realised that the dynamic of technical evolution needed its own theory, different from the biological

evolution's theory of the dynamism. But Marx did not go to the bottom of it, elevating to a calculated human destiny instead of digging to find its originary roots. To complete this quest, Stiegler approached the origin of hominization and the history of technology, in particular as researched by Gilbert Simondon, André Leroi-Gourhan, and Bertrand Gille. With such sources he showed how the idea that technology is the 'object' of this history and humanity is the 'subject' differs from what history tells. Under such historical perspective Stiegler argues that the philosophy of Heidegger failed to grasp that, if authentic temporality exists, it can only be accessed via technics, objects, and artefacts. This amounted to temporality being framed in technicity. But, as it turns out, the world's facticity is also revealed in its technicity. This means that human access to the non-lived past will always be inscriptive and technical. Without technics it is impossible to access the past and future as such. Stiegler can therefore conclude that when it comes to the relations between the technical and the human, the "what" (facticity) and the "who" (*Dasein*, the 'human') are in a pivotal relation. The thesis that the genesis of technics is corresponding to the genesis of the 'human' provides better clues to understand the future of the dynamic processes in which the technical and the human take part.

Linking technology and humanity at a fundamental level means that the paradox of technics, as human power and the power of self-destruction of humanity, is also the paradox of humanity itself. In our time this has resulted clear as the power of technology has increased, and this is clearer than anywhere else in the possibilities of biotechnologies. As we have stated, Stiegler continues in the Heideggerian understanding of technics as an ontological, or rather onto-theological constituent of our time. At the same time, he is also

prone to distinguish certain technologies that, while following the onto-theological fate of modernity, unveil something new. Therefore, he states:

> …genetic manipulations […] make imaginable and possible the fabrication of a "new humanity," or of a pseudo-humanity, and without even having to dive into science-fiction nightmares, one can see that even their simple current applications destroy the oldest ideas that humanity has of itself —and this, at the very moment when psychoanalysis and anthropology are exhuming the constitutive dimension of these ideas, as much for the psyche as for the social body... (Stiegler, 1998, p. 87)

Further elaborating, Stiegler refers to the genome as our most 'natural' 'substratum', our *nature*. Nonetheless, he immediately questions which 'nature' we are talking about. The fundamental problem we face here is that we have not a fixed or definitive understanding of what being human is:

> …technology has disquietingly cast doubt upon, while perhaps for the first time directly confronting, the very form of this question: what is the nature of the human? […] …being is the question that "the being that we ourselves are" is capable of addressing to being, whereas starting from "the turn" [Heidegger's *Kehre*], it becomes a question of "thinking being without beings" (Heidegger 1972, 24), that is to say, without *Dasein*, without this "being that we ourselves are". (Stiegler, 1998, p. 88)

According to this, because of modern (emergent) technologies we are confronted with the need of an 'objective' —however impossible— comprehension of what we are. This

evidences the mentioned disregard of the human question as a way of rejecting the modern comprehension of the human being.

A better comprehension goes, accordingly, through the comprehension of technics. For Stiegler (1998, p. 114-122), there is an originary relation between technogenesis and anthropogenesis[34]. This originary relation implies the gestation of humanity is always within technology. If technology is what constitutes humanity, then the human being is always open to being something else. There is not a human essence apart from creative-auto-poiesis. But Stiegler does not stop there. The integration of human and technics still needs to be explained since he has stated he is looking for the originary in the human being.

To achieve such comprehension, Stiegler establishes his theory of epiphylogenesis. Apart from the genetic and epigenetic memories which constitute the human being, there is a third memory which is deposited in our technicity: epiphylogenetic memory. The theory of epiphylogenesisis, considered in Derrida terminology as the '*différance* of the *différance*', asserts that members of humanity, and only them, can transmit and acquire the cumulative experience of technics through tools. This distinction will lead us out of any anthropocentric position, as it is not an essentialist or a priori, but empiric. It tells us: anyone capable of participating in epiphylogenetic memory, i.e. in the use of technics, shows humanity. This theory of a third memory distinguishes him thus from other philosophers who believed in constitutive differences between *Homo sapiens* and other animals.

[34] Although this is not central for our inquiry, a note might come handy to avoid simplifications. Following Rousseau, and ultimately the Greek myth of Epimetheus and Prometheus, Stiegler refers to this originary upspring as the fall. Because of our encounter with technology, we do not only fall into consciousness, we also fall into time and into freedom. This fall, from the natural status, results in a burden for humanity but also in a promise.

The use of the Derridarian concept of '*différance* of the *différance*' was considered useful by Stiegler since it helps understand the type of gap between the human and its pre-technics predecessor. In order to explain this in the context of transformation of the experience, Stiegler (1998, p. 113) distinguishes two regimes of evolving differences, which respectively belonged to natural selection and artificial selection:

- when a foot acts like a hand, it is re-interpreted, retroactively, as a proto-organ of apprehension enabling the organism to survive and adapt itself
- when a tool is added to a hand, it is also re-invented, re-interpreted, or freed through the technics (for example the organ of apprehension may be available for writing)

This transformation of the experience fields leads also into reinventing subjectivity: when learning to use a tool, one can internalize the new horizons of possibility it opens. With the *différance* particular to the artificial selection (that comprises the '*différance* of the *différance*') the agent and the tool, the "who" and the "what", constantly engage reinterpreting themselves mutually. The delegation of the functions of the physiological organs to a technical prosthesis produces a differentiation of the experiences: the physical sensations enter in a circuit with the technics, leading to the production of meanings, aesthetic values and feelings, and submitting aesthesis to a logical and symbolic horizon. These technical submissions of the aesthetic give rise to the life of the noetic soul or mind, of which the existence comprises in the transgression of automatic and biological behavioural models.

As we already said, Stiegler argues that technics opens the possibility of the human by affirming that, if this cumulative technical power had been possessed by other organisms, it

would have provided them with the potential of agency. Agency, or humanity, is then understood not as one of the exclusive properties of a given biological species, but as a horizon of possibilities which may be open through technics. This naturally raises the question of why other species which we have witnessed using tools have not achieved agency or humanity. As if to prevent such objection, Stiegler affirms that technics does not provide any guarantee of freedom, consciousness, or agency, but opens its possibility and cultivates the *promise*[35] of humans embodied by institutions. The problem with such clarification is, of course, that we again seem to be left without the decisive element for the appearance of humanity. There are several arguments around this problem, which we will consider ahead.

The invention of the human, as Stiegler names the event when humans and technics invented each other, is by no means an ode to classic humanism. On the contrary, it is an incisive critique of the modern ideas regarding the human. The modern rational subject is still seen as fiction. As a matter of fact, by default humans tend to in-humanity or non-humanity and stay exactly what they are: creatures of habits, instinctive animals[36]. This state of habit is very similar to the One (*Das*) characterized by Heidegger. And just as the *Dasein* can find its most originary destiny, in an anthropological level Stiegler proposes there is also a window for in-humans to break their lethargic existence. Tuning things

[35] Here Stiegler used the concept of promise by Derrida, but including the fallible aspects of the promise. Stiegler emphasizes that the promise is made in the human being, but like all promises, it can be broken. The promise might not be fulfilled. Fulfilling the promise requires a specific cause of action. Nowadays the collapse of the humans as a promise is being witnessed: this is the reason which justifies adding an ecology of the mind to the environmental ecology and reversing the Neganthropocene from the Anthropocene.

[36] The criticism of humanism, proposed by Stiegler, is applied to the terms of "human" as well as "man". *Technics and time* is one of the first works of Stiegler, and it frequently does not deal with the concept of humanity. Instead, he used the concept of man or men in plural: "The most terrifying thing would be for *The* Man to exist. It does not exist, any more than Language. Men exist, and all language is always already languages" (Stiegler, 2009, p. 162). However, we can clearly read Stiegler using man and human interchangeably in the same paragraph on other occasions. For this, see Stiegler, 1998, p. 136.

further, Stiegler (2010, p. 16) specifies that instead of being totally human or totally in-human, we are predominantly inhuman and possess the ability to rise beyond inhumanity. Stiegler named that being the non-inhuman which means having the abilities to an intermittent elevation from inhumanity.

Stiegler considers that the possibility of transgressing automatic behaviour is offered by technics, which also provides the possibility of escaping such automations: then non-inhumanity becomes an intermittent elevation and a state of exception, beyond automatic behaviour that is technically or biologically determined (Stiegler, 1998, p. 133). Being non-inhuman seems to be a moment of transgression, in which technics is used for inventing a future, different from the present entropic tendencies. But the use of technics is not enough for making this transgression, as this one may also lock people up into instinctive models of behaviours (making us stupid), as it happens with the specific contemporary consumerism technics (Stiegler, 1998, p. 32). As a reaction to this consumerism technics, Stiegler reflects about agents acting out and producing a phase shift in the context of co-individuation of the future projection of the "what" and the "who". This phase shift evokes the process from which the human was invented. What turns out to be very interesting for us is that the moment of non-inhumanisation should take place when the using of tools leads to a phase shift of the internal milieu of the user. Originally it occurred from the incidence of the re-organisation of the neuronal circuit in the brain, when physiological organs were re- and de- functionalized by the cultural organisations and tools governing their use. This phase shift between brain and physiological organs was also a *différance*, a co-individuation of the "what" by the "who" and of the "who" by the "what". But this phase shift is done, became a part of epiphylogenetics and culminated in the human being. But can such a thing

happen again, to a new scale? What does it need for culminating into a renewed "acting out" while the "what" by the "who" enables to reinvent h'self and its surrounding milieu, through projection of a future alternative?

Stiegler has elaborated the originary in the human being as the participation in artificial selection from having access to technics. His theory of epiphylogenesis places the development of consciousness in a trans-species context. It is still an uncompleted account, for it is not clear how technics triggers consciousness in certain species while not in others. However, this is not any sort of criticism on Stiegler. As far as we can tell, the evolutionary processes that integrate natural and artificial selection might take millions of years to generate "humanity". We cannot discard the conscious-generating process being as portrayed without exceptions.

If the human looks to his originary upspring and sees h'self in the dawn of technical-triggered consciousness, is it also possible to look into his open possibilities? According to Stiegler, humanity is one of the consistencies of a *promise* of emancipation. These powers of the promise of emancipation are deemed in terms of quasi-causalities, capable of operating as one of the still-to-come objects of desire, for which a future capable of breaking with the existing tendency can be built. This optimistic possibility for the human has been criticized. For instance, Moore and Hörl, (2014) disagreed and suggested that the human could hardly be a marginally probable promise: a projected fragile dream when/if the human body re- and de-functionalizes itself through a self-differentiation in due course of coupling with technical prosthesis. Hence, the promise is not necessarily aligned with the species of existing beings, including the human being, but it refers to the fragile consistency of promises of emancipation. According to Davis & Turpin (2015), Deleuze and Guattari

provided arguments to criticise the technically rooted idea of a promise of the man. They underlined the importance of becoming inhuman instead of human and advised that the humanities needed to become "inhumanities". Nevertheless, this argument of "becoming inhuman" includes risks: it could create confusion related to dehumanizing bestialisation, considering the perspectives of human's ability to adapt, resist and survive. The real challenge would be giving up the concept of humanity and to be worthy of the promises of the human, which debases h'self gradually. Ultimately, critiques as such consider the hazards and impediments more likely to occur than Stiegler did in his first works. The critiques and the current environmental *zeitgeist* might have influenced Stiegler to put more emphasis on the failure of the promise, but the possibility of success is still found.

Through a series of projections triggered by technologies, Stiegler (1998, p. 204 and 2018, p. 42) further illustrates the promise of the human, from ticking clocks to the negation of entropy, or as he names this: negentropy[37]. The conceptions of humanity vary in proportion to the evolving technical objects in the course of history: the human can be understood as a set of technological projections, generated and historically situated by the dreams and the technical culture to which it gives rise. In order to support his theory, Hörl (2017, p. 106) explains how Stiegler follows the comparisons of anthropologists and biologists: Canguilhem, for instance, showed that the Cartesian theory of dualism has its root in the forms of time's technics and that using the models of watermills, clocks or watches is only an example explaining organisms thanks to machines. Similarly, Ludwig von Bertalanffy emphasized the role of pumps and levers in developing insight from the functioning of the

[37] Coined by Stiegler, this concept expresses the effected negation of entropy by means of our technics-being. His published work *The Neganthropocene* exploits the concept further by arguing a needed transition from the Anthropocene, a downward spiral into entropy, into the Neganthropocene, an era for the realisation of the *promise*. For this, see: Stiegler, 2018, p. 84.

lungs and heart, as the role played by them in the industrial era, into thermodynamic machines and the homeostatic regulation cybernetic machine for the conception of human and animal organisms. Additionally, the conception of 'entropic bodies' of Emile Zola would be based on the studied deterioration of the steam engine model, which also inspired the notion of Claude Bernard of the internal milieu. Finally, the missiles built during the Cold War and thermostat operation systems inspired the works about instinct by John Bowlby. These conceptions are not mere similes to the human, but they rather unveil new possibilities of the theory of the human being.

A fundamental factor in this narrative is the status of the promise, which is permanently threatened with destruction by disrupting the support of externalized memories (epiphylogenetic structures) which comprise culture itself. In case of the disruption of these cultural traces, the promise of the human will vanish. For instance, the concept of democracy is meaningful today due to the factor that its promise externalizes itself into political institutions. But if the will of the people loses ground and scope within such institutions, it ends up serving entropic missions. More generally, if the institutions embodying the promise of the human fail to prescribe the stakes in this promise (specifically by upholding a vision of humans as a flexible and hyper-adaptable being), then its horizon may vanish. Another example: if universities, as the places of expression of the promises of self-invention of human through their technics, are devoted and sacrificed instead for training workers adaptable to the existing state of the markets, then they also pose risks of betraying the promise. Hence, Stiegler (2018, p. 239-241) contends that it is essential to reinvent the institutions embodying or externalizing the *promise* of the human, protesting against their degradation.

With the last paragraph, we have somewhat exceeded our concerns into the field action, to use the Arendtian term. It is nonetheless fitting to have a more general panorama of the philosophy of Stiegler, especially in consideration of what we are still missing. We have presented Stiegler's technics as that other from nature and culture, distinguished as organised inorganic matter which, with its invention, simultaneously invented the human. The human, in turn, is that invention capable of inventing, the "who" carrying the promise of h'self. It is indeed a creature of habits, but capable of breaking out of those habits to achieve the promise. With this as background, we now need to consider if it is possible to insert here the discourses of the emerging technologies for human life elongation, and if so, how?

We must first recall that, as Sloterdijk, Stiegler is heavily in debt with the Heideggerian thought. Being-towards-death also plays a vital role in Stiegler's thought from the very beginning: "Death is not an event within existence because it is the very possibility of existence, a possibility that is at the same time essentially and interminably deferred. This originary deferral is also what gives *Dasein* its difference to another." (Stiegler, 1998, p. 6) Here we encounter again the topic of limits in relation to our human being, which we will round up in the corollaries. In Stiegler, however, we also encounter a more detailed interpretation of Heidegger's *Sein zum Tode* from the very beginning. In the last quotation, we can read an emphasis on the deferral of death as a component of its role in life. Along with this remark, Stiegler reminds us that being-towards-death is defining only because it is being-towards-limits, where death becomes —perhaps— the greatest limit. Death has meaning not because it is content —something Heidegger made very clear, since we cannot

know its content—, but because it is the most radical limit to contents. To this regard, Stiegler reminds us that:

> As in the Heideggerian existential analytic, this knowledge of the end, which is also a nonknowing, forms the primordial situation out of which each person conducts himself or herself. *Elpis* could be seen as (the relation) to the indeterminate, that is (the anticipation of) the future, and as such, "the essential phenomenon of time." (Stiegler, 1998, p. 198)

We know death is our most certain possibility, but it is also the indeterminate because we have not met it. Even so, we anticipate it. As we consider death as our destiny, but also as our anticipated limit, we can understand that Stiegler says: “Against this, optimism is justified through reference to a thought of life, because technical evolution appears as a process of differentiation, creation of order, struggle against death.” (Stiegler, 1998, p. 69)

Technical evolution, thought in reference to life, justifies certain optimism from us, even when facing our also justified struggle against death. This struggle is by no means to be confused with an instinct of preservation, because it is technologically mediated. In this case, death is analogue to our natural limitation to fly. We can look at the human being and think: it is improbable that this being flies. But this limit is not a predestination not to fly. It is something undetermined, inscribed in the structure of Heideggerian care: “The improbability of the *who,* its nonpredestination, its destiny, is grounded in the indeterminacy of death—a structure that is constituted in *prometheia / epimetheia,* where *Elpis* has the ambiguous attributes of *Care*.” (Stiegler, 1998, p. 258)

Unlike the previously discussed Arendtian immortality of the aristocrats, this hope is at hand for everyone because: “This finitude is, however, constituted in the *what* that is, *qua* epiphylogenetic projection, indefinite and thereby *promised* to an hypo-thetical infinitude that exceeds the finitude of Dasein.” (Stiegler, 1998, p. 263) Reading carefully we will notice that the *promise* is to exceed the finitude of the *Dasein*, not of the human race or human being. All of this would seem to speak positively of the endeavours of technoscience for radical life-elongation.

There is however a counterpart to this. The analogy presented with our limitation to fly was meant to hint that we, in fact, are able to fly nowadays. Naturally, so to speak, the human as biological species would not fly. But technics has allowed us to reach even the outer space. When we take the analogy this far, we discover something else. For aviation, we know, has contributed significantly to the global environmental harm. Has not Stiegler paralleled our struggle with death to the creation of order, or negentropy as we could more precisely say? What are the risks within emerging technologies for radical life-elongation? Stiegler is not oblivious to them:

> What is terrifying about eugenics is the possibility of default’s elimination, that is, elimination of the end, of death —in effect the possibility of the impossible: a perfection that would amount to the exhaustion of all possibility of the new, if it is true that the new results from originary failure. (Stiegler, 2009, p. 161)

Whether death here amounts to the personal end of life or to the end of generational replacement because any new subject would be exactly the same as the previous one, we

cannot completely know. In any case, the terror here is the monotony of perfection, the fact that difference among members of humanity disappears. And this would only be the case if novelty in fact arises from originary failure. The fear is that the originary failure would be erased with eugenics. But if it can be erased with genetic modifications, then it is not epiphylogenic, not even epigenetic, but merely genetic. We might think that the base of the epiphylogenic, and the epigenetic is in the genetic. However, what kind of perfection would erase all the benefits we have from our epiphylogenesis and epigenesist? What really appears frightening here is that we are not able to recognise that our most meaningful differences come from these last two, not from our biological treats.

Let us return to our analogy of flying. In many ways we are still unable to tell whether our present means to fly contribute more to entropy than to negentropy. This indeterminacy proves how concrete technologies embody the already mentioned ambiguity of care. But we are also (still) optimistic that: (1) we will be able to control, avoid or even revert the environmental damage caused by airplanes, (2) that the general benefits of aviation surpass the caused damage, and (3) that (aviation) technoscience improves and it can become generally and roundly better. The same can be said, with much more reserve and anticipation, for technologies for radical life-elongation. Technophobia is, in any case, not an option:

> So, then, is political urgency not, in this context, the denunciation of an assurance of human life, as difference has already framed the question—as much as the necessity of a discourse on life [*vie*] and survival [*sur-vie*]? Such teleo-logism must be rejected (just when it must also be

seen as necessary and positive): technicization of life is inescapable. (Stiegler, 2009, p. 161)

Not merely technicization of the world, but of life. Accordingly, Stiegler refers to cryogenics as tele-death (Stiegler, 2009, p. 181), avoiding passing any harsh judgement on this and other technologies. He condemns the post-industrial, consumerism and reductionist setting in which these technologies are being wrongly framed. The "what" seems to be in control in an unbalanced manner. But the promise remains and even if the "who", if its essence results non-negotiable, the "what" is certainly negotiable and malleable.

4.4. Corollaries

As we have seen, the conception of the human being of both Peter Sloterdijk and Bernard Stiegler is greatly influenced by Heidegger. They both follow integrally the phenomenological analysis that led first to the *Dasein* and thereafter to a post-metaphysical[38] philosophy. Prominently, both also appreciated Heidegger's increasing warnings about the essentially ambiguous nature of technology. Commenting on this, Crutzen (2009) considers that Heidegger apotheosized the quasi-mystical Hölderlinian phrase that 'their saving power increases when the danger increases', and the danger of the essence of technology harbours the saving power. This is the ontological-aletheialogical essence of technology. Yet, whereas Heidegger's thought of the saving power is purely ontological, Sloterdijk and Stiegler re-interpreted it in a more empirical or ontic sense, or more precisely in an ontico-ontological sense, for referring to the ambivalent nature of human existence *vis-à-vis* with concrete technologies. In a sense, this strategy responded better to a post-metaphysical philosophy.

[38] In the Heideggerian sense of the history of the forgetting of Being.

For both Sloterdijk and Stiegler the concept where this ontic focus has been crowned is that of Anthropocene. Descola (2013) highlights that for both Sloterdijk and Stiegler the Anthropocene itself conjures in a specific way, and consecutively, the greatest saving power and the greatest danger. They are probably the most prominent philosophers which nowadays are engaged with the term and both come to very similar conclusions. Despite some differences, they both see it as the culmination point for the unfolding enframing —or what Stiegler calls the 'event' of industrialisation as the consequence of fire through the thermodynamic machines, or which was designated by Sloterdijk as 'total mobilisation' of modernity, its 'kinetic expressionism' based on fossil-fuel—, which provoked an 'urgency', a crisis in being.

When both authors are considered together for further reflection, the appreciations of the horizon of the Antropocene frequently result optimistic, especially in connection with the use of technology. For instance, Holbraad and Pedersen (2017) state that despite the critique of destructive record of industrial technology, both Sloterdijk and Stiegler firmly believe that the solo solution of this destruction lies in the capability of technology itself of countering its own destructive tendencies and healing its nihilistic legacies, provided that it is completely and intelligently transformed from a destructive power into a constructive power, and, according to Stiegler, from destructive forces into sublimating forces. Also Lynas (2012) considers that both Sloterdijk and Stiegler had put their stakes in their own manner on the potentials of the radical transformations of the technological relations of the *anthropos* to the biosphere and the organological or anthropotechnological turns of the noo- and technosphere. Through these relations the anthropic processes of individuation and socialisation, which had become destructively entropic, are completely metamorphosed into

negentropic processes, to say it with Stiegler, or from allo- to homeotechnological paths, to say it with Sloterdijk. According to Stiegler such turns might bring along new kinds of 'human beings' (or better non-inhumans), the *neganthropos.* Sloterdijk, however, is more reluctant to call a deep anthropological transformation.

With this last consideration we begin to address the differences between both philosophers. Despite both of them being posthumanists, their 'project' for the accomplishment of the posthuman[39] is quite different. A major difference between both of them rests precisely in the anthropology for both the human and the posthuman. Sloterdijk is able to characterise the human being, not shying away from any fear of potential 'exclusion'. He does so by showing the transient essence of the human being, which occurs as these 'impressionable animals' take and produce their defining traits. However, when he quoted Plessner, Sloterdijk seems to have overlooked the artificiality component, unlike Stiegler. Even if he does not reject technology, he does not fully integrate the 'forthcoming essence' of the human being with technological developments. Therefore, we have seen that, to move forward, Sloterdijk relies much more on something that we can call 'spiritual' exercises. Technology is of course an important part of our immunising systems, but it *just* one more among them. As a matter of fact, relying too much on technology, especially when philosophising, might be interpreted as a hazard. What is decisive for the 'salvation' of the human being comes from a sort of ascetics, from disciplines. By the way, this style of thought is highly popular nowadays, with lifestyle and dietary restrictions being constantly dealt and even preached. It is clear that Sloterdijk is not out of tune from the *Zeitgeist*, even

[39] There is a difference here between posthumanism as a philosophy for the critique of classic humanism and the posthuman as the successor of the human. I decided to keep these two terms here to point the affinity between that critique and the idea of an upcoming entity which follows after the human.

if he will most certainly mark important differences between his proposal and all these trends.

Sloterdijk of course never considers ditching technology entirely. He is by no means a technophobe, but he certainly does not put it at the centre. One might even say that for the last years Sloterdijk has conducted a technological turn, to a certain extent. However, he keeps it on a tight leash and on a restricted position. Stiegler has shown a very different perspective. For him, technology is at the centre of everything for humans. Technics and human are mutually originary and they are also the base for the *promise*. Unlike Sloterdijk, Stiegler could never understand an upcoming *Übermensch* without technics. But it would be inaccurate to say that Stiegler is a technophile or that Stiegler misses some ascetic element in his philosophy. It is hard to say that Stiegler overlooks the *ascetical* possibilities for the human being because it is simply not within his main philosophical scope. If it is true that Sloterdijk and Stiegler share inspiration from Heidegger[40], they also do not share the main inspiration for the ascetics of Sloterdijk, namely Nietzsche.

Finally, as Sloterdijk validated the concept of *animal technologicum*, he raised a lot of doubts about how to understand much of his previous judgement for technology. Can we still state that Sloterdijk keeps a theoretic distance with most emerging technologies? I would say yes, but he is also reluctant to cast them away. For the sake of our inquiry, we

[40] There is an element in Heideggerian thought that is formally missing in the analysis of both philosophers and which might have important ramifications if introduced. We refer to the concept of *ent-fernen*, translated as 'to distance', 'to remove' or 'to de-sever'. This concept, although central for Heidegger (2008, p. 138-143) to the critique of modernity and modern technology, is not mentioned by any of the philosophers we have discussed in this chapter. The Heideggerian contrast between de-severance (*ent-fernheit)* and closeness points towards two ways of conducting oneself in the world: closeness in a familiarity set by the world, de-severance in reflection of what the distance implies. These concepts invite us to cut the ties with the accelerating rhythm of modernity and take more time to live, to 'stroll' through Being. One could argue that the gist of the concept is contained in the ascetic proposal of Sloterdijk, but the omission of it still seems odd. As for Stiegler, the omission of this concept is blatant.

can consider that Sloterdijk favours the inclusion of several technologies as fruitful for the breeding of the posthuman. However —and this is a big objection—, Sloterdijk remains firmly against anything that results in radical human life elongation. Pitiably, there is not a single argument which would back up this rejection. As one reads Sloterdijk commenting on technologies for human life elongation, only two trends appear: the ridiculing of this scientific quest as humbug and the assault on the sacredness of death. I say the sacredness because, even if one can track down Heideggerian being-towards-death as the source for virtually all that Sloterdijk says about death, this is taken as something unquestionable. Regarding the ridicule, Sloterdijk is purely blind if he has not considered the radical elongation of human life as a real technological possibility; and not because its feasibility is without objections, but because it is part of the world of technoscientific research. It occupies considerable and valuable resources not only in the economy, but in the core of the university.

The consecration of death is despicable in philosophy, but it is shielded not only by Heidegger, but by most of the philosophical tradition. Exactly this is why it should be suspicious, especially for a posthumanist. Rejection of emerging technologies for radical human life-elongation is not what we criticize, but the lack of argumentation. How could we take a posthuman stance seriously when this limitation is considered incontestable? If there is no fixed, grounded essence of the human and if the human breeds h'self, why is the duration of human life untameable? Or at least untameable to that extent, although Sloterdijk even fails to acknowledge the already evident increase in human lifespan.

As Sloterdijk, Stiegler has criticized transhumanists, but not for the same reasons. Stiegler´s criticism has been for their capitalistic, neoliberal ideology. But there is no doubt that

Stiegler takes a more congruent position towards the technological possibility to radically elongate human life. This partially occurs because, apart from a posthumanist stance, Stiegler reflects more prudently about technology. If we accept his arguments, then he has shown that technology cannot pervert the essence of the human being. It can be the very end of the world, but it cannot pervert what we are as it constitutes us. Destructive technology is like suicide in the sense that it remains entirely human; it is even essentially human. We will return to this in our general conclusions.

Stiegler is suspicious of emerging technologies for human life-elongation, yes, but he does not discard them as impossible or worthless. On the contrary, we have stated how he reinterprets Being-towards-death to put it within the scope of technological evolution. We acknowledge that, by doing so, Stiegler is partially twisting Heidegger's philosophy because Heidegger saw death not as a limit, but as *the* limit. Stiegler is in fact considering, against Heidegger, that death is the limit not mainly because of its unavoidability, but because it is and remains the unknown.

In chapter 2 we already faced the concept of our limitations and we rightfully asked if limitations are something unique and defining of our being human. With Stiegler´s resignification of *Sein zum Tode* as *the* limit we come again into the topic. We can also conceive more clearly that limits are not defining of us. On the contrary, it is the conquering of limits —which we could recognise as Negentropy — what could better express what the human being originarily is. We have limits, as all existing things. These limits do not define us, but transcending such limits does.

This posthumanism leaves the door open to emerging technologies for radical human life-elongation. It refrains entering into details about how such technologies would relate with our humanity and, ultimately, with negenhumanity. We can engage in these precisions in our general conclusions. Could we recognise, with Stiegler, that there are elements of human nature which are valuable for us, and we should not jeopardize them? If we do, is it also possible to argue that living much longer lives is not, in principle, against these elements? To answer such questions, we also need to consider another important idea that Stiegler, but mostly Sloterdijk, have rescued for our philosophical consideration: posthumanism is not the annihilation of humanism. It means, mostly, its rethinking, from new boundaries and possibilities. The reference to human nature is pertinent, as long as it is not dogmatic. It is useful to encourage the knowledge of ourselves, now more than ever.

Conclusions

Before writing about the core conclusions of this research, there are a couple of precisions I need to make. I hope they will help to better convey the gist in which this dissertation has been written. From the very beginning, it was made clear that the topic and object of research are complex and in motion. Complex, because both technical possibilities and biological dispositions are multifactorial and unclear; in motion, because the research and opinions on research are constantly producing new information, up to the point that nowadays major worldwide newspapers regularly write a piece on anti-ageing technologies. On top of the multiple factors involved and the pace in which emerging technologies impact our conception of the world, the multitude of voices with a particular interest in the stated issues might trigger certain edginess from anyone who wants to deal with the subject as from a panopticon. Philosophy wants to find the truth, and given that our topic is so speculative and near, one might be inclined to give a podium to anyone who has a strong position about our being and its prospects.

The academic methods of philosophy are certainly a remedy for these challenges and I trust that they provided enough to reach a safe port. Philosophy pushes us to be critic, and to recognise those positions which are prejudiced. Yet, these words of Sloterdijk still echo as I am writing: "No capacity of thought keeps pace with what is problematic. […] Because everything has become problematic, everything is also somehow a matter of indifference." (Sloterdijk, 1987, p. xxxii). I often encountered myself wondering about the sense of the research, not because I would pretend a philosophical research project to be utilitarian, but because the described processes and expressed questions seem to be way beyond the control of anyone. This pessimistic view, which somewhat matches a view of the

technological systems not embraced in this dissertation, is also met with the hope that philosophical work somehow walks simultaneously ahead and behind of its time.

When this dissertation started, I formulated these directing questions: *What is and will be the impact of the so-called 'emergent technologies for radical life elongation' in what is understood as the human being? Could these 'emerging technologies' transmute the human being into another being? Is technology driving humanity into conquering some of its fundamental boundaries, thus overcoming them?* This dissertation has reached an informed and contemplated answer to them. The answer does not, however, pretend to achieve a status of incontestability. Instead, I hope it has become a place from which to contemplate the questions above and think of the implications of the answer, which can never be entirely dimensioned.

As a prerequisite for our enquiry, this researched called for a better comprehension of emerging technologies. We established that the characteristics which make technologies emerging, i.e., leverage, ascendance, uncertainty and materiality, should help to avoid disproportionate expectations from technoscientific research. For instance, the requisite for emerging technologies to have a material application prevents too basic research to be called an emerging technology. At the same time, this pondered conception of emerging technologies insists on the power of our technological systems and how we can foresee in them the change in business, politics, and entire societies.

This account puts the potentiality of technologies for human enhancement in a more precise situation for analysis. Specifically speaking about emerging technologies for radical life-elongation, the uncertainty and potential reach of the technological proposals play a crucial

role in the arguments that are presented around the topic. We have documented that there are vivid, technical discussions about the viability of different proposed procedures and substances for radical life-elongation. There is here a pending contribution that could be done from our scope about these emerging technologies. However, this would not contribute to our present enquiry. For we have seen that among such arguments, the unreflective use of the concept of human nature played an important, not fully disclosed role. We have deemed this as the biggest conceptual gap in such discussions, which calls for our attention. As a result, we conducted an examination of the dominant positions around the concept of human nature.

The critique of post- and antihumanists that we have reviewed has been rightfully grounded in the abusive interpretation of the humanism of the Enlightenment and the growing genealogical explanations mainly derived from the sciences of life. The historicity of the human being also played against the idea of a purely rational being. However, the critique has been also far-fetched because it has left us, in some cases, without the possibility to philosophically recognise one another. We have even read how humanists become reluctant in stating what a human being is. For instance, we have seen how Arendt resorted to displace the concept of human nature in favour of the human condition, attempting to make emphasis in transitory, non-essential elements of what it is to be human. However, we could not conclude upon inspection that a human being could be without worldliness, without freedom or without life. There are certain elements that are consistently present in all human beings.

As a result, I propose that there are certain characteristics which define the human being: life, self-awareness, symbolic intellect, freedom, worldliness. These characteristics,

however, are not eternal gifts conceded to us once and for all. Emphasis should be made on this because we have certainly encountered philosophical positions which deem our humanity as sacred, but such sacredness has hardly been philosophically established. On the other hand, following the critiques and developments of anti- and posthumanism we can affirm that such characteristics appeared as part of a process. This idea is further advanced in our dissertation with support of the anthropology confectioned by Stiegler (1998), in which technology originated simultaneously with the human being. We insert here Broncano's (2000) understanding of technology, as an artificiality which consists of technological rationality, i.e., an instrumentality of second order which must rest on a strategic intentionality. It is not unlikely that even other species can possess these characteristics. This places philosophical anthropology within a different scope than scientific anthropology, providing it with a unique and proper *locus*. What we refer to be human is not dependant of the *Homo sapiens* species. The scope of these defining characteristics can help us unmask certain speciesism, be open for the possibility of other beings sharing these characteristics in different degrees. This is, of course, one of the ramifications of our present research which exceeds our current objectives.

This characterisation of the human being intends no reinstallation of modern humanism. It is decidedly set from a posthumanist perspective. However, it also reminds us that humanism is not a modern idea. Centuries before the instating of the subject-object paradigm, even before the idea of the man at the centre of the world, humanism first took shape in ancient Greece. Some of the philosophers we have followed, such as Arendt and Sloterdijk, have followed cues from the ancient philosophers. In them the role of self-awareness, symbolic intellect, freedom, and worldliness also helped affirm our idea of the

human being. A posthumanist conception of the human being cannot only blur the difference between the human and the world, whether it is technology or the environment. We have therefore made this effort to show the uniqueness of the human being in the posthuman era.

One notorious aspect of the conducted research, key for our enquiry, has been the place of death or mortality among the characteristics convened as essential to the human. Even when I could have anticipated the general philosophical position, it has still been a considerable surprise to confront the general tone of the philosophical tradition towards death. Not because of the stance, but because of its incontestability. We have reviewed how death has been traditionally associated with our being human, perhaps reaching its highest articulation in Heidegger's formulation of *Sein zum Tode*. This inherited stance towards our demise which we have seen in Sloterdijk, Arendt and Jonas might be tracked as far back as Plato. He undoubtedly had mystical inspiration to praise old age and death. But do we still have such inspiration, especially within philosophy? Throughout the history of philosophy, a favourable understanding of death was made in favour of the eternal life. Even though this is not the space to do so with detail, we had better consider that the pursuit of eternal life has little to do with the technologically sought radical life-elongation because 1) religious eternal life requires for us to first die and 2) it is a divine grace, not a human conquest. That might be one reason why our physical death never came into questioning.

In our introduction we mentioned some intentions to rule technology from a supernatural directive, an intention that should not be shared from philosophy. This magical inspiration should no longer have a voice in philosophical argumentation. For the defence of death as an essential human trait, our natural limitations took the foreground. But it is suggestive

that every time we found rejection to technologically-sought immortality or radical life-extension during this study, little to no argumentation was found.

Thus, I would presently argue that it is not necessarily the case that death is a part of our being human, even if all human beings have the potential to die. This introduces a difference in the conception of mortality, between all humans *must* die and all humans *can* die. Before going that far, we need to acknowledge that radical life-elongation does not necessarily imply the avoidance of death. In this regard, when we talk about the omission of death among human defining characteristics, we are going beyond what our research questions originally demanded. We have gone along this exaggeration because it very commonly joins the objections to life-elongation. Based on our conception of emerging technologies, we can describe that the uncertainty of technologies as the ones described in this dissertation is not seriously considered. We have seen that even the researchers in the field often exaggerate the reach of their own research, perhaps for the sake of funding. But these exaggerations also allow us to think a step ahead, which suits philosophical reflection. It allows us to place such claims in the right dimension. To think about achievable immortality means that one could be condemned to live forever. But would not this result in a detriment of our current freedom? If immortality could not remain always an option, then it seems to indeed be a degrading step. On the other hand, this exaggeration also allows us to point out that the potential to die cannot be lost. All live, no matter its longevity, depends on a material body, which can be destroyed. This worldliness remains always a threat to life. If you are alive, you can die.

Then again, I would still object that death is an essential element of humanity. Death is the end of our life, and therefore of our being human. With Stiegler, we have identified it as *the*

limit, but one which does not define us. Mortality, the potential to die, is a much more accurate concept to describe our being. But just because we are mortal does not mean we *must* die. The struggle against dying, not merely as a preservation instinct, but as an intentional, aspirational and technological strategy to keep on living, is the loudest and most powerful idea that resonates from posthumanism, from Braidotti to Stiegler and even in Sloterdijk. We must also consider that this struggle is comprehended in a more general struggle against our limits. This is a post-Heideggerian precision. It means that even if we overcome certain limitations, there are other limitations which appear to dare and intrigue us.

This being said, I must ratify that I have by no means turned to transhumanism. Far from that, I can greatly sympathise with the critiques to transhumanism expressed by Stiegler and Sloterdijk: much of the transhumanist movement is based in and endorses classist individualism as a high expression of egoistic capitalism. I may also add that it sells an almost miraculous vision of technoscience in the hope of funds. The philosophical reflection and criticism should prevent such void, and sometimes ill, enthusiasms. I have not considered a career change to biotechnology or genomics. I consider that, most likely, I will not witness radical life-elongation. This situation has not caused any sort of despair in me. The traditional discourse which calls to make peace with our dismissal from the world has also a place here. And yet, I will defend and encourage our attempts to defy our limits as long as this does not cause any suffering.

With that last remark, an ethical statement has landed in this dissertation. I have struggled to avoid ethical judgement while making this research. My idea was to establish the precedents of the subject without letting ethical appreciations interfere. Often, I have

wondered if this is legitimate, if the anthropological judgements have precedence on the ethical judgements or the other way around. I also wonder if this is really possible, if it is not always that we have a moral standpoint which we cannot completely shut. Yet, I still decided to set aside ethical considerations as much as possible. This provided certain delimitation to the research, enclosing it more within philosophical anthropology. I also consider that it was possible because the research questions were genuine. However, when we consider this warning: "…sooner or later, every discourse on 'man' exceeds the limits of mere description and pursues normative goals –whether these are revealed or not." (Sloterdijk, 2013, p. 11), we might confirm that we can produce a purely anthropological proposal, but that eventually ethical considerations will be made possible from that anthropological position. I believe that is the case. Yet, that does not tell us how ethical judgements appear. I propose that this humble humanist-grounded posthumanism does not automatically generate an ethical position. There is no universal standpoint from which we can consider our being human as a good for itself. This valorisation of what we are needs to come *a posteriori*, as an act of reasoned will. It is an analogue valorisation as the one we can philosophically argue in favour of life and against suicide.

If at this point, we reconsider our initial hypothesis, as expressed at the beginning of this dissertation, we can appreciate that the hypothesis is majorly confirmed, even if some precisions were to be made. Our characterisation of the human is not merely at will, since there is an already present human being when we characterise. Our initial consideration of our being's malleability needed much more precision within certain indissoluble components which we indeed have considered essential in the human being. These

components, which we are able to value *a posteriori*, are to be preserved in the quest of technological enhancement, life-elongation included.

As a result of the above, I can conclude that emerging technologies for the radical elongation of life would be unable to alter what the human being is. Apart from the fact that these technologies are barely incipient, we can advance on the thesis that being human is irrelevant for the possible implementation and consequences of these technologies. There is no foreseeable scenario in which a radically augmented lifespan would result in the elimination of our symbolic intellect, of our freedom, or our worldliness. The extension of human life does not have an impact on these fundamental characteristics. In any case, it would amount to the contrary: the conquering of these human limits might be seen as a compulsory consequence of our technological being. This conclusion, however, does not mean that these emerging technologies could not be harmful, especially considering the world of inequality in which we live. It is simply that our research has maintained mostly outside of economic, demographic, moral, or political considerations. Regarding the possible effects of emerging human-enhancement technologies in general, human nature will remain used often as an ethical argument. This is possible as we value our being human, carrying it even to the point of an imperative as Jonas did. However, when particularly considering radical life-elongation, there is no reason to consider that our radically increased lifespan would present a threat in our being human. This, of course, does not exclude that there might be other adverse social, economic, moral consequences, but those are not an ontological threat to us.

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