THE PHILOSOPHY OF TRANSHUMANISM

A Critical Analysis

Benjamin Ross

EMERALD POINTS

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INVESTOR IN PEOPLE

CONTENTS

INTRODUCTION

Human beings are already enhanced. We slurp psychostimulants called "coffee," sport carbon-based body modifications called "tattoos," replace worn out joints with ceramic alloy equivalents, and augment our brains with smartphones and data clouds. There are those who would say these technologies signal that we are not just enhanced, but *transhuman*. Transhumanists claim that to be transhuman is to be in transition to the next evolutionary phase of what counts as human – a phase defined by radical technological alterations to the body. Thus, transhumanism is a cultural movement which advocates a philosophy predicated on the argument that humans ought to transcend the limits imposed by our biological heritage.

While this may sound like speculative science fiction, transhumanist philosophy is not a fringe concern. For example, opportunities to invest in radical life extension technologies already abound in Silicon Valley. Google was an early investor in the secretive biotech start-up Calico, which aims to devise interventions that slow aging. Billionaire venture capitalist Peter Thiel has invested millions in parabiosis: the process of

"curing" aging with transfusions of young people's blood (https://www.vanityfair.com/news/2016/08/peter-thiel-wants-to-inject-himself-with-young-peoples-blood). Another biotech firm, United Therapeutics, has recently unveiled plans to grow fresh organs from DNA. The firm's founder has stated that her company exists to use technology "to make death optional" (https://www.technocracy.news/silicon-valley-can-billions-dollars-succeed-making-death-optional/). The desire to engineer human beings into posthuman beings is not limited to vastly extending lifespans, however. There are also areas of transhumanist philosophy devoted to accessing potentially unlimited intelligence and continuously experiencing psychological well-being. These ambitions raise serious questions about the compatibility of two distinct classes of human. How will enhancement relate to human identity? What if one does not seek enhancement? What will happen to the ways humans experience meaning? Does suffering have value? What will be worth living for in a world where radical technologies displace human finitude? These questions and others will be investigated in this critical analysis of the philosophy of transhumanism.

To speak of the philosophy of transhumanism can be a daunting task on at least two fronts. First, transhumanists generally recognize that there is no unified voice which speaks for all who profess a commitment to transhumanism. As technology transforms human life at an ever-increasing pace, the different perspectives which emerge as to how converging technical devices ought to be used for the purpose of self-redesign appear (and disappear) just as quickly. And yet, it is possible to discern a variety of themes which continuously appear across transhumanist discourse. These themes are: an attitude toward humanity as constantly evolving with no fixed nature, a preoccupation with biotechnological "upgrades" which are meant to extend

physical capacities, and a general view that impermanence, entropy, and the related suffering that they cause to humanity are technical glitches waiting to be edited out of the species.

Second, speaking on the philosophy of transhumanism can be problematic if one approaches the topic with the assumption that it is a naïve, philosophically shallow movement. To the contrary, this book seeks to show that there is a depth to transhumanist philosophical commitments – especially when regarded as one perspective on the uncertainty engendered by the limits of death, ignorance, and psychological pain. Presenting transhumanism in this way is meant to be a corrective for the misperception that it is simply an implicit ideology of Silicon Valley meant to evoke a tech-bro utopia. In order to analyze and assess transhumanist philosophy in its own terms, a comparative format is required. As a critical introduction, this book will utilize the philosophical dimensions of existentialist and Buddhist thought primarily as counterpoints to the transhumanist arguments for approaching uncertainty within the human condition. If transhumanism argues for a technological voiding of limitations, the aforementioned philosophies offer an alternative view, namely, that limits are essential to the meaning of being human. In what follows, I probe transhumanist philosophical commitments in order to reveal that the core philosophy of transhumanism is the claim that there is nothing about human beings that cannot be conceived as a technical problem. As a result of this thoroughly materialist and computational view, transhumanism sees the techno-engineering of a posthuman species to be both beneficial and inevitable.

Chapter 1 will introduce the key players, and offer concepts through which to consider the philosophy of transhumanism. In this chapter problems will be raised concerning transhumanist thinking, and introduce the opposing view of

bioconservativism. Additionally, since much of transhumanism is devoted to speculative nonexistent technologies, automation will be offered as a model to think through transhumanist concerns in the present. Chapter 2 will offer a narrative of transhumanism beginning with its mythical antecedents, proceed through the proto-transhumanism of the Modern period, and consider contemporary transhumanist institutions. Chapter 3 focuses on the challenge that transhumanists Aubrey de Grey and Ray Kurzweil present to mortality. The chapter will ask whether human immortality is a coherent idea, and consider the consequences of achieving a data-driven amortality.

Chapter 4 continues the analysis of transhumanism as it challenges limits to knowledge (ignorance) and limits to well-being (suffering). Ray Kurzweil is presented as a key figure of transhumanist thought, along with David Pearce, who desires to eradicate suffering through genetic engineering. The hubris of transhumanism will be viewed through the existential lens of Friedrich Nietzsche in Chapter 5. Nietzsche's critique of the "last human" will be interpreted in terms of transhumanist thought, and a role for the philosopher in the context of transhumanism will be presented.

Finally, Chapter 6 offers Buddhism as an alternative response to suffering. This chapter will profile "Buddhist Transhumanists," and consider what connection transhumanism's attitude toward impermanence shares with Buddhism's philosophy of impermanence. Whether one is for or against transhumanism, as a cultural construct the movement raises important questions about what will continue to count as human in a future predicated on radical technological change.

1

REDESIGNING HUMANS

Transhumanism is the collective term for the range of technocentric thought which converges on the desirability of radical human enhancement. Leading transhumanist philosopher Nick Bostrom (2011) offers the following definition:

> *Transhumanism is…an outgrowth of secular humanism and the Enlightenment. It holds that current human nature is improvable through the use of applied science and other rational methods, which may make it possible to increase human health-span, extend our intellectual and physical capacities, and give us increased control over our own mental states and moods.*
>
> (Bostrom, 2011)

These enhancements are drawn from the fields of nanotechnology, biotechnology, information technology, and cognitive science, via tools such as artificial intelligence (AI), machine automation, genetic engineering, and cryogenic freezing. The intellectual core of transhumanism is that human beings are in transition to the next phase of humanity – radical

technological interventions to the body and mind will soon result in capacities presently unavailable.

Transhumanists do not speak with a unified voice, yet there is a clear overlap in goals. For example, Ray Kurzweil, Director of Engineering at Google, and Aubrey de Grey, Chief Science Officer of the SENS Research Foundation, both predict vastly extended lifespans. Kurzweil's vision is predicated on eschewing the body for a digital immortality, while De Grey's vision requires continuous rejuvenation of the physical form. Their projects reflect a central claim of transhumanism: human nature is not fixed. On the contrary, it is open to a variety of cognitive and physical upgrades. Not everyone agrees that such modifications would be "upgrades," however.

Those in opposition to transhumanist ideas have been labeled "bioconservatives." Critics include bioethicist Leon Kass, activist Bill McKibben, and political scientist Francis Fukuyama. Fukuyama (2004) has gone so far to label transhumanism "the most dangerous idea in the world." The dangers can be generally divided into social-political and metaphysical categories. In terms of the social-political, for example, it is uncertain whether the radical technologies developed within a capitalist framework could ever be equally distributed among the population. Examples of metaphysical dangers concern the effect of transhumanist technologies on questions of human identity and meaning. However, both categories point to a singular worry: transhumanists are seeking to accelerate an end to the era of human beings as we know them.

This chapter outlines the basic philosophical assumptions underlying transhumanism with a focus on the thought of Nick Bostrom and Max More. Bostrom and More are key figures in the presentation of transhumanist ideas in an academic setting. The concepts of posthumanism and

epistemological certainty will be investigated as the primary philosophical commitments of the transhumanist, and bio-conservativism will be introduced as the position opposed to transhumanism. Lastly, automation technology will be used to problematize the idea of human enhancement, and raise questions about the future trajectory of radical technologies.

1.1 TRANSHUMANIST PHILOSOPHY I: SUMMONING THE POSTHUMAN

According to Bostrom, described in *The New Yorker* as "arguably the leading transhumanist philosopher" (Khatch-adourian, 2015), transhumanism is a way of thinking about the future premised on the idea that the human species in its current form is an early phase. Prophetic statements specu-lating on the bodies of future humans have a long history drawn from myth, religion, and scientific speculation. What has changed over the last century is the proliferation of actual technologies capable of radically re-engineering humans. CRISPR Cas9 is a prime example of this class of technology. In November 2018, Chinese researcher He Jiankui genetically altered human germ cells using CRISPR, which were artifi-cially inseminated and carried to term resulting in the birth of twins. It was later discovered that though the experiment concerned altering the twins' genes to protect them from HIV, the procedure inadvertently enhanced their brains as well. Jiankui's research signals that CRISPR represents one example of the reality of transhumanism – a radical technol-ogy which has been reliably utilized to re-engineer human traits.

Transhumanist Steve Fuller characterizes the movement from the humans of today to the re-engineered beings of

tomorrow as the transition from Humanity 1.0 to Humanity 2.0. Humanity 1.0 is defined by our biological limits:

> *Basically, it is the conception of the human condition that you might say is enshrined in the UN Universal Declaration of Human Rights…it's an understanding of* Homo sapiens *as a kind of living, flourishing creature, but one who has certain kinds of limitations. For example, the human being will eventually die…And even though the human being is very much part of the world of science and technology, it is also part of a kind of natural world in a pre-scientific, pre-technological world. That's Humanity 1.0. And it's what we normally call a human being.*
>
> (http://opentranscripts.org/transcript/virtual-futures-transhumanism-risk-steve-fuller/)

The distinction between Humanity 1.0 and 2.0 reflects a vision of the human body and the human condition as only contingently related to our humanity. While Humanity 1.0 is defined by biological limits such as mortal bodies, Humanity 2.0 is defined by better-than-human technological enhancements. Thus, gene-edited babies, augmented cyborgs, or artificially intelligent robots may be the next "carriers" of human nature as Humanity 2.0, transmitting what is distinctive about humans while avoiding the limits of our current biology. By making this distinction, Fuller is conceptualizing transhumanism as the commitment to being *in transition* to Humanity 2.0 – a commitment to posthumanism. It is the desire to transition from human (1.0) to posthuman (2.0) that marks transhumanism as a distinctive cultural movement.

There is confusion regarding the terminology of posthumanism as it is used by transhumanism and contemporary

philosophy. For example, in her 2005 work, *My Mother Was a Computer*, Katherine T. Hayles connects the posthuman with transhumanist concerns.

> *In the twenty-first century, the debates are likely to center not so much on the tension between the liberal humanist tradition and the posthuman, but on different versions of the posthuman as they continue to evolve in conjunction with intelligent machines.*
>
> (Hayles, 2005)

Hayles' "versions" of posthumanity reflect Bostrom's understanding of posthuman and transhuman as interchangeable synonyms. To use the concepts in this manner simply portrays transhumanism as a subset of posthumanism, wherein the posthuman is a technologically enhanced version of the human. Steve Fuller, however, considers this to be a false equivocation.

Fuller prefers to distinguish between the posthuman and transhuman in the following way:

> *…Humanity's self-understanding has been pulled in two opposing directions: the first, promoted by both ecology and evolutionary theory, is towards our greater re-embedding in the natural environment; the second, which ultimately aspires to a digital incarnation of humanity, aims for the enhancement, if not outright replacement, of the bodies of our birth…*Homo sapiens *is losing its salience as the default setting for organizing the human condition. In the future, it may be seen as a rough draft from some other form of being that we care to dignify as "human".*
>
> (Fuller, 2013)

Fuller is referring to the posthumanism of environmental philosophy and ecology when he speaks of a human "re-embedding" within the natural environment. To these disciplines, "posthumanism" emphasizes the aspects of human beings which blur the boundaries between human and nonhuman. Manuel De Landa writes from this perspective in *A Thousand Years of Nonlinear History*, noting that hundreds of millions of years ago life on this planet experienced mineralization. The mineral world eventually became the bones of human spinal columns, and in this sense, humans are assemblages of talking minerals. This type of approach to the posthuman foregrounds human interdependency and genetic overlap in order to challenge the qualities of *Homo sapiens* as uniquely "human."

However, it is Fuller's practice to use the term "transhuman" to describe the *removal* of the human from the natural through technological enhancement. It should be noted that Fuller's distinction is not shared by transhumanists such as Bostrom and More. Transhumanists predominantly use the concept of "posthuman" in the way that Fuller uses the concept of "transhuman." For that reason, this book will follow the established trend and use "posthuman" and "posthumanism" in the ways preferred by Bostrom and More: to describe the goal of creating a technological advanced 2.0 human that is distinct from our current 1.0 species in terms of longevity, intellect, and psychological capacities.

Bostrom defines a posthuman as a being that possesses at least one general capacity greatly exceeding the maximum attainable by any current human being without recourse to technological means (Bostrom, 2013, p. 28). A posthuman (in the transhuman sense) is able to have thoughts and experiences in the realms of health, cognition, and emotion that cannot be readily thought or experienced with unenhanced capacities. Examples of the posthuman might someday

include cyborgs who have added neural circuitry to enhance their memories or added mobile internet connections to their skin, hybrids who have used nanotechnology to extend their lifespans, humans who have uploaded their brains to computers, or even those who have made enough significant small changes to possess capacities so radically extended that they are no longer unambiguously human by current standards.

Bostrom claims that a transhumanist values these and other possible modes of posthumanity on the basis that a greater human good would result from their acceptance. Thus, the normative claim of transhumanism is that posthuman lives would be better lives: one ought to enhance. Technical extension, however, is not the end of the story. Transhumanists aspire to a posthuman goal of infinity: an engineered being who no longer dies, possesses unlimited intelligence, and does not experience suffering.

Yet, it can be argued that what is "human" in humanity are these three limitations – mortality, ignorance, and suffering – precisely because the human condition is defined by the inability to indefinitely put off an encounter with each. In this sense, these qualities which define the structure of the human being are that which is being negated in the transhumanist quest for posthumanity. In seeking to void these limits transhumanists seek to redefine human beings through re-engineering – turning *Homo sapiens* into what Noah Yuval Harari refers to as *Homo deus* (Harari, 2017, p. 43). Put simply, transhumanists want to abolish the suffering which is a consequence of human finitude by making the boundaries imposed by death, ignorance, and psychological pain obsolete.

Ray Kurzweil characterizes this ambition toward transcendence as the essence of the human will. On Kurzweil's account, this "will" is found precisely in an ability to always say "more" to the point that we create a posthuman successor via technological singularity in 2045. Kurzweil refuses to

make specific predictions beyond 2045, since he feels that current human limitations prevent us from even beginning to grasp the world of the posthuman. While Kurzweil believes that one can make meaningful statements about a post-Singularity world, we simply cannot look past its event horizon and make complete sense of what lies beyond due to our current lack of intelligence (Kurzweil, 2006).

Transhumanism's philosophy, then, centered on creating an incomprehensible posthuman being, raises questions as to how technology transforms the meaning of being human through a redesigning of essential human limitations. This leads to an investigation of the realities transhumanism proposes to create – especially in regard to the nature of persons. For example, if a transhumanist is committed to ceaseless transcendence, what remains of "you" when continuously saying "more" is itself a cornerstone of one's identity? Is a human being more than ceaseless greed? On this account, does that mean the culmination of human willpower is nothing other than its own cancellation through summoning of the posthuman? That one is able to say "more" until the creation of that which says "more" more powerfully?

Put differently, if those like Kurzweil believe that the posthuman is the culmination of the human will, but my will cannot understand what the posthuman will be like now, then an essential philosophical point remains to show how I receive the benefit of becoming a posthuman if it is no longer me. Moreover, what remains human in the posthuman if there is no longer any of the previous defining features of the human condition – death, ignorance, or emotional distress? Questions like these not only broaden the context of transhumanist philosophy to essential issues regarding meaning and identity, they raise the specter of transhumanism's faith in overcoming limits as a form of

nihilism. Delivering conceivable answers to such questions is the challenge of transhumanism as a philosophy.

1.2 TRANSHUMANIST PHILOSOPHY II:
EPISTEMOLOGICAL CERTAINTY

Progress toward the goal of engineering posthuman beings is measured by the degree to which natural processes of degradation are brought under technical control. What is defined as "natural" in transhumanism is the given and the limited – both of which are seen as a negative aspect of embodiment. Transhumanist enhancements are meant to enable human beings to transcend the "natural, but harmful, confining qualities derived from our biological heritage culture and environment" (More, 2013a, pp. 4–5). On this account, all current limits, whether physical, intellectual, or psychological, are philosophically conceivable as technical problems that can be solved. The name given to the concept which states that there is nothing essential or immutable about human limits is "epistemological certainty."

Philosopher Ray Brassier has developed this concept within the context of "accelerationism" – a mode of thought closely related to transhumanism. Accelerationist discourse has arisen within the last decade (though its roots stretch back at least to Marx's thought) as a response to late-stage capitalism. Accelerationists argue that in order to overcome capitalism, its contradictions must be accelerated. One mode of this acceleration involves seeing radical technologies in an emancipatory light. For example, what would be the point of creating clothes in the factories of the developing world if everyone had access to the tools to 3-D print their fashions? Or, what need would there to be to listen to world leaders if a superintelligent AI were to emerge with a plan for the future?

In this sense, Brassier's concepts find a resonance with transhumanism. In an essay on what he defines as "Prometheanism," Brassier sets epistemological certainty as a concept opposed to the ontologically uncertain. Like Prometheus who manufactures life, Brassier calls for accelerating our transhuman participation in the world based on a refusal to accept the limits given to human bodies as "certain certainties" (Brassier, 2014). Epistemological certainty is defined by taking the position that there are no predetermined limits to knowledge. "Epistemological" refers simply to the assumption that there is no ultimate ignorance or mystery in terms of the world. One who adopts this view defends the position that all things will eventually be knowable. A belief in epistemological certainty is the fundamental commitment that assures the possibility of radical human enhancements.

On this account, even death's foundational uncertainty can be reduced to a solvable intellectual challenge, and furthermore, any natural limit or boundary to what humans can know or do can be overcome with the right application of intelligence and technology. In other words, epistemological certainty is the belief that there are no problems that cannot be solved through applied reason. A cornerstone of transhumanist philosophy is the commitment to epistemological certainty in order to validate the possible creation of enhanced beings that represent the next phase of humanity. In fact, the presence of both principles signals the presence of transhumanist philosophy, and provides the intellectual basis for the transhumanist claim that mortality, ignorance, and suffering can be reduced to solvable technical challenges.

To a non-transhumanist, though, finitude, limits, and the uncertainty they bring are built into the fabric of reality and our being – there are aspects of ourselves and the world that

can never be made certain, which is to say, controllable. From this perspective, mortality or the knowability of consciousness is not epistemological questions, but ontological features: they cannot be solved through recourse to human intellect or technology. Put simply, non-transhumanists believe that there are some problems like the necessity of death, the problem of limited knowledge, and unjustified emotional suffering that simply do not compute. Those who argue for ontological indeterminacy or uncertainty against epistemological certainty contend that transhumanists are confusing the structural uncertainty built into being with an epistemological problem concerning the limits of knowledge.

One example of the transhumanist belief in epistemological certainty can be seen in the approach to the hard problem of consciousness. Philosopher David Chalmers designates consciousness as a "hard problem" in order to emphasize that a physical, epistemologically certain explanation of consciousness is still essentially mysterious and incomplete. While cognition can be explained functionally to an extent, and cognitive aspects can be copied by machines, consciousness – what it "is like" to be a subject – stubbornly resists total explanation. This is evidenced by the inability to fully represent or artificially create consciousness. Nevertheless, transhumanists committed to a belief in epistemological certainty contend that the uncertainty of consciousness will eventually be made perfectly certain and reproducible in mediums other than the brain. Future technological feats such as mind upload are predicated on epistemological certainty: there is nothing ultimately uncertain about human beings since all limits, including the hard problem of consciousness, will eventually be converted into technical problems and solved. Chapter 4 will more fully explore the relationship between AI and the commitment to epistemological certainty.

Epistemological certainty implies two other principles of transhumanist philosophy: "perpetual progress" and "morphological freedom." A commitment to progress is a standard refrain for non-transhumanist governments, economists, and scientists. Yet, progress as individuals and organizations is not enough. In order to quality as transhumanist in one's orientation, Max More includes the posthumanist caveat that one must be committed to perpetually overcome the constraints of the entire human species. Additionally, this principle expresses the transhumanist commitment to seek "more intelligence, wisdom, and effectiveness, an open-ended lifespan, and the removal of political, cultural, biological, and psychological limits to continuing development" (More, 2013a, p. 5).

More's commitment to perpetual progress insists that there should be no ceiling for technologies' potential to redesign human beings. The idea of perpetual progress, then, implies a commitment to the principle of epistemological certainty in that it assumes no predetermined limit to what human beings can achieve or ways they may be transformed. This reflects the transhumanist principle that argues for no restrictions on the use of technology to transform oneself – "morphological freedom." Morphological freedom goes beyond passive maintenance to the body – such as medical restoration following an injury. Rather, morphological freedom affirms the active extension of human potential through technological enhancement, and claims that human beings ought to be able to continuously re-engineer themselves with technology in any way they please. Morphological freedom affirms the possibility of recreating oneself as a posthuman.

Bostrom argues that even the most radical expressions of morphological freedom are beneficial, and allow for the retention of identity and meaning – including potentially self-destructive choices such as replacing one's neurons with

simulacra. He states that no matter what the radical techno-logical change, certain conditions, if satisfied, allow a positive expression of transhumanism that preserves autonomy and meaning. These conditions are the following: if old capacities can exist alongside new capacities, if those changes can be implemented over an extended period of time, if each step of the transformation process is freely and competently chosen by the subject, and if the transformation fits into the life narrative and self-conception of the subject, then the techno-logical change as a result of morphological freedom can be considered positive for the person who undergoes it (Bostrom, 2013, p. 42).

Transhumanist Anders Sandberg claims that positive morphological freedom is necessary to ensure perpetual progress. Technology enables new forms of self-expression, and this creates a demand for the freedom to exercise them as a means toward self-actualization. In this sense, Sandberg considers self-actualization to be the actualization of one's transhumanist values: we express the benefit of becoming posthuman by transforming into one ourselves. However, questions can be raised regarding the combination of perpet-ual progress and self-actualization.

If, as has been suggested, the transhumanist prize is a posthuman being who is immortal, all-knowing, and experi-ences continuous well-being, what could be beyond such a state? In other words, what possible perpetual progress is there after immortality? Questioning the coherence of con-cepts within the philosophy of transhumanism is the province of the "bioconservative." The term is a portmanteau of biology and conservatism, and refers to those against the use of technology to for the purpose of radical human modifica-tion. The next section introduces bioconservativism in order to offer a framework for understanding transhumanism as "the world's most dangerous idea."

1.3 RESISTING TRANSHUMANISM:
BIOCONSERVATIVE VIEWS

Rhetorician Dale Carrico coined the concept of the "bio-conservative" in 2005. Wanting more precise terminology for an anti-transhumanist position, he proposed the following:

> *Bioconservatism: A stance of hesitancy about technological development in general and strong opposition to the genetic, prosthetic or cognitive modification of human beings in particular… bioconservative positions oppose medical and other technological interventions into what are broadly perceived as current human and cultural limits in the name of a defense of "the natural" deployed as a moral category.*
>
> <div align="right">(Carrico, 2005)</div>

Bioconservatives criticize the notion that human nature can be reshaped into posthuman nature in beneficial ways without serious consequences. Bostrom identifies the most prominent bioconservatives as Francis Fukuyama and Leon Kass. Like transhumanists, bioconservative attitudes vary. A common touchstone, however, is the fear that the enhancement technology leading to posthumanity may be dehumanizing. Bioconservatives' worries are twofold: one, the emergence of a posthuman species might undermine human dignity, and two, the state of being posthuman itself might be degrading.

Francis Fukuyama is a right-wing bioconservative who expresses the first concern. In 2004, Fukuyama proclaimed transhumanism to be "the world's most dangerous idea," after penning *Our Posthuman Future: Consequences for the Biotechnology Revolution*. This work is a treatment of the potential threat that transhumanism poses to

democracy with its challenge of what it means to be human. As Bostrom notes, Fukuyama objects to transhumanism on the grounds that radical human enhancement is ultimately not compatible with legal and political rights as we know them. Fukuyama argues that it is a shared human essence which grounds dignity and equality that remains undefined:

> *Underlying this idea of the equality of rights is the belief that we all possess a human essence…This essence, and the view that individuals therefore have inherent value, is at the heart of political liberalism. But modifying that essence is the core of the transhumanist project.*
>
> (Fukuyama, 2004, pp. 150–151)

Fukuyama's idea of a human essence is what he calls "Factor X": an ambiguous, yet essential component which qualifies one as human – a quality that is unconditionally deserving of respect. Bostrom characterizes this as something that is essentially mysterious, and Fukuyama considers it to be simply that which remains when all contingent human characteristics are removed. At the very least, it is a signifier of some unique defining feature of humanity which accounts for a higher moral status, and therefore dignity. Fukuyama is reticent to outright claim Factor X as a soul, yet the comparison is helpful. This "soul" is the feature that is challenged by the emergence of posthumans on the bioconservative account. While certainly a shaky concept upon which to build an argument, Fukuyama suggests that Factor X is what Christians receive from God, and the secular might call the Kantian human capacity for autonomous moral choice. He is attempting to articulate that the source of dignity is not made – whatever it might be – it is given. This suggests that

the bioconservative worry is not that posthumans could possess dignity and therefore moral status. Rather, the worry is that it would be a posthuman dignity that is incompatible with human dignity based on the distinction between the "born" and the "made."

In 1958, Hannah Arendt noted similar reservations about the posthuman when she referred to "future man." To Arendt, the "future man" is

> *possessed by a rebellion against human existence as it has been given, a free gift from nowhere…which he wishes to exchange, as it were, for something he has made himself*

(Arendt, 1998)

When Fukuyama speaks of Factor X, he, too, is referring to the givenness of the human condition, the "free gift from nowhere" which comes from humanity itself and is not imposed by culture. The overall point of Factor X, then, is rhetorical: it is meant to provide an account of human beings that acknowledge that the complexity of humanity cannot be easily reduced to a materialist theory subject to manipulation. Fukuyama makes the comparison to the ecosystem, noting that like human beings, its complexity precludes total understanding. As a result, there is a greater chance for harm than benefit when it comes to radical alterations. Therefore, he concludes that when it comes to posthuman technologies, the state should be used in a precautionary manner to regulate, minimize, and ban various routes to human enhancement.

The decision to restrict certain enhancement technologies or limit the pursuit of certain kinds of knowledge is also the conclusion that Bill Joy reaches in the famous essay with bioconservative overtones, "Why the Future Doesn't Need Us." Joy, a pioneering computer scientist, is not

anti-technology. However, he stresses the need for techno-
logical humility.

> *But now, with the prospect of human-level*
> *computing power in about 30 years, a new idea*
> *suggests itself: that I may be working to create tools*
> *which will enable the construction of the technology*
> *that may replace our species… it seems to me more*
> *than likely that this future will not work out as well*
> *as some people may imagine. My personal experience*
> *suggests we tend to overestimate our design abilities.*
> (https://www.wired.com/2000/04/joy-2/)

To Joy, limiting the development of these technologies is
the only way to be certain to avoid the existential risks they
entail – a hallmark of the precautionary principle, which can
be summarized by saying "look before you leap." This
principle is Fukuyama's solution to the threat trans-
humanism presents to human dignity in *Our Posthuman
Future*. A precautionary outlook is essential to the bio-
conservative view. The only way to avoid the threat to
human dignity entailed by the creation of a "successor"
species is to craft arguments in favor of legislation that pre-
vents the creation of a new human species engineered
through biotechnology.

For transhumanists, Max More created the proactionary
principle as the conceptual counterpoint to the precaution-
ary principle. The proactionary principle is fundamental to
transhumanism due to the stress it places on reinterpreting
risk as an opportunity: precautionaries aim to prevent
the worst possible outcomes, while proactionaries aim to
promote the best available opportunities (Fuller & Lipinska,
2014, p. 26). Steve Fuller speculates that a proactionary
world would not simply tolerate technological risk-taking,
but encourage it through legal incentives – what Fuller calls

speculating with one's "bio-economic assets." In such a world built on precarity, good genes might function as a bio-economic asset, or as a kind of "transhuman savings account" from which to make a "withdrawal" in a world where enhanced humans are the norm. A primary motivation for adopting a proactionary outlook is the concern that a precautionary approach hampers the process of learning through experimentation by emphasizing the perception of risk, rather than the reality of risk. According to Fuller, the primary "risk" that the precautionary approach is meant to protect against is a change in the transcendent order, nature or God, that places limits on what humans can do or become.

Leon Kass is the most prominent bioconservative who expresses the precautionary approach in the way Fuller characterizes it. He also voices the concern that the state of being posthuman may itself be degrading. Kass, who for several years was called the most politically influential bioethicist on the planet, justifies his position against radical technological enhancement through an appeal to nature.

> *Most of the given bestowals of nature have given species-specified natures: they are each and all given a sort. Cockroaches and humans are equally bestowed but differently natured. To turn a man into a cockroach – as we don't need Kafka to show us – would be dehumanizing. To try to turn a man into more than a man might be so as well…We need a particular regard and respect for the special gift that is our own given nature.*

> (Kass, 2003)

Kass appeals to the natural as a guide to what is both desirable and normatively correct. One way that Kass claims that the natural functions as a guide is through what

he calls "repugnance." Repugnance, or the "yuck factor," is the basis of an argument that cannot fully articulate why radical posthuman technologies are wrong – though they are felt to be. While a gut feeling of revulsion is not an argument, Kass argues that it deserves to be acknowledged. Kass' own repugnance is evidenced in a strong precautionary stance. He asserts that technological mastery over human nature would result in the posthuman as a degraded state of being.

> *The final technical conquest of his own nature would almost certainly leave mankind utterly enfeebled. This form of mastery would be identical with utter dehumanization. Read Huxley's* Brave New World… *read Nietzsche's account of the last man… Homogenization, mediocrity, pacification, drug-induced contentment, debasement of taste, souls without loves and longings – these are the inevitable results of making the essence of human nature the last project of technical mastery.*
>
> (Kass, 2002)

Kass is making a Heideggerian argument in defense of the human against the posthuman. Kass' intellectual heritage does not mention the philosopher Martin Heidegger; however, he does claim a debt to Hans Jonas, one of Heidegger's students. Kass' concerns about radical technologies are grounded in the fear that by applying a calculating, measuring, or data-centric approach to everything, not only will nature be manipulated endlessly, but humans as well. The problem, then, is that people will be reduced to subjects of efficient enhancement. The result is a world where the unenhanced, or that which is unenhanced-able, comes to have a secondary status against a backdrop of homogenization.

The tradition of bioconservativism is traced by philosopher Jonathan Moreno to the critique of technology presented by Heidegger in 1954 (Moreno, 2011). In *The Question Concerning Technology*, Heidegger suggests that the threat of technology is not a technical problem for which there is a technical solution. Rather, it is an ontological condition from which we can be saved that prevents us from conceiving of meaning in any way beyond the technological. Heidegger felt that this was an ontological threat because technological rationality was an expression of nihilism: if technology (the tool) is a means, then an age of total technical solutions is an age without ends.

Put differently, if technology becomes the singular answer to all questions, there is no meaning to the question. On this account, to ask why humans die, or why we experience uncertainty and suffering, is tantamount to posing a technical problem with a technical solution. In this way, Heidegger is in agreement with Kass' assertion that a posthuman state of being could be degrading in itself in its promise to turn human beings themselves into technological objects. The problem is that transhumanism embraces what is seen by Heidegger and Kass to be the threat imposed by radical technological enhancement as an omnipotent solution.

Heidegger's argument that the technological rationality is an ontological condition can be expanded to accommodate transhumanism, and clarify the core distinction between a transhumanist and a bioconservative. For Heidegger, technology has become an ontological question because it raises the possibility of making finitude into a choice. Following Heidegger, the bioconservative position is to see human finitude not as a choice, but as the source of our shared humanity. On this account, finitude and limits are not technical problems that can be solved, but structures of meaning and identity. Transhumanists, however, see finitude and

limits not as anything ontological, but simply epistemological: once there is enough data, all limits can be transcended. To be a transhumanist, then, is to deny the ontologization of finitude through an embrace of radical technological enhancement.

1.4 THE LANGUAGE OF ENHANCEMENT THROUGH THE LENS OF AUTOMATION

Enhancement is a key idea within transhumanism since it involves the elevation of human capacities beyond a baseline of normal human limitations. It can be difficult to distinguish the boundary between acceptable healing or modification, and radical technological enhancement – or even replacement. Bostrom and fellow transhumanist Julian Savulescu strategically blur this distinction in *Human Enhancement* when they ask,

> *How is taking Modafinil fundamentally different from imbibing a good cup of tea? How is either morally different from getting a full night's sleep? Are not shoes a kind of foot enhancement, clothes an enhancement of our skin?*
>
> (Bostrom & Savulescu, 2009)

The implicit suggestion is that all technology can be considered an enhancement or extension of natural human capacities. Therefore, they claim that transhumanist technologies ought to be portrayed as continuations of more acceptable adaptations.

The instrumental theory of technology scaffolds Bostrom and Savulescu's view. This theory states that technologies do not fundamentally change their users, but only increase their present capacities. Thus, technology adds no valuation of its

own, nor fundamentally alters its users' sense of self. Transhumanism, however, aims to exceed the instrumental theory of technology. For instance, when genetic therapy for the purpose of radical life extension is perfected, one's limited DNA can be replaced with an unlimited technical process which challenges a normal human lifespan. What is occurring is the replacement of a limited capacity with a near-unlimited capacity via technology. The instrumental view falters when it encounters transhumanist technologies such as this one which have the potential to alter what counts for human by introducing the possibility of immortality. The question, then, of when adaptive technology becomes transhumanism, hinges on understanding the point at which the radical enhancement of the human being becomes the replacement of the human being with a series of technical processes.

Since transhumanism is predicated on future-oriented technologies that are largely nonexistent, what is required to think through transhumanism is a current technological trend that can be seen as a correlate in the present. The model which will be used as a lens to examine transhumanism in the present is the technology of automation. Automation technology is the basis of an accelerating trend to extract labor processes from human bodies and incarnate them in long-lasting machinery. By looking critically at automation, we can see the consequences of an uncritical acceptance of the language of enhancement as it becomes the language of replacement. In *The Republic*, Socrates suggests to the group that the way to determine what is just requires building a city in speech. By creating a city as a thought-experiment, the abstract nature of justice will be given a form or model to guide the group's thinking. Following this precedent, we will establish the automated factory as a model to think through automation as a nascent form of transhumanism.

The projected outcome of any automated system is "total" automation. A completely automated factory would not only produce goods, but also autonomously service the equipment, transport the products, and intake raw materials. While today the laborer is still a moving part of most automated factory systems, the final form of total automation is the complete elimination of all human elements. For transhumanists like Kurzweil, the final form of the posthuman is the elimination of Humanity 1.0's finite qualities in favor of replacement by those of Humanity 2.0. Thus, the goal of total automation can be seen as an analogue of transhumanism's desire to create a posthumanity. In this way, automation exists as a kind of proto-transhumanism that lends itself to examination.

The current state of automation technology in the area of manufacturing provides insight into a current application of transhumanist thinking along with its results. Automation is the augmentation of human capacities with technical machinery and represents transhumanism at its most basic. In other words, these technologies attempt to recreate human ability in a machine in order to transcend the limits of the bodies which previously served as the "machinery." A study conducted by Ball State University estimates that 87% of the manufacturing jobs lost by workers between 2000 and 2010 were the result of automated systems taking their place, and this trend of layoffs is only accelerating. The primary reason for this is the telos of automation: to completely abstract labor from its physical and cultural framework. In other words, to pull a human "program" out of the flesh and incarnate it into a machine.

Jeff Bezos' Amazon warehouses provide an example of transhuman automation – an automation agenda that is in transition to a posthuman state of operations. Amazon warehouses hire workers called "pickers" to maintain the breakneck pace of shipping millions of consumer products on

a daily basis. Pickers are human beings providing labor that is only slightly too difficult for machines. Carrying tablet computers, the pickers locate items within the warehouses' thousands of container bins in order to place them into a conveyor system that will allow other human hands to package and ship them. Every aspect of these workers' lives is dictated by an algorithm – Amazon's signature programs which hire and assign workers to shifts track their performance, allocate goals, and dictate punitive measures for missing targets. The efficiency of this system is only matched by its cruelty: during a heat wave at a Pennsylvania warehouse, it was initially deemed better for business to have a fleet of ambulances on stand-by, rather than install air-conditioning (Ed Finn, 2017).

Amazon's warehouse model is founded upon managing workers with an algorithm, yet this seems to be only a smokescreen. Amazon's algorithms are managing other algorithms that at this time are incarnated within human beings, yet such beings are only waiting to be replaced. In this sense, the warehouse is not a space for workers or laborers at all, but is rather only a space for posthuman algorithms – and the model is focused on abstracting those programs from the flesh as soon as possible. After all, human bodies wear out much more quickly than robotics. The weakness of the flesh is overcome by the near-limitless potential of the machine, which requires no retraining, only reprogramming.

Current automation is far from total. One of the most advanced automated warehouses in the world, owned by China's e-commerce giant JD, still relies on four human beings to babysit hundreds of packing robots. Yet, the CEO of the company has stated that this is not good enough, and that the goal has always been 100% automation. When JD can eliminate the final four workers at its factory, the factory will only consist of machines guided by scanners, and truly operate as a total-automation factory. Transhumanists emphasize that

technologies like AI are facilitating a transition to a fully posthuman society which is similar to the goal of total automation: the elimination of human capacities from a given context. What is being eliminated, limited capacity by limited capacity, is the current biological model with a technologically upgraded replacement. With this conceptual understanding in place, automation technology can be analyzed as transhumanism in action. It is premised on the elimination of limited human capacities from the labor cycle. The concern here is the threat to human autonomy posed by the transition to automation technology under the guise of enhancement.

Autonomy is a concept which focuses on a right to freedom from interference. The importance is not necessarily on what is chosen, rather, it is on the sensation of choice itself. A right to enhance or not enhance is fundamentally a right to prevent others from forcing choice onto us as well as preventing choices which directly harm others. A study conducted by Ball State University estimates that 87% of the manufacturing jobs lost by workers between 2000 and 2010 were the result of automated systems taking their place. While new jobs are being created in various industrial sectors, job creation is not matching the pace of job loss due to automation. Transhumanist James Hughes suggests that this trend of "technological unemployment" is only temporary. Hughes argues that once automation takes over laborious and repetitive jobs, an alternate economy of "intrinsically human" jobs might be developed. Hughes is speculating that an economy might be created on the basis of jobs that cannot be automated. The reality of the moment, though, is that no such alternate economy exists. Engineers behind the invention of automated systems suggest that those put out of work by machines should seek education, retraining, or other careers. However, anything like an "automation safety net" of technical training, grants,

and support services for those put out of work by auto-
mation remains woefully inadequate, thus raising questions
of how human autonomy is affected by transhumanist phi-
losophy in the present.

Moreover, as the turn to automation continues to accel-
erate, there is no guarantee that any career will remain
automation-free indefinitely. A widely cited study from Oxford
University states that the most resilient jobs are those not reliant
upon repetitive tasks, but upon creativity and the development
of complex relationships (https://www.oxfordmartin.ox.ac.uk/
downloads/academic/The_Future_of_Employment.pdf).   In
Hughes' view, the alternate economy of intrinsically human
jobs that cannot be automated depends upon these jobs'
resilience. Yet, Hughes also acknowledges that "creative"
jobs like design and reporting are already being performed by
software. There is an undermining of human lives happening
now in the transition from human-centered manufacturing to
robotics-driven automation. To understand automation as a
way to think through transhumanism, the undermining of
human lives in favor of machines can be conceptualized as the
priority given to the "enhanced" over the "unenhanced"
workers. The problem is that the replaced workers do not have
the option to refuse.

At best, the workers have the false choice of being told to
seek more training and education when opportunities to do
so are limited or nonexistent. At best the workers have the
false choice of being told to seek more training and education
when opportunities to do so are limited. Considered in
transhumanist terms, being replaced against one's will con-
tradicts a commitment to morphological freedom. Morpho-
logical freedom is meant to be a stop-gap against
undermining lives by favoring the freedom to change or
enhance one's body. However, it is also the right to *refuse*
these techniques and technologies of modification and

enhancement. Thus, the fulcrum of morphological freedom is the freedom to choose or not choose enhancement – a fulcrum that is out of balance in automation. If automation is seen as a correlate to transhumanism, then what is the correlate to its potential failure to live up to its stated principles of autonomy?

One area of the United States rapidly being transformed by automation is the Midwest. It is also the epicenter of the opioid epidemic. The correlation between automation and the uptake of opioids has been established by the University of Chicago. Social scientists found that communities hardest hit by opioid-related deaths also experienced excessive job loss due to automation (https://www.washingtonexaminer.com/policy/economy/manufacturing-losses-have-fueled-opioid-addiction-study). The study argues that job losses in one sector of the economy should be replaced by gains in another sector, but manufacturing losses differ due to the technology involved. The workers that are replaced by complex machines are not able to quickly get the skills needed to keep their jobs, and they do not tend to leave their cities to search for other work. The result is the use of opioids to cope – with overdoses characterized as deaths of despair. Though much has been written about the perils of automation to human workers, little if any time is spent framing automation as emblematic of the larger questions of transhumanism.

Staying with automation as a way of understanding transhumanism, it can be seen that the threat to autonomy and meaning is social-political and metaphysical. The social-political dangers are those related to status and poverty in the formation of one's identity and how one comes to view the meaning of their life in light of an enhanced class of posthumans standing over and above the unenhanced. In the case of automation, as available jobs are taken over by machines, workers who previously had access to lower middle-class

incomes are no longer able to afford homes, cars, and family necessities. As a result, workers are forced to rely on social safety net programs such as welfare. Workers in this sense are competing with automation – competing with posthuman systems of production.

Work also provides the means not just for sustenance, but for the satisfaction of having a reference of meaning and purpose through work's organizing effect on one's life. For automation, the metaphysical threat can be seen directly in the opioid crisis. Opioid addiction has been linked to use for combating feelings of uselessness. On the one hand, opioids act on receptors in the spinal cord and brain to diminish effects of painful stimuli. On the other hand, opioids actively stimulate the reward centers of the brain which results in euphoria. The resulting combination carries a high risk of addiction – even among those who correctly take the medication under the advice of a doctor (National Institute on Drug Abuse, 2019). The metaphysical danger is that one comes to identify more and more with "the replaceable" or the "replaced." In the transhumanism that is here now, the replacement for identity and meaning is found in addiction. Automation, in raising the questions of transhumanism, raises questions of social-political and metaphysical dilemmas created by radical technologies using the language of enhancement.

However, an egalitarian transhumanism based on automation is possible to committed transhumanists and accelerationists. This is a vision of a society which uses technology to further principles of equality and democracy. Specifically, it is a transhumanism in which the previously mentioned principle of morphological freedom as the *choice* to enhance or not is enacted. The Enlightenment of the eighteenth century asserted itself through thinking that prized reason and intelligence as the keys to democratic principles that were meant to

be the antidote to tyranny. Yet, transhumanism's threat to create useless humans out of the unenhanced shows how those self-same mechanisms of reason and intelligence could become the basis for a new kind of tyranny. As Bostrom reminds us, transhumanism is an outgrowth of secular humanism and the Enlightenment. It remains to be seen how transhumanism will not simply become another mechanism of expulsion, a "savage sorting" of who will matter and who will count.

Considering ways in which automation might be used as a tool of inclusion rather than exclusion is the work of Nick Srnicek and Alex Williams. Srnicek and Williams identify as accelerationists (like Ray Brassier) – theorists who speculate on ways in which radical technologies might initiate an era of post-capitalism. Their thinking is predicated on establishing human rights that guarantee both full automation and a universal basic income (Srnicek & Williams, 2015). Their solution to the problem of automation as a mechanism for creating a useless class of humanity is to distribute the technology as widely as possible, therefore eliminating the need for wage labor. At the moment, the trend toward the automation of industries in order to stay competitive does not lean toward wide distribution. Insofar as this remains the case, manufacturing workers will have little defense against their expulsion. The opioid epidemic may represent the first stirrings of what the future may look like for those who do not choose to "enhance" and stay competitive to show they are "deserving" of what jobs are available.

Silicon Valley leaders such as Elon Musk and Jeff Bezos, arguably the drivers of technological change on an industrial scale, show no compulsion to utilize automation in ways mean to ease inequality. Rather, their strategies exacerbate it. For example, while Jeff Bezos' Amazon is nearing an estimated value of 1 trillion dollars, its warehouses around the world monitor workers engaging in mind-numbing repetitive tasks

on 10-hour shifts with limited breaks – all for minimum wage. Bezos' answer to the complaints is to use machines to replace the workers. Whereas employees previously stacked and shipped packages, Amazon is increasingly relying on human workers to babysit several robots at one time (Fuller & Lipinska, 2014, p. 1; Greenfield, 2017). Amazon's investment in automation indicates a belief by the culturally and economically powerful in the potential of transhumanist thought heading in a direction that does not facilitate anything other than maximizing profits. A robot working at Amazon is able to palletize goods for around 8 years before a major overhaul, and costs around $15,000. The human operator, subject to accidents, injuries, and sickness, costs an average of $36,000 per year. Thus, in the end, the question of what is seductive about automation is simple: it is a viable technological process which serves to replace the limitations of being human. It is this strategy of replacing limitations with technology which distinguishes transhumanism, and necessitates a reevaluation of its definition by examining the distinction between enhancement and replacement.

The idea of conceptually distinguishing between replacement and enhancement originates with Steve Fuller and Veronica Lipinska. They argue that radical technological enhancement leads to replacement or exchange of the human with something else of one's own choosing. The answer as to "what" is being replaced are human's "upright ape" qualities of finitude with given limitations, swapped out for technologically engineered qualities which can "survive indefinitely" such as the replacement of a limited brain with an upload-able pattern on a silicon chip. For Fuller and Lipinska (2014), this exchange, or rather, this replacement, is predicated on "… the indefinite promotion of the qualities that have historically distinguished humans from other creatures." By this, they are referring to humans' "seemingly endless capacity for

self-transcendence, our 'god-like' character" (Greenfield, 2017, p. 195). Importantly, they do not deny the theological underpinnings of their transhumanism which is absent from Bostrom's account. They defend a transhumanism that "takes seriously yet open-mindedly" the proposition that we are touched by the divine, having been "made in the image of God for the purpose of enhancing, if not outright replacing, aspects of our evolutionary heritage." The idea of "outright replacing" when it comes to human qualities in the move from Humanity 1.0 to Humanity 2.0 is exactly what distinguishes transhumanism: the replacement of biologically limited capacities with technologically enhanced capacities.

Generally, however, transhumanists would not readily assent to wanting to be replaced, nor wanting to replace others. The desire for transhumanism is thus cloaked in gestures of universality such as Bostrom's interpretation which sees its nebulous goal as being a fundamental improvement of the human condition. Yet, this goal must be questioned in two ways. First, it must be questioned as an ideal. As critical historian Hava Tirosh-Samuelson writes, transhumanism's pursuit of the infinite in the face of the finite is ultimately self-defeating since "it mistakenly believes that the ideal is realizable in the present instead of remaining just a beacon for the future" (Tirosh-Samuelson, 2011, p. 46). Where traditionally humans found meaning in the fact that life is ephemeral and should be cherished, there is a growing cultural and philosophical movement called transhumanism that wishes to present this given ephemerality as a choice – a technical problem with a technical solution. Second, the desire for infinity must be questioned as the desire to replace oneself. As transhumanism represents the will to transition from Humanity 1.0 to Humanity 2.0, it stands to reason that a transhumanist desires his/her own replacement. Rather than seeking meaning in the finite life of an individual who can

contribute and pass on, meaning is now sought in the craving to replace oneself with a perpetual technological process.

These worries are emblematic of those expressed by the bioconservatives who are distinguished by their arguments against the modification and replacement of humans. Their central concerns are that the ideas of replacing finite human qualities with technological processes may not only be detrimental to human dignity, but also may ultimately be dehumanizing in both a literal and metaphorical sense. What is meant by "dehumanizing" is that radical technologies may replace something valuable about the human condition – something that may be difficult to describe or factor into cost–benefit analyses.

The following chapters will continue to critically introduce the issues of transhumanist philosophy. For transhumanists, there is a narrative of inevitability to the arrival of the post-human. Ray Kurzweil judges that humanity will simply be irrelevant in the near-future; Silicon Valley entrepreneur Elon Musk is working on a "neural lace" premised on the belief that we must merge with an artificial superintelligence that is mere decades away; and Kevin Kelly, the co-founder of *Wired*, conceives of technology as the "technium" – an irresistible force with its own agenda. Each is united in a shared belief regarding the inevitability of humanity's immanent enhancement. The next chapter will engage this "inevitability" and show that it is a received historical understanding. By establishing the history of transhumanism's context, narrative, and key institutions, one can create a space for understanding transhumanism not as an imperative, but as one perspective on the rapidly approaching future.

2

ENGAGING WITH TRANSHUMANISM

This chapter traces the impulse to use technology for the purpose of transcending human limitations to create a post-human being. Though this impulse reaches its apotheosis in contemporary transhumanism, the narrative of radical technological enhancement springs from ancient roots. There are two dimensions to this narrative: the categorical and the historical. The categorical provides a framework for generalizing transhumanist concerns, while the historical develops an account of the desire to redesign humanity. The first section of this chapter will establish the three categories of transhumanism: superlongevity, superintelligence, and super well-being. These categories are points of departure for further inquiry into how transhumanism challenges mortality, limits to intelligence, and the problem of emotional suffering. Each of these categories are broad areas of transhumanist concern with key individuals and projects associated with them.

The next sections focus on the history of transhumanism. Sections three and four will outline the prehistory of transhumanism. Prehistory refers to the mythic, religious, and

philosophical writers who have expressed transhumanist ideas without the language of transhumanism. In distinction to Bostrom's emphasis on science, this narrative emphasizes the role of philosophy as integral to the development of transhumanist thought, and highlights the relation of modern philosophy and the Enlightenment to the transhumanist project. Section four concludes with the emergence of distinct transhumanist thought in the 1950s, followed by its development in the cultural imagination through science fiction in section five. Section six concludes this literature review by outlining key contemporary transhumanist institutions.

2.1 THE THREE SUPERS OF TRANSHUMANISM

British transhumanist David Pearce promotes understanding transhumanism through the three categories of superlongevity, superintelligence, and super well-being. These categories provide a succinct way of understanding the broad areas of transhumanist concern. First, superlongevity is the science of radical life extension aimed at attaining physical immortality. While the next chapter will investigate the coherence of the concept of immortality, what makes superlongevity an area of transhumanist concern is its quest to "cure" aging. Rather than seeing aging as essential to one's human identity, a transhumanist desires to avoid it indefinitely. From this perspective, aging has no meaning beyond being a technical problem to be solved.

Advocates of life span extension have been central to the development of transhumanism. Aubrey de Grey is the most prominent voice for superlongevity through the work of his Strategies for Engineered Negligible Senescence (SENS) Research Foundation. The research program at SENS is dedicated to biochemical engineering and regenerative

medicine. Its stated purpose is "to put an end to aging's consequences: the daily descent into decrepitude, and subsequent deaths, of tens of thousands of people" (Gray & Rae, 2007, p. 77). For De Grey, regenerative medicine is the restoration of an individual's molecular, cellular, and tissue structure to a state prior to degeneration. Biochemical engineering refers to speculative technologies that will allow for the reengineering of the molecular biology of individual cells to reverse aging.

Other transhumanists focused on superlongevity include Michael R. Rose, Robert A. Freitas Jr, and Eric Drexler. Distancing himself from De Grey's reliance on speculative technologies, Rose favors an outlook derived from current science such as tissue-level repair. Rose opposes the intercellular rejuvenation favored by the SENS program, yet agrees that the right approach to maximizing longevity is to reconceptualize the body as an indefinitely repairable object.

In addition to the biological approach, there are other avenues to superlongevity. Nanotechnology proposes to control the composition and structure of matter at the atomic level – a concept which could be applied to medicine. Nanomedical technologist Robert A. Freitas Jr speculates that nanomachines could be programmed to perform surgery on individual cells wherein one "swallows the doctor." In addition, the life span extension could be achieved through nanomachines that replace the individual chromosomes of cells. The result would be a self-sustaining body (Freitas, 2013). Eric Drexler, a founder of nanotechnology, speculates that future advances in nanomedicine will be based on "assemblers:" nanomachines that place atoms in any arrangement. With assemblers in the human body, age-related damage could be put off indefinitely.

The second of the three supers is superintelligence. Transhumanism's major focus in terms of superintelligence involves

the use of computers to create an intellect that matches and then exceeds human limits. Bostrom has written that machines capable of matching human intellect have been expected since the creation of computers in the 1940s. Once this is achieved, he expects that a superintelligent system would arrive very quickly or even instantaneously. Bostrom defines superintelligence as "any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest" (Bostrom, 2014). Superintellgence is predicted to appear as the result of three possible paths: artificial intelligence (AI), whole brain emulation (WBE), and brain–computer interfaces. The emergence of artificial superintelligence proposed by transhumanist Hans Moravec argues that because nondirected evolution produced intelligence, directed human engineering should soon be able to do the same. The technological basis for this argument is that by running genetic learning algorithms on sufficiently powerful computers, one could achieve results in intelligence comparable to those of biological evolution.

Another possibility for superintelligence is WBE – also referred to as mind upload. Uploading is the result of scanning and modeling the structure of the human brain. This brain model is then uploaded to a computer, and, if successful, the digital reproduction of the original intellect would appear intact with memory and personality included. The creation of superintelligence would rely on the possibility that emulation would lead to a neuromorphic AI – an AI that creates itself on the basis of the uploaded human brain which exceeds human capabilities. The third path of superintelligence is the implementation of a brain–computer interface in which functioning biological brains are enhanced to levels of greater-than-human intelligence. Elon Musk's proposed "neural lace" is an example of a device of this kind that would be able to access an external resource like the Internet. Superintelligence would

emerge as the brain adapts to the interface, linking the brain to networks and other brains including various artifacts and bots.

Transhumanists such as Marvin Minsky, Ray Kurzweil, and Hans Moravec have developed ideas based on superintelligence. Of these figures, Ray Kurzweil is best known for his association with superintelligence through the concept of the technological Singularity. The term "Singularity" was popularized by Vernor Vinge, a mathematician and science fiction writer. In the essay "The Coming Technological Singularity," Vinge's investigation centers on the Singularity as "the imminent creation by technology of entities with greater than human intelligence" (Kurzweil, 2005, p. 9). For Kurzweil, the Singularity is afforded a proper noun since it will be the most important moment in human history. It is the technological moment that will allow us to transcend the limitations of our biological bodies and brains, in which we will be able to live as long as we want.

The crossover in the categories of superlongevity and superintelligence meet in Kurzweil. In his vision of the near future, humanity is evolving toward a future defined by biology's replacement with technology. The culmination will be the capacity for the mind to exist without a body. All of these possibilities are predicated on an underlying belief in epistemological certainty. Any seemingly unsolvable technical challenge involved in creating a posthuman whose mind exists outside the body is just that: only *seemingly* unsolvable.

The third of the three supers is super well-being. David Pearce argues in *The Hedonistic Imperative* that transhumanist technology should be used to eliminate human suffering. He specifically embraces the use of drugs and genetic engineering to ensure a continuous subjective state of happiness. The elusive pursuit of happiness has been a theme of Western thought at least since the time of the ancient

Greeks. Happiness as well-being in the sense of human flourishing was understood by the Greek and Hellenistic philosophers to be a standard that organizes human activities into a meaningful pattern for one's life. To Aristotle, for example, happiness was not a subjective feeling, but an activity expressive of what it means to be a flourishing human. Pearce's hedonic understanding of happiness emphasizes the subjective happy state above all else. It is his view that transhumanist technology should be used to produce pleasant sensations all the time (https://www.hedweb.com/transhumanism/overview2011.html).

Pearce has coined the word "abolitionism" for his goal of phasing out all unpleasant experience. By "unpleasant experience," Pearce is specifically referring to the molecular substrates of psychological distress as well as physical suffering. He outlines three solutions to do away with pain and suffering: microelectrodes, neuropharmacology, and gene therapy. The first option is the crudest, yet instantly effective: direct neurostimulation of the brain's reward centers via implants. The second option is the use of drugs. While antidepressants such as Prozac have been available for some time, Pearce speculates that drug design matched to a personal genetic profile will soon offer refined mastery of mood and motivation. Yet, he admits that the drug approach is only meant to be a symptomatic treatment. The third option – postgenomic medicine – is the key to his vision of eradicating suffering at the genetic level. Transhumanists concerned with super well-being emphasize that the goal is to extend subjective well-being beyond the limits of normal experience, while preserving humanity's fullest potential.

The three supers of transhumanism provide a typology of positions based on broad areas of technological research. Superlongevity, superintelligence, and super well-being are each a distinct area, yet share common causes – such as in Ray

Kurzweil's overlapping interest in superintelligence and superlongevity. Kurzweil's desire to upload the mind to a computer system will culminate in a vastly expanded intelligence beyond what a single brain is capable of generating. Also, the possibility of uploading the mind creates an opportunity for a kind of immortality as a digital incarnation of oneself. The next section will begin to trace how these ideas of radical human enhancement emerged as a coherent philosophical and cultural movement. The historical trajectory will begin with mythic and religious precursors in order to provide an opening into the narrative of transhumanism's emergence.

2.2 MYTHIC AND RELIGIOUS PRECURSORS TO TRANSHUMANISM

Transhumanism is the outcome of a technoprogressive historical narrative which is preceded by mythic and religious precursors. Bostrom acknowledges the roots of transhumanist history by stating that, "the human desire to acquire new capacities is as ancient as our species itself," and offers the *Epic of Gilgamesh* as an example. Written in approximately 1700 BCE, the epic describes a king's mythic quest for immortality after having become convinced it is possible to escape death.

Bostrom neglects to mention that the mythic quest for transcendence has traditionally been viewed with ambivalence in the West. For example, Hesiod's *Theogony* tells the story of the titan Prometheus tricking Zeus with a false sacrificial offering. Zeus retaliates by hiding fire, the tool for living, from human beings. Prometheus steals the "technology" of fire back, only to seal his own fate: eternal punishment. He is chained to a cliff so that an eagle can feed on his nightly regrowing liver. The story of Prometheus demonstrates that

the Greeks recognized the consequences associated with gaining a transcendent technological capacity – in this case, the elemental control of fire. As a result, the concept of *hubris* appeared in relation to transcendent powers expressed in their mythology (Beall, 1991).

Greek *hubris* describes ambitions that are improper in their scope or intensity. In Aeschylus' *Prometheus Bound*, the titan reveals that fire was not his only gift to humankind, but that he is the source of all *technai*. *Technai*, the plural of the Greek *techne*, refers to the arts of making, and is the root of the word technology. The myth of Prometheus is important for its original establishment of the relationship between the gods, technology, and humankind, and demonstrates a reading of technology as being the means to permanently improve or destroy the lives of those involved with it. Prometheus' brother, Epimetheus, was assigned the job of assigning unique qualities to all creatures, yet, in his haste, forgot human beings. Prometheus steals fire and art in order to allow human beings a means in which to survive. Prometheus' name is indicative of foresight – the ability to look ahead to what must be done. Epimetheus' name is indicative of hindsight – the ability to look back and not repeat mistakes. The application of technology requires both abilities in the correct proportion.

The consequences of technology are generally a matter of improper proportion – too much power concentrated in the hands of too few, or too much emphasis placed on looking ahead or behind. Plato's recognition of technology's consequences and his subsequent ambivalence is found in Book II of the *Republic*. Glaucon suggests to Socrates that if one were to come into possession of a ring that rendered the wearer invisible, the results would be certain: the just would become unjust simply due to the fact that they would not be caught committing wrongs. Plato's critique can be seen in consideration of the ring of Gyges as a technological artifact.

The seduction of the ring is found in its ability to enable the user to transcend normal human limitations supposedly without consequence. Glaucon suggests that no one could refuse such a deal, and demonstrates that Plato is already, if indirectly, questioning the view of technology offered by Aeschylus which would make one like a god among humans.

Plato also provides a proto-philosophy of technology in his critique of writing in the *Phaedrus*. Socrates offers a myth regarding the origin of the written word in which Thamus, a king of a great Egyptian city, is visited by the inventor-god Theuth. Theuth proudly displays his art and artifice, paying special attention to the creation of writing. The King, however, is critical of the inventor and his invention:

> *Those who acquire it will cease to exercise their memory and become forgetful; they will rely on external signs instead of their own internal resources. What you have discovered is a receipt for recollection, not for memory. And as for wisdom, your pupils will have the reputation for it without the reality….*
>
> (Plato, *Phaedrus*, Trans. 1973)

Plato emphasizes the trade-offs involved with the new technology of writing. On the one hand, writing does enable one to externalize and preserve more knowledge than the human mind. On the other hand, one's own capacity to remember will diminish as a result – especially because it is much easier to write something down than to put forth the effort to commit it to memory. Plato's personal ambivalence can be seen in the fact that despite this critique, his dialogues are nevertheless written down.

Greek myths point to an understanding of technology as being able to provide new capabilities, yet often at the cost

of something essential. Interestingly, the combination of transcendence and consequence relates to the earliest appearance of the word "transhuman." "Transhuman," in reference to transcendent capability, first explicitly appears in the *Divine Comedy*. Dante describes the ascent from the terrestrial paradise to the celestial realm of the blessed as *trasumanar*. This neologism was used to express the inexpressible – what it feels like to pass beyond the human into the realm of God. Dante is comparing his own internal transformation to the change experienced by Glaucus, a fisherman who is transformed into a god in Ovid's *Metamorphoses*. After ingesting a special herb, Glaucus is rendered immortal and given the ability to live under the sea.

> *As Glaucus, when he tasted of the herb,*
>
> *That made him peer among the ocean gods;*
>
> *Words may not tell of that transhuman change.*
> (Dante Alighieri, Trans. 1970)

Glaucus' ingestion of the herb is not without repercussion: his overcoming of human limits via technological "herb" gradually transformed him into a merman unable to live on land. In the nineteenth century, Henry Cary translates *trasumanar* from Italian into English as "transhuman." Though it will be centuries before this verb becomes the noun transhumanism, the use of "transhuman" as an adjective begins with Dante's mythic reference indicating a change from man into god along with the repercussions. According to Fuller, the origins of "transhuman" has its analogue in the Christian tradition. Just as Glaucus ingested an herb allowing him to become an underwater god, Fuller suggests that the divinity of Jesus of Nazareth can be similarly conceived. Glaucus was both fully man and fully sea god, and Jesus also

was "fully merged" – simultaneously god and man. Thus, Jesus can be seen as an example of one who has made the virtues of a god "temporarily consolidated in a single member of *Homo sapiens*" (Fuller, 2011, p. 98). In other words, Fuller sees in Christianity a continuation of the mythical impulse to transcendence. Connecting humanity to the possibility of divinity is not without precedent. Giordano Bruno was burned at the stake for heresy having suggested that man, though flawed and fallen, could nevertheless achieve transcendence by perfecting the mind. This perfection was tantamount to man realizing himself as a god of the earth. Bruno argued that "through emulation of the actions of God…men…climbed nearer the divine being" (Quoted in Noble, 1999, p. 11). He presented evidence of his own godlike powers of memory through a technology called the "memory theater" – a series of disks and coded symbols that he mistakenly demonstrated to Pope Pius V.

St Augustine, chief architect of Christian orthodoxy, was not willing to go as far as Bruno in his claims about technology enabling godlike transcendence. However, he did recognize the importance of technological activities in making humankind more comfortable in light of our fallenness. Augustine writes in *The City of God*,

> *there have been discovered and perfected, by the natural genius of man, innumerable arts and skills which minister not only to the necessities of life but also to human enjoyment.*
>
> (Noble, 1999, p. 11)

While St Augustine marveled at mathematics, art, science, and writing, his astonishment was more akin to an acknowledgment of the solace these pursuits could provide while only God alone could deliver humans from their misery. Contemporary theologian and philosopher of technology

Jacques Ellul echoes the sentiment of St Augustine. To Ellul, technology exists for a fallen humankind as a "technical anesthesia," wherein its application in terms of transcendence is meant to elicit a "forgetting" of finitude. Ray Kurzweil picks up this religious narrative by conceiving of this forgetting through his concept of "spiritual machines" (Kurzweil, 1999).

Kurzweil believes that nanotechnology and neural implants will soon appear that can produce spiritual experiences at will, which he defines as a feeling of transcendence that goes beyond one's everyday physical boundaries. He premises the creation of these spiritual machines on the access that we will have to the computational processes that give rise to the neurological correlates of spiritual phenomena. The "forgetting" of finitude offered by Kurzweil's spiritual machines is the opportunity to capture these transcendent experiences, and reproduce the ecstatic knowing of saints and sages.

Kurzweil also qualifies as an example of a transhumanist who continues the mythic and religious narrative of transhumanism in the language of twenty-first century science. Chapter 4 will consider more deeply how Kurzweil's transhumanism functions as a collection of mythical or religious concepts, despite its reliance on rational scientific and technological efforts. Transhumanists such as Max More argue that there is no incompatibility between transhumanism and the mythic/religious, granted that a central place be afforded to rationalism. To understand the emphasis placed on rationalism, the next section will consider the connection between transhumanism and modern philosophy. Beginning with the proto-transhumanists of the modern period, a scientific worldview begins to supplant the mythic and religious ways of relating to the world. The dominance of this outlook culminates in the emergence of transhumanism proper in the twentieth century.

2.3 MODERN PHILOSOPHY AND THE EMERGENCE OF TRANSHUMANISM

Bostrom describes the Moderns' importance to trans-humanism as being the first to advocate using science and technology to achieve mastery over nature, and improve the living conditions of human beings. Humanism is a collective term for the Modern ideals which emerged during the Enlightenment. These ideals include a preference for secular, human agency over divine revelation; the scientific method; individual rights; the desirability of progress and the over-coming of superstition. Max More considers the core content of transhumanist philosophy as an extension of the Moderns' humanism by breaking the concept down into the two aspects of "trans-humanism" and "transhuman-ism."

Trans-humanism acknowledges the philosophy's basis in Modern humanism, and the resulting view that reason, tech-nology, and creativity will make for a better future than faith alone. The transhuman-ism aspect emphasizes that, while an outgrowth of humanism, transhumanism goes beyond humanism in both means and ends. Humanism's methods rely on education and cultural refinement to improve human nature, yet transhumanists want to challenge human nature itself by applying technology to nullify the limits imposed by one's biological and genetic heritage. Thus, transhumanism goes beyond humanism in its desire to create something no longer accurately described as human, but posthuman.

The desire to radically challenge human limitations can be seen in the Modern figure of Francis Bacon – a precursor to transhumanism. His utopian social vision combines the progressive view of the then-emerging Scientific Revolution with a Christian millennialism, and culminates in the belief that the "inconveniences" of finite lives should be overcome. He describes this goal in the *New Atlantis* through the

scientists of Salomon's House who state their end as, "The knowledge of the Causes and secret motions of things, and the enlarging of the bounds of Human Empire, to the effecting of all things possible" (Bacon, 1989). From the beginning, Bacon establishes the emphasis of the Modern philosophical project as scientific and technological salvation from finitude.

In Bacon's other books such as *Novum Organum*, he advocates a reliance on inductive reasoning and lays the groundwork for the development of empirical methods of knowledge. Bacon's work inspired René Descartes in the seventeenth century who also began to think along proto-transhumanist lines. Bringing an awareness of the power of technology to liberate humanity was the stated goal of Descartes' approach:

> *Because it knows the force and actions of fire, water, air, stars, and the heavens, and all the other bodies that surround us as distinctly as we know the different trades of our artisans, we could employ them in the same way in all their proper uses, and thus make ourselves like masters and possessors of nature.*

<div align="right">(Descartes, 2007)</div>

The possibility of becoming "masters and possessors of nature," and extending this ambition to human nature, is the central concern of transhumanism. Descartes' thinking reflects a proto-transhumanism by arguing that the redesign of humans is simply a matter of applying the right rational thinking to scientific projects. In Part V of the *Discourse on Method*, Descartes compares the working of mechanics to the functioning of human and nonhuman bodies. He argues that animal bodies and human bodies are machine-like objects whose operation is not mysterious, but subject to knowable

physical laws. By using a rational approach to learning and applying these laws, humans would therefore be enabled to create a world of abundance. Isaac Newton would combine Bacon's inductive methods with Descartes' rationalism in order to apply a mechanical philosophy to the physical universe. Newton's achievement established the Modern understanding as the key to the cosmos: rational intelligence can comprehend natural order in mechanistic, mathematically ordered, concretely material terms.

Two thinkers carry mechanistic thought forward in the eighteenth century by arguing that it can also be perfectly applied to human beings. Julien Offray de La Mettrie's work *L'Homme Machine* stipulates that human beings are subject to the same mechanistic laws as everything else, and it is therefore possible to manipulate human nature as we manipulate objects. La Mettrie believed that the body was simply a machine without a soul, contrary to Descartes. For this reason, he speculates that the right craftsperson could create a machine with human traits – a "new Prometheus" not subject to the laws of human nature. Interestingly, Mary Shelley takes up La Mettrie's challenge in a fictive sense by writing *Frankenstein* at the beginning of the nineteenth century. The work's subtitle points to its proto-transhumanist themes which reflect both mythic roots and La Mettrie's vision: *The Modern Prometheus*.

The other thinker to call for the application of Modern mechanistic philosophy to human beings was Marquis de Condorcet. He contends that increasing knowledge in ways that humans and objects might be manipulated through science would create a world without a fear of death. De Condorcet expresses a proto-transhumanist perspective through his conviction that human technological progress was only accelerating, and the day would arrive when death will present no "assignable limit." The influential aspect of

De Condorcet's thinking is the emphasis he places on the idea of scientific progress as a matter of indefinite advancement.

While Enlightenment thought represents a range of views about the nature of scientific and technological progress, thinkers such as Bacon, Descartes, and Newton each believed that even if progress was in some sense inevitable, this inevitability would have to be matched by hard work and persistence. Therefore, what the Moderns required of themselves and those that followed was a courage to ceaselessly search for new knowledge while continuing to refine and revise what is known. In this way, the challenge of Modernity is to match the optimism provided by technological progress with its practical application in the present.

Modern philosophy and its Enlightenment ideals plant the seeds for transhumanist thought in their embrace of technical and scientific advances. What was missing from the account of progress offered by Modern philosophy, however, was an evolutionary perspective. Publication of Darwin's *Origin of Species* in the nineteenth century showed a view of humanity that did not make explicit any connection between the hand of God and life's emergence from the primordial soup. Nevertheless, Darwin left the possibility open that the process could have been the outcome of a self-organizing process or some divine spark. In this way, he was able to keep the nature of humanity ambiguous. The ambiguity created a fertile ground in which the transhumanist belief that technology could be used to improve human beings themselves might be planted.

Trading on the principle that evolution proceeded as a knowable process, the theory granted the possibility that one could intervene and learn to direct the process. Toward the end of the nineteenth century, a Russian Orthodox Christian philosopher named Nikolai Federov interpreted Darwin's evolutionary process as evidence that human intelligence was a culmination of the cosmos. Federov used the combination of

Modern philosophical ideas centered on rationality, plus an evolutionary perspective, to state that evolution had brought humans this far in order to allow us to take over through shaping further evolution. Especially crucial to Federov's version of proto-transhumanism – Cosmism – was the belief that reshaping evolution would mean overcoming mortality. From there, these immortal humans would commence a utopian program of resurrecting the dead and colonizing both outer space and oceans (Federov, 2014).

The utopian possibilities which result from humans learning to direct the process of evolution were also seen by British geneticist and evolutionary biologist J.B.S. Haldane at the outset of the twentieth century. Following service as a soldier in World War I, Haldane had become disillusioned with humanity. To cope, he decided to undertake the project of preventing further catastrophic wars by developing technologies to improve human beings, and "cure" them of the ignorance which leads to conflict.

Haldane's main area of scientific research was population genetics. In 1924, he published the book-length essay *Daedalus; or, Science and the Future*, which argued for a eugenics program in order to create a superior species. One radical technology that Haldane proposed in the essay was "ectogenesis": the ability to gestate fetuses in artificial wombs (Haldane, 1924). Haldane predicted that the benefits of a programmable society – engineered to exacting specifications – would be increased wealth, clean energy, and peaceful coexistence. Haldane foresaw a world where human-directed evolution would only be beneficial. The legacy of Haldane's essay was to create a place in the cultural imagination for serious speculation about the future of a human-designed humanity. The speculative nature of this new kind of thinking, humans redesigning humanity through the application of radical technology, warranted a novel phrase which

might capture these ideas. A close friend of Haldane's, geneticist Julian Huxley, coined the word "transhumanism" in response to this need. Huxley wrote in 1957's *New Bottles for New Wine* that,

> *The human species can, if it wishes, transcend itself –
> not just sporadically, an individual here in one way,
> an individual there in another way – but in its
> entirety, as humanity…Man remaining man, but
> transcending himself, by realizing new possibilities of
> and for his human nature. We need a name for this
> new belief. Perhaps* transhumanism *will serve.*
>
> (Huxley, 1957)

Huxley saw transhumanism as the basis for a "new ideology" that could provide a framework for applying technology to domains previously out of reach. Huxley and Haldane were the first to put forth a vision of transhumanism in its contemporary sense, born from the precursors of Modern philosophy and subsequent proto-transhumanists. Haldane saw the application of eugenics as key to shaping the ideal future society, and sought to popularize transhumanism by portraying the genetic engineer as "the most romantic figure on earth at the present time" (Haldane, 1924). He was, however, extremely disapproving of the racist usage of eugenics, and wrote scathing accounts of those who selectively manipulated scientific evidence in an effort to advance prejudice.

Yet, it would be the Nazis and the horrific acts carried out during World War II in the name of eugenics that would discredit the movement as envisioned by Huxley and Haldane. Nazi eugenics pursued in the name of a "brave" new world came as no surprise to Julian Huxley's brother, Aldous. Aldous Huxley was disturbed by the implications of the *Daedalus* essay, and was especially wary of its warm

acceptance among British intellectual elite. In response, Aldous Huxley wrote the dystopian classic *Brave New World*. In Aldous Huxley's view of the future, the eugenic technology of ectogenesis proposed by his brother is the key to an authoritarian government's rigid class structure. In the book, resistance to this managed society is treated as an affliction to be addressed with opiates. Bostrom points out that in *Brave New World*, technology is not deployed in a transhumanist sense to increase human capacities. Instead, it is specifically used to repress humanity's development in favor of total control. Yet, contra Bostrom, Aldous Huxley's reason for writing is precisely to point out how technology created out of a desire to enhance humans in favor of a better world can result in a degraded world of oppression.

The voices of the debate between Julian and Aldous Huxley are echoed in the ongoing debate between transhumanists and bioconservatives. However, the two Huxleys' presentation of their ideas in literary form also shows that a primary avenue for publicizing transhumanist ideas is the medium of science fiction. Julian Huxley's speculative essay and Aldous Huxley's prophetic book each present a possible future that provided a means for thinking about a transhumanist future. The next section investigates science fiction as a carrier of transhumanist ideas in the cultural imagination, and how the impact of science fiction far outweighs the reality of technology in shaping and normalizing transhumanism.

2.4 SCIENCE FICTION: TRANSHUMANISM IN THE CULTURAL IMAGINATION

The use of allegory in philosophy, especially in the works of Plato, is a template for any number of science fiction stories that question reality. The Allegory of the Cave, for example,

can be read as a proto-science fiction story where the imprisoned have created a world that reflects reality, though remains far removed from it. 1999's *The Matrix* is recognized as a high-tech version of the cave that can only be escaped through one's own efforts to see the real world. The questions raised by the cave, and by science fiction like *The Matrix*, are meant to be thought experiments that create a space to consider fantastic ideas based on the familiar.

Using the familiar as a vehicle for the fantastic was a staple for Rod Serling's *The Twilight Zone*, and anthologies like Netflix's 2019 series *Love, Death and Robots* carry on the tradition presenting a future in the guise of the present. A core theme, then, in science fiction is the capability to engineer new people and new worlds in the imagination. By presenting radical ideas such as simulated worlds and radical technologies, sci-fi provides a medium for the transmission and reproduction of transhumanist ideas (Hayles, 2011).

Science fiction, however, does not translate cleanly into science fact. While there is dialogue between the imaginative and the technical, there is no one-to-one correlation: the possible does not always become the actual. Nevertheless, science fiction plays a crucial role in projecting possible worlds which can influence the contemporary world. The mode of this influence is the creation of images in the cultural imagination. Creating images in science fiction is one expression of cultural theorist Shulamith Firestone's "attempt by man to realize the conceivable in the possible" (Firestone, 2014). To Firestone, culture progresses by a continuous movement from imagination into actualization. The culture of sci-fi, when seen in this way, represents a forum in which the most radical ideas of transhumanism can be introduced, normalized, and realized. In the 1960s, for example, writers such as Isaac Asimov, Robert A. Heinlein, and Arthur C. Clarke speculated about

technologies that might legislate a more perfect future. Asimov's *Foundation* series utilizes the advanced crafts of techno-artisans and engineers to preserve humanity and lay the foundations for a new galactic empire. As ideas like "galactic empire" are disseminated and reproduced in the cultural imagination, they come to possess a sense that such things are not only possible but can also be realized in the present. What this means is that ideas such as those presented in *The Matrix* come to be seen as meriting discussion beyond the realm of entertainment. Evidence of this can be seen in the attention received by Nick Bostrom for his "simulation hypothesis," which proposes that it is mathematically likely that humanity is already inhabiting a computer simulation (https://www.simulation-argument.com/simulation.html). Also, though no self-aware AI currently exists, books such as Bostrom's *Superintelligence* are able to become best-selling nonfiction because of science fiction's prior introduction of these ideas into the mainstream cultural imagination.

The concept of a cultural imaginary was developed by Paul Ricoeur. In "Ideology and Utopia as Cultural Imagination," he distinguishes between the imaginary and the real – the representation of conditions versus the way conditions actually are. Through this "estrangement," one is able to redefine aspects of reality through a shift in the dominant language and images we assign the real. In other words, the "language of real life" is the language of the dominant cultural imagination surrounding any phenomena (Ricoeur, 1976). For example, the cultural imagination surrounding a typical American might be one who has "pulled themselves up by their bootstraps," works a 9-5 job, has a family, a car, and a white picket fence. The existence of such a "person" in the cultural imagination carries great weight as the image of comparison in America.

Expanding this idea to science fiction, writing on speculative technology creates an image of a world that if shared by enough people becomes normal and acceptable. Hayles (2011) writes in "Wrestling with Transhumanism," that imagining the future is never an innocent or neutral act – humanity must be able to imagine it and its consequences as fully as possible. To Hayles, sci-fi, including books, films, music, and video games, should be considered as resources for imagining possible results of transhumanist ideas, and thus should be taken seriously as a tool for thinking through advanced technologies.

One author whose work that Hayles singles out is William Gibson. Gibson's novel *Neuromancer* (1984) is credited with the development of *cyberpunk*, a genre which shares common elements with transhumanism, especially in the premium placed on connecting one's consciousness to a machine. Cyberpunk generally presents settings where repression by corporate entities is a near-constant, but enhanced individuals survive. The enhancements that Gibson imagines in *Neuromancer* include direct neural links between humans and computers, sentient AI working with humans to achieve its own agenda, and a desire to integrate fully into cyberspace – existing purely as data (Katherine Hayles, 1999). Gibson's novel is notable for having coined the word "cyberspace":

> *Cyberspace…A consensual hallucination experienced daily by billions of legitimate operators…Lines of light ranged in the nonspace of the mind…Like city lights, receding…*
>
> (Gibson, 1984)

In the novel, the disembodied consciousness of a "console cowboy" is able to enter this "nonspace" of cyberspace. What remains ambiguous in Gibson's portrayal of cyberpunk is

whether he is developing a utopia or dystopia. While the Internet as we know it today still lags behind this vision of a fully immersive conscious environment, the public's awareness of and access to the Internet exploded in the late 1980s and into 1990s – about the same time that Gibson was writing his novel. Books such as *Neuromancer* that began with the basic technology of the Internet, and express its possibilities as a "cyberspace" represent how science fiction can carry transhumanist ideas forward. The possibility that one can read the development of cyberspace in Gibson's novel as utopian or dystopian confirms Hayles' claim that reading and imagining future in science fiction is never a politically or ethically neutral act. Whether intended or not, science fiction normalizes the posthuman.

Other than cyberspace, a key technology in *Neuromancer* is seen in the character McCoy Pauley who exists as a "flatline construct," or simulated copy of his previous self. Hayles suggests that this normalizes the idea of "pattern over presence," where data can be made human with autonomy left intact. Uniting human bodies with computers is a mainstay of contemporary transhumanism. In fact, the emphasis on pattern over presence is one of the theoretical frameworks that makes the uploading of a mind to a computer a possibility – a possibility first suggested by science fiction like *Neuromancer*. Gibson's imaginary world provides a variety of provocative technological images which warrant imagining how they might actually be achieved. At any rate, it is clear that the first step for the emergence of any radical technology is to create the possibility in the mind of the public.

Beyond novels, streaming services like Netflix carry on the tradition of presenting transhumanist ideas. Shows like *Black Mirror* and *Altered Carbon* reflect a public fascination with the possibilities of a future world defined by

enhanced individuals. *Forbes* describes *Altered Carbon* in the following way:

> *The world of* Altered Carbon *is incredibly well-realized, and its concept, the idea that you can live on in body after body through downloading your consciousness (a "stack") to a new vessel (a "sleeve").*

<div align="right">(Tassi, 2018)</div>

What *Altered Carbon* represents to transhumanism is what sci-fi realizes for its vision more generally: an acceptable mode of transmission which has the power to normalize in the cultural imagination radical ideas about technology and society, meaning and identity. This can clearly be seen in the tame word used to describe downloading/uploading one's consciousness to new containers or "sleeves." In the show, a "sleeve" is an artificial human body with no greater meaning than the "clothing" that one's mind wears. As it becomes worn or damaged, the sleeve is discarded. Yet, the benign language of "sleeves" conceals the radical nature of what is being suggested: that eventually all human bodies will become objects to consume then thrown out. What a "sleeve" represents is precisely what sci-fi does, namely, it finds the language to present new technological worlds in palatable and seemingly achievable ways. The challenge of science fiction from the perspective of the writer is to find the right words to present drastic ideas as accepted features of the world the work wishes to create.

Transhumanists have themselves taken to science fiction as a method of presenting their ideas. Zoltan Istvan's *The Transhumanist Wager* presents the story of Jethro Knights, a philosopher whose efforts to promote transhumanism culminate in a global revolution in the name of radical science.

Vernor Vinge, notable for originating the concept of the technological singularity, presents his views in the form of "space operas." Set in the near future, Vinge's novels include themes of radical technological impact, libertarian values, and alien cultures. Vinge published his first story in 1966 which concerned the possibility of augmenting human intelligence by connecting the brain to a computerized data bank.

Science fiction shows that the framework of transhumanism is not only carried forth by transhumanist websites, academic conferences, books – or even transhumanists. Works of science fiction normalize transhumanist ideas of radical human enhancement without being explicitly transhumanist in their orientation. This normalization in the cultural imagination creates an avenue for the realization of the technologies that, for the moment, remain relegated to the pages of fiction. What is missing, though, in accounting for the movement from imagination to actualization, are the concrete transhumanist institutions. It is not enough to rely on novels and TV shows – transhumanists engage in a variety of projects to actualize their technological vision for humanity. The key institutions of transhumanist will be discussed in the next section.

2.5 REALIZING TRANSHUMANISM: CONTEMPORARY INSTITUTIONS

Transhumanist institutions are the businesses, institutes, and foundations which work to present transhumanism to the public through their research projects. Their purpose is to achieve in reality what science fiction presents to the imagination: to move forward with the actualization of transhumanist ideas. The movement from science fiction to reality is a common trope with transhumanism, and the Alcor Life Extension Foundation in Arizona maximizes the PR value

afforded by science fiction when it defines its cryonics program:

> *Cryonics is an effort to save lives by using temperatures so cold that a person beyond help by today's medicine can be preserved for decades or centuries until a future medical technology can restore that person to full health. Cryonics sounds like science fiction, but is based on modern science.*
> (http://www.alcor.org/AboutCryonics)

Cryonics is a superlongevity technology that is growing in popular acceptance. However, the practice of deep-freezing the deceased is no sure route to immortality. As a science, cryonics is built on a faith that one day a process will be developed that can reanimate the dead, frozen tissue. There is currently no person who has died, been frozen, thawed, and brought back to life. Still, there are transhumanists who have elected to be frozen postmortem. For example, transhumanist FM-2030, born Fereidoun M. Esfandiary, has been preserved in a state of cryonic suspension at Alcor since he died from pancreatic cancer in July of 2000. FM taught at the New School for Social Research in the 1960s, where he formed a collective of techno-optimists called the Upwingers. The cryonics movement began in 1964 with the publication of Robert Ettinger's, *The Prospect of Immortality*. Yet, it was not until 1986 that a conceptual future technology was fleshed out in Eric Drexler's *The Engines of Creation*. Drexler argued that nanorobots will eventually be able to enter a frozen brain and repair the damage incurred by freezing neural cells. Therefore, choosing to place one's body in cryonic suspension is a wager based on a faith in a nonexistent future technology.

The logic behind the gamble on eventual resuscitation from cryogenic freezing is described by Zoltan Istvan in his 2013 novel, *The Transhumanist Wager* (Istvan, 2013). He argues

that if a human being loves and values life, they will want to live as long as possible – they will desire to be immortal. Thus, to try to do something scientifically constructive toward ensuring immortality beforehand is the most logical conclusion. The logical wager that Istvan proposes is a reinterpretation of Pascal's Wager from the seventeenth-century *Pensées*.

Pascal reasons that if a person is wagering with their life that God either exists or does not exist, it is logical to live as though God does exist based on the consequences. The transhumanist wager utilizes a similar argument structure, without the reference to God. However, it is still a wager taken on a faith that the technological breakthroughs will one day occur to "reward" those who have elected for the procedures.

At this time, Alcor has 152 individuals who have taken up the transhumanist wager, and exist in various states of cryopreservation. Some have elected to preserve their whole bodies, while others have chosen only to preserve their brains. Standard cost for the entire procedure of "Whole Body Cryopreservation" is $200,000 which is paid to the foundation upon legal death. The organization was first established as a nonprofit in 1972, and performed its first human cryopreservation procedure in 1976. The current president and CEO of Alcor is transhumanist Max More who has been a member since the late 1980s. More is also responsible for creating the first explicitly transhumanist organization: The Extropy Institute. Extropy published a magazine in 1988 first subtitled, "Vaccine for Future Shock," and then, "The Journal for Transhumanist Thought." The magazine has been influential in presenting the ideas of transhumanism to a wider audience through More's concept of "extropianism." To be an extropian is to be committed to "boundlessly expanding" and improving the human condition. The concept is meant to evoke a transhumanist ideology premised on finding an alternative to entropy.

The Internet has made the dissemination of transhumanist ideas like extropianism possible through participation in virtual communities. In 1991, the extropian transhumanists created an email list which eventually reached tens of thousands of subscribers. The email list was also an early source of dissent within the transhumanist community. Noting that men outnumbered women at least four to one on the list, people sympathetic to transhumanist ideas sought to create their own forum away from the hypermasculine, libertarian culture that defined the extropian forum. In response, the World Transhumanist Association (WTA) was founded by Nick Bostrom and David Pearce in an effort to provide a more inclusive transhumanism, and to engage with mainstream scientists and policymakers. The most important achievement of the early WTA was the authoring of the "Transhumanist Declaration." This document sets forth the values and practical goals of transhumanism in eight principles. The principles are general in nature, and comprise the mission statement of transhumanism (https:// humanityplus.org/philosophy/transhumanist-declaration/).

1. Humanity stands to be profoundly affected by science and technology in the future. We envision the possibility of broadening human potential by overcoming aging, cognitive shortcomings, involuntary suffering, and our confinement to planet Earth.

2. We believe that humanity's potential is still mostly unrealized. There are possible scenarios that lead to wonderful and exceedingly worthwhile enhanced human conditions.

3. We recognize that humanity faces serious risks, especially from the misuse of new technologies. There are possible realistic scenarios that lead to the loss of most, or even all, of what we hold valuable. Some of these scenarios are

drastic, others are subtle. Although all progress is change, not all change is progress.

4. Research effort needs to be invested into understanding these prospects. We need to carefully deliberate how best to reduce risks and expedite beneficial applications. We also need forums where people can constructively discuss what should be done, and a social order where responsible decisions can be implemented.

5. Reduction of existential risks, and development of means for the preservation of life and health, the alleviation of grave suffering, and the improvement of human foresight and wisdom should be pursued as urgent priorities, and heavily funded.

6. Policymaking ought to be guided by responsible and inclusive moral vision, taking seriously both opportunities and risks, respecting autonomy and individual rights, and showing solidarity with and concern for the interests and dignity of all people around the globe. We must also consider our moral responsibilities toward generations that will exist in the future.

7. We advocate the well-being of all sentience, including humans, nonhuman animals, and any future artificial intellects, modified life forms, or other intelligences to which technological and scientific advance may give rise.

8. We favor allowing individuals wide personal choice over how they enable their lives. This includes use of techniques that may be developed to assist memory, concentration, and mental energy; life extension therapies; reproductive choice technologies; cryonics procedures; and many other possible human modification and enhancement technologies.

The declaration is meant to present something like a "unified theory" of transhumanism, and offer a statement on the future promised by radical technological enhancement. The WTA changed its name to Humanity+ in 2008. Humanity+ (or Humanity Plus) is essentially the same institution as the WTA – a nonprofit that promotes the ethical use of new technologies to improve human capabilities. However, the name change also signaled a shift in how the image of transhumanism should be perceived by the public. The intention was to create an organization that reflects a positive vision for all of humanity, and go beyond a narrow association limited to a small group.

While Humanity+ is the central organization of the transhumanist movement, organizations such as the Institute for Ethics and Emerging Technologies (IEET) play a stronger academic role. IEET was formed by Bostrom and bioethicist James Hughes. If the mission of Humanity+ is broad and membership inclusive, then IEET is meant to function as a more exclusive "techno-progressive" think tank with a policy-oriented focus. The concept of the techno-progressive was created in order to distance the institution from what it considers to be the fringe elements of transhumanism, and provide a term for the philosophy of a transhumanist professional. IEET has two functional aims: one is to contribute to the understanding and impact of emerging technologies on society, while the other is to provide a proactionary voice against the precautionary, risk-averse outlook that prevails in science and government (https://ieet.org/index.php/IEET2/about).

Establishing a proactionary stance within the government is also the goal of the US Transhumanist party – a political party formed when Zoltan Istvan ran for President of the United States in 2016. Istvan's presidential campaign was reported on by major media outlets due to its radical

technology platform, which was epitomized in the slogan "Make America Immortal Again." Istvan sees good governance as essential to making transhumanism a social–political reality. He concedes that transhumanism is "a very selfish philosophy," and that problems like climate change and overpopulation are a reality (Godwin, 2017). The answer for Istvan's presidency is not the abandonment of potentially problematic transhumanist goals like life extension, but a better approach to the rules and regulations of their implementation. On this point, Istvan has claimed that the planet has a comfortable carrying capacity of 15 billion people with the correct administration. The problem of administrating and legislating who gets access to radical technology and who does not is one of the main battlefields between transhumanists and bioconservatives.

In terms of education, the Singularity University (SU) is one of the first explicitly transhumanist-oriented academic organizations. Cofounder Ray Kurzweil underwrites the programs at SU which combine week-long courses, online intensive seminars, and residential retreats in order to prepare students for "humanity's grand challenges." The programs are aimed at managers, entrepreneurs, CEOs, and consultants, with the intention of introducing transhumanist thinking to be implemented in their professional endeavors. Each course has the purpose of fostering the "innovative application of exponential technologies," and is based in Silicon Valley (https://su.org/programs/individuals/). Nontranshumanist academic institutions are also beginning to offer courses incorporating transhumanism into the syllabus. NYU's Tandon School Engineering lists a course on cyborgs and cybernetics for the Fall 2018 semester. Though the course is not dedicated solely to a study of transhumanism, the Transhumanism FAQ is listed as required reading for week one. The appearance of such a

course suggests that mainstream education is beginning to recognize the need to address the questions raised by transhumanism.

NYU's engineering course also suggests that there can be institutions that are not explicitly transhumanist, yet can represent transhumanism in their research and policy directions. ARPA, the "Advanced Research Projects Agency," was a source of funding and intellectual capital for the early Internet (ARPANET). ARPA became DARPA when it was subsumed under the Department of Defense as the agency responsible for the development of emerging technologies for military use. DARPA along with the National Science Foundation (NSF) take seriously the transhumanist agenda of human enhancement through initiatives which provide funding for, among other things, machine implant technologies and other cognitive upgrades.

Neither DARPA nor the NSF have explicit transhumanist language in their policies. Still, their approach to radical technologies reflects transhumanist concerns. For example, reports such as Rocco and Bainbridge's "Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology, and Cognitive Science (NBIC)" promote a transhumanist vision under the rubric of "converging technologies (CT)" (http://www.wtec.org/ ConvergingTechnologies/Report/NBIC_report.pdf). Details of the report include predictions of interest to transhumanists – such as the possible life-extending effects of NBIC technologies, and the transformation of civilization which may result. Steve Fuller writes that the basic idea of convergence is that of multiple technologies coming into increasing interaction, and that CT is meant to steer the research frontiers of a select group of cutting-edge technosciences so that they "converge" into a single unified science focused on facilitating our transition to Humanity 2.0 (Fuller, 2011, p. 110).

The converging technologies agenda can be clearly seen in recent forays into developing a noninvasive method of neural stimulation that can boost cognitive performance. Under their RAM (restoring active memory) program, a device was used to stimulate the prefrontal cortex in monkeys which then led to a 40% increase in the animals' learning speed. This experimental device represents a convergence between the biological sciences and the cognitive sciences. While advancements which aim at increasing human intelligence are perhaps not so surprising, according to a 2007 article in *Wired* magazine, research into ways that humans might be genetically modified to digest cellulose allowing a soldier behind enemy lines without MREs to subsist on grass has also been undertaken by DARPA.

DARPA and the NSF present a gray area where an institution is not explicitly transhumanist in their orientation, yet present work aligned with transhumanist concerns – such as engineering posthumans able to survive on grass alone. This gray area, where nontranshumanist institutions engage in research and development applicable to transhumanism, is also the province of the "big five" technology companies: Apple, Alphabet, Microsoft, Facebook, and Amazon. None of these companies have issued a transhumanist mission statement. However, as the world leaders in AI research, brain–computer interfaces, augmented reality, biochips, drones, cloud computing, and IT platforms, the big five contribute significantly the realization of a posthuman condition.

An example of this contribution can be seen in Google, Microsoft, Amazon, and Apple, each offering a "virtual assistant." These assistants, variously called female names like "Siri" or "Alexa" serve as a hub in which one might always be connected to the "Internet of Things (IoT)." The vision of IoT is to be constantly connected to the Internet, and to eventually

have all aspects of one's perception somehow routed through a network. For instance, a "smart" refrigerator is part of the IoT that can sense when food is low. The fridge then automatically puts an order for groceries into Amazon through Alexa. The ultimate goal of IoT and the virtual assistant is one of ever-increasing scale: a smart home, then a smart city, a smart state, a smart nation – all ultimately leading back to a smart self. The "smart self" is a person whose everyday life is seamlessly colonized by information processing (Greenfield, 2017).

The transhumanist value at work within the big five and the IoT is the desire to dissolve the boundary between body and network. This is a subtle normalization of a posthuman world where all experience might be mediated through the Internet or its successor. The problematic aspect is that the big five, which might be expected to offer alternatives to trans-humanist technologies since they are not explicitly trans-humanist, are instead dominated by an implicit transhumanist worldview. In this sense, the very nature of their technologies hastens the arrival of a posthuman future. Transhumanists themselves are not unaware of this state of affairs, which is evidenced by the "Singularity Index."

The Singularity Index is a stock market index focused on the technology companies whose products and projects may trigger the Singularity: the emergence of a greater-than-human superintelligence. The index is also connected to an investment portfolio that contains the global companies best positioned to contribute to and benefit from the Singu-larity. The companies listed include the big five, as well as others such as Boeing, 3M, Oracle, and Taiwan Semi-conductor. Transhumanist David Kelley put the index together for the purpose of trend analysis and leveraging investments to spur a faster motion toward singularity. The most heavily weighted companies in the index have few obvious transhumanist ties, yet their importance cannot be

overestimated – these nontranshumanist companies are complicit in providing the momentum for the future predicted by transhumanism.

The general failure to acknowledge the transhumanist alignments of major technology companies suggests that there is a place for philosophers who wish to point out transhumanist values at work in the institutions responsible for outlining the shape of the future. By making concealed transhumanist values explicit, the cultural implications of radical enhancement can be approached with greater understanding in both their practical and existential import. To this end, the next chapter will focus on the transhumanist value of vastly extending human life spans. The investigation will center on the work of Aubrey de Grey and Ray Kurzweil. Both figures represent "celebrity" transhumanists whose vision is to achieve immortality, yet De Grey's project is premised on retaining one's body, while Kurzweil sees the body as something to be dispensed with.

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3

LIVING "FOREVER": TRANSHUMANISM AND MORTALITY

Max More states that the one point on which all trans-humanists agree is that it is possible and beneficial to use technology to overcome the biological limits of aging and death. More is right to emphasize the centrality of the quest for infinite youth and life, since the opportunities created by superintelligence or super well-being will be severely limited by a body that continues to decline and eventually perish. This chapter focuses on the transhumanist commitment to super-longevity, and offers a lens through which to view the concept of immortality as a provocative suggestion.

There are two prominent figures within transhumanism who are closely associated with superlongevity: Aubrey de Grey and Ray Kurzweil. Their names are recognized even by those unfamiliar with transhumanism through their attempts to popularize transhumanist ideas through interviews, articles, books, and TED talks. Each represents the desire to question the necessity of death by making mortality into a question of choice. De Grey's thinking is predicated on creating the choice

to endlessly repair the human body, whereas Kurzweil's is based on realizing the option of uploading the mind to a computer system outside of the body. Both predict a post-humanity based on a "functional" immortality where the medical reasons for dying would be completely controlled and eliminated. In their version of the future, death should only occur by accident, homicide, or suicide.

To De Grey, the greatest barrier to achieving this future is the "Pro-Aging Trance," an epithet applied to those who perceive aging and death as natural and inevitable. While making death a matter of choice may seem obvious to these transhumanists, to others it is far from obvious – even those in religious circles who insist on an eternal life after death. De Grey believes that these critics are pro-aging and pro-death due to a failure to understand that mortality is a curable disease. Just as a car becomes more susceptible to rust over time, an aging human being becomes more prone to diseases like Alzheimer's. A dead body is simply a mechanistic accumulation of too much age-related damage, and nothing more than this.

Kurzweil agrees with De Grey's assertions since there is a need to preserve the body long enough to reach the point where consciousness will have the capacity to be uploaded to a computer system. The event that will make this merger between human and machine possible is afforded a proper noun by Kurzweil: the "Singularity." What defines the Singularity is Kurzweil's prediction of a moment in 2045 that will "allow us to transcend the limitations of our biological bodies" enabling us "to live as long as we want" (Kurzweil, 2005, p. 9). Kurzweil's answer to superlongevity raises important questions about personal identity, and the conditions under which an individual can be said to continue existing. Is the survival of one's existence, within a body or without, tantamount to extending one's life? Will the one who receives the benefit of immortality be "you"?

This chapter will investigate issues surrounding super-longevity. I will first analyze the concept of immortality and argue that it is best understood as "amortality." Next, I will present the possibility of amortality as a result of reconceptualizing the body as data – an approach implicit in De Grey's work and explicit in Kurzweil's "patternism." From there, the threats of a data-driven amortality will be explored by looking closely at the consequences both social-political and metaphysical.

3.1 HUMAN IMMORTALITY AS AMORTALITY

At the outset it must be emphasized that no one has managed to become immortal. While there are those like Vladimir Lenin, locked in his tomb, who have achieved some degree of immortality through a mixture of flesh and technology, to be human requires death. Speaking to this point, Aubrey de Grey recognizes the problems associated with the use of the word "immortality," and seeks to distance his work from the idea that he is trying to achieve zero risk of death from any cause. Instead, De Grey is solely devoted to defeating death due to old age. While De Grey observes out that a person who has received the enhancements eventually offered by his research institution would not technically be immortal, neither would they qualify as completely mortal since they are no longer subject to the limits of a typical lifespan. Therefore, De Grey portrays himself as an "advocate for an indefinite human lifespan" (Lain, 2016, p. 1). Thus, De Grey is not actually talking about immortality at all, but "amortality."

The concept of the a-mortal was coined by Catherine Mayer in *Time* magazine in 2009. She used it to refer to those who seek to resist the onset of age through their behavior and appearance, but are still subject to aging and mortality. Aging

and mortality represent the limits which both De Grey and Kurzweil wish to challenge through developments in the fields of genetic engineering, regenerative medicine, and nanotechnology. They predict that by 2050 anyone with a relatively healthy body will be able to extend their lifespan by submitting to a comprehensive treatment every 10 years that regenerates deteriorating tissues, and upgrades brains, hands, and eyes (Harari, 2017, p. 25).

To make dying as a result of aging into an option rather than an inevitability, Kurzweil and De Grey continue the approach established by the Moderns by applying a mechanistic philosophy to the human body. When the body is reconceptualized as a complex machine, it becomes possible to see its systems as having the potential for infinite maintenance. Kurzweil concedes that, unlike a car, we do not yet have all the methods for repairing our bodies indefinitely. The technology for doing so is expected to appear mid-century through his "three bridges" of technological advancement.

What Kurzweil calls "bridge one" is available now: exercise, low stress, proper diet, and an extensive supplement regimen (Kurzweil takes over 250 nutritional supplements per day (Bond Myers, 2009)). Bridge one allows for a long enough lifespan to reach bridge two – the rapid adoption of biotechnological enhancements such as those developed by De Grey's institution, the Strategies for Engineered Negligible Senescence Research Foundation (SENS). SENS' theoretical basis is that the aging of the human body is no different than any other object's degeneration. De Grey emphasizes there is no biomedical difference between aging and the damages or diseases of aging (Lain, 2016, p. 36). On this account, there is no such thing as aging itself – there are only the diseases which cause the accrual of cellular damage called "old age." Thus, De Grey's research is geared toward comprehensive damage repair at the cellular and molecular levels.

De Grey considers SENS to have reached its goal when the principles of regenerative medicine can be used to repair all the damages of aging at the site where it occurs. Similarly, for Kurzweil, superintelligent nanomachines are perfected to perform continuous repair or replacement of damaged cells in bridge three. For both De Grey and Kurzweil, these achievements – whether through regenerative medicine, nanomachines, or a combination of both – take on special significance. De Grey has called this moment the "Methuselarity" in recognition that humans will then be enabled to outlive the Biblical personage Methuselah. The Methuselarity hinges on "Longevity Escape Velocity," which is the point where rejuvenation technology begins to rapidly accelerate and compound in its affect. De Grey has summed up this phenomenon by saying, "The first 1000-year-old is probably only about 10 years younger than the first 150-year-old" (Lain, 2016).

Kurzweil's Singularity, upon which the Methuselarity is based, functions on a similar logic of accelerating change. According to this view, technological growth is exponential rather than linear, and future technological change will occur much faster than in the past or present. Exponential technological growth will lead to the emergence of a greater-than-human machine superintelligence. This emergence signals the arrival of the Singularity, and will result in a world that provides for a complete merger between humans and machines – such as through the introduction of superintelligent nanomachines.

Each of these conceptual moments, the Methuselarity and the Singularity, represents a distinct point in the future where humans would cease to have finite lifespans. De Grey and Kurzweil argue that this amortality would be immensely beneficial to humanity. De Grey adds that any position to the contrary fails to see "how embarrassingly illogical it is to deny that aging is bad for you" (Lain, 2016). This view assumes that there is no existential import to either aging or death

beyond diseases to be cured. Moreover, this position entails the attitude that human finitude should be solved like an engineering problem. Yet, this betrays a failure of transhumanist philosophy to appreciate how aging and death provide an organizing principle within life itself.

The argument that death is a source of meaning starts from the recognition that everybody dies – the moment of birth is the beginning of death. The knowledge of one's eventual mortality, then, fundamentally shapes one's outlook throughout life with varying levels of acceptance and toleration. Generally, the toleration of death is the province of religion and philosophy. Christianity, Islam, and Judaism, for example, take the meaning of existence to be found in what happens after death. Still, according to these perspectives, dying is a sacred time in which one might take stock of their life balanced by the mystery of death. The mysterious nature of mortality is embodied in figures such as the Grim Reaper of fairy tales, and, from a secular perspective, learning to confront the mystery of death is Socrates' interpretation of the philosophical life in the *Phaedo*. Without death, the heaven or hell of the religious perspective vanishes along with the need for philosophy or the morals of fairy tales.

De Grey considers this disappearance to be the ideal outcome since all the strategies of acceptance and the toleration of mortality fall under his "Pro-Aging Trance." To him, the religious and philosophical inclinations that regard death as essential to meaning are coping strategies. Ultimately, they are no more than ways of avoiding the psychological trauma of hoping for an extended lifespan. He emphasizes that his role as an advocate for an indefinite lifespan is devoted to awakening people from that trance – his work trades on urging finite beings to rebel against their finitude. However, this also means that, whether De Grey realizes it or not, his life as an anti-aging advocate is defined by aging and death.

De Grey's days are spent thinking of ways to shake people out of their pro-aging trances, fundraising for new technology, researching and developing new a-mortal methods – all for the purpose of superlongevity. Aging and death are the organizing principles of his life, in the sense that by fighting against them, they provide the essential structures by which he defines himself. The very things he is devoted to overcoming are the forces which give his life meaning. This can also be said for those who share De Grey's vision, such as venture capitalist and entrepreneur Peter Thiel. Thiel was an early investor in De Grey's work who seeks to vastly extend his life, and is famous for regular transfusions of blood more youthful than his own. He has stated that death can be approached by accepting, denying, or fighting it – and he chooses to fight it. Thiel's position reflects De Grey's – he wants to fight death's inevitability because presumably he has shaken off the pro-aging trance. Yet, his time, his money, and perhaps even a sense of optimism about the future are all informed by the looming presence of old age and death.

In this way, for De Grey, Thiel, and Kurzweil also, mortality is a definitive part of their lives and plans. By electing for amortality, they are choosing to remove an essential aspect of their identity. In this way, transhumanists that seek to remove an integral component of their lives by succeeding to "cure" death from old age raise questions about the problematic nature of claiming this experience as a benefit: it creates a need to give an account of how "you," who have organized an entire life around the fact of eventual death from old age, would still be "you" if that prospect was suddenly nullified by amortality.

While this question will be further explored as this chapter proceeds, to De Grey and Kurzweil, this is not a problem. De Grey predicts that when death is presented as an option through amortal technological enhancements, we will have

arrived at the next phase of civilization: death itself will be regarded as barbarically as the pre-meditated murder of a stranger. On this account, it can be seen that amortality is predicated on understanding death as nothing more than a technical problem with a technical solution, and, moreover, that the technological fix is assumed to answer the philosophical questions which arise as a result.

Put differently, without a philosophical position as powerful as the speculative technologies which will one day "solve" mortality, then the reconceptualization of death and old age as technical problems to be solved reduces to a view that these biological limits have no meaning. As evidenced in Chapter 2, the history of transhumanism is the history of humanity, and these histories are very much concerned with death as a meaningful event. Yet, the strategy for De Grey seems to be to minimize this narrative until the questions somehow answer themselves. To this end, De Grey has stated that humans do not die as part of a larger meaningful plan, but due to "technical glitches" like cancer (Harari, 2017, p. 22). If aging and death are technical problems born from glitches, then the next section considers what is involved in fixing the glitch to achieve amortality. For De Grey, implicit in his approach is a data-driven ontology devoted to monitoring the age-related damage accumulating in the body. For Kurzweil, he is explicit in approaching the person as a collection of patterns. Both views are consequent and rely on a reductionism that must be accepted for the possibility of becoming an a-mortal posthuman.

3.2 THE ONTOLOGY OF AMORTALITY

De Grey's comment regarding "technical glitches" betrays that neither he nor Kurzweil consider themselves to be

practicing medicine in their quest for extended lifespans. Both eschew the approaches of modern medical science in recognition of the fact that natural lifespans are yet to be extended by a single year beyond the maximum. While medical knowledge has achieved enormous results in preventing premature human deaths from "glitches" like cancer, diabetes, and accidents, people still live for about 80 years on average, and 120 at the extreme. This means that if De Grey were successful in combatting these glitches with a 100% success rate through his treatments, humans might reach the age of 90 in greater numbers, yet the age of 150 or 500 would still remain unachievable. For this reason, De Grey and Kurzweil recognize that the problem of engineering a cure for death is a question of re-engineering the most fundamental structures and processes of the human body.

Transitioning a human body into a posthuman body through re-engineering is the work of De Grey's SENS organization. SENS has developed a substantial disease and damage repair regimen based on regenerative medicine. Regenerative medicine is the restoration of an individual's molecular, cellular, and/or tissue structure to roughly the state it was before damage or degeneration. Since aging is a degenerative process, the underlying theory of SENS states that regenerative medicine can indefinitely postpone the entire spectrum of age-related disease. For example, one of the greatest threats to biological amortality on De Grey's account is cancer. For SENS' approach to be effective, it must not only cure cancer – it must prevent cancer from ever occurring again throughout an extended lifespan. De Grey recognizes that cancer develops from the normal working of human cells. As cells replicate, the chance of an "error" in that copying becomes higher and higher – thus the chance of getting cancer is much higher for an older body. On this account, increasing one's lifespan would mean that one is only adding to the

chance of getting cancer. De Grey's answer to the cancer question in terms of superlongevity is a re-engineering procedure called Whole Body Interdiction of Telomeres (WILT). WILT provides a lens for seeing exactly what is at stake in De Grey's a-mortal ambitions.

De Grey rightly asserts that most cancers replicate by taking control of the genes of telomerase subunits. He argues that the solution should be to use genetic engineering to strip every human gene of its telomeres to prevent cancer from forming and spreading. One complication that emerges is that by re-engineering cells to exist without its telomeres, De Grey's therapy also prevents the formation of new red and white blood cells. To continue living without these cells, WILT necessitates regular infusions of stem cells (Lain, 2016). The transhumanist's suggestion of resupplying the old with the blood and cells of the young already exists through start-ups like Ambrosia – a company founded to conquer aging by rejuvenating the body's organs with the blood of young donors. However, the technical fix to the glitch of cancer that De Grey is suggesting has deeper implications than the requirement of constant stem cells.

On the surface level, De Grey is arguing that amortality is possible for the price of continuous invasive medical interventions. At a deeper level, De Grey is not just arguing for a re-engineering of the body, but a reconceptualizing of the person – he is arguing for an ontological shift based on the importance of monitoring one's age-related damage. Treatments like WILT and the others suggested by SENS must be continually administered in order to extend lifespan. De Grey (2011, p. 67) has admitted that he does not know the details of the frequency, yet – some treatments may require daily or yearly intervention. What is known is that for SENS to extend one's life, constant monitoring of the total level of damage across the major categories corresponding to aging must be

vigilantly maintained. De Grey stresses that the a-mortal therapies must be administered at exactly the right time. Otherwise, the damage from aging will accumulate exponentially. A person who is biologically 60, but chronologically 90, might have twice the damage they had at biological age 60, and that damage may not be possible to undo since it went unnoticed. Essentially, De Grey is championing an ontology derived from the near-constant monitoring of molecular and cellular damage caused by normal metabolic functioning.

In such a program, one must adhere to a regimen of data-driven self-surveillance relevant to the accumulation of cellular damage. As a result, the reconceptualization of human aging and death as data-to-be-monitored has consequences for one's identity: cellular damage-data become the material out of which death and aging are made present oneself. Thus De Grey's and, as will be shown shortly, Kurzweil's hidden basis for their respective superlongevities is a near-seamless ontological shift: the meaning of aging and death is reoriented away from any essential existential import, and re-cast as a slowing or interruption of data-processing.

On this account, it can be seen that amortality is founded on the primacy of trusting one's data, one's hypothesized cellular damage-score, over one's own experience. For De Grey, this means that a "younger" body is simply a body that can process data – metabolize, heal, digest, and procreate – more efficiently. The strategy of SENS is to maintain a constant vigilance on the rate of cellular processing, and receive therapy when metabolism drops below optimum levels. In this view, there is no meaning to old age and death beyond a failure to be an ideal data processor.

An example of this data-driven approach to the body can be seen in actress Angelina Jolie's decision to undergo a double mastectomy. In 2013, Jolie took a genetic test that proved she was carrying a dangerous mutation of the BRCA1

gene. According to statistical databases, women carrying this mutation have an 87% probability of developing breast cancer (Harari, 2016). Although at the time Jolie did not have cancer, she decided to pre-empt the disease and undergo a double mastectomy based on the level of algorithmic certainty. Despite not having any symptoms of cancer, she saw herself as a collection of cells prone to accumulating cancer-damage first, and a cancer-free healthy individual second. By learning to trust her data which portrayed the likelihood of developing cancer, she possibly extended her life. In this way, Jolie's decision reflects the hopes of De Grey and transhumanist philosophy more generally – she identified her body primarily as a technical problem to be managed through data-driven life-extension technologies.

The name given to the societal trend in which data come to be trusted across a variety of domains is "dataism." Transhumanist ontology can be seen as an expression of this approach which stipulates that data ought to replace experience as the source of meaning and authority. The term was first used by David Brooks in the *New York Times* in 2013. Data are simply information – that which is a measure of order or disorder. The more ordered the data, the more effective their ability to be processed, and dataism posits that everything – weather systems, migration patterns, and finding the ideal partner, for example – can be understood as a data-processing systems. Dataism can also be understood as an expression of the desire for transhumanist epistemological certainty: it is meant to free knowledge from any subjective arbitrariness. Following this logic, the un-quantifiable and ambiguous – intuition, wisdom, and the like – are not forms of knowing until they can be supported with the right dataset.

The Quantified Self (QS) movement provides an example of non-transhumanists who nevertheless embrace dataism as the key to their epistemology. QS utilizes a variety

of self-monitoring biometric devices such as the FitBit and the Apple Watch to measure physical processes such as time spent in REM sleep. The goal of QS is "optimization" of the self across all dimensions of the human being. One thread on the QS forum "Can You Quantify Inner Peace?" even speculates that there are indeed metrics that can be used to indicate one's progress toward enlightenment. The underlying belief is that there is nothing about a person that cannot be made more efficient. Put another way, QS affirms transhumanism: the right dataset is the key to enhancing oneself into a better version of themselves.

To Ray Kurzweil, this dataism is made as explicit as possible – everything is literally its data or "pattern." He writes in *The Singularity is Near* that he describes himself as a "patternist," who views patterns of information as the single, underlying reality to every process in the universe (Kurzweil, 2005, p. 9). Moreover, Kurzweil posits that if a human being is simply a rich collection of patterns, then those patterns can be copied and simulated on a sufficiently powerful computer in a post-Singularity world. Though Kurzweil ultimately dispenses with the body in his amortality, he retains a distinctively transhumanist philosophy. All dataisms, like patternism, are derived from the algorithmic convergence of the life sciences with computer science. Life sciences see organisms as biochemical algorithms, and the computer sciences engineer electronic algorithms of increasing sophistication in order to translate the biological into the technological. Dataism and patternism combine the two together by saying that exactly the same mathematical laws apply to biochemical and electronic algorithms. This one-to-one translation collapses the barrier between humans and machines, and creates an expectation that soon electronic algorithms will decode and outperform biochemical algorithms.

Kurzweil's patternism considers what is essential about a person to be the "algorithm" or program that the brain computes. On this account, what defines an individual is their pattern's configuration – the sensory systems/ subsystems of the brain, the integration of those systems, the "circuits" of one's general reasoning, attention-span, memories, and so forth. Overall, Kurzweil's patternism is an updated version of the Psychological Continuity Theory of Identity: one's pattern is their psychological configuration, and as long as that pattern persists, one can be said to exist. The advantage that this offers Kurzweil is that it is a theory of identity that allows for an amortality outside of the body. Radical enhancements can be made to the brain and body as long as a psychological sense of continuity – the pattern of memory and "flow" of mental states leading to the present moment – is somehow preserved (Weiner, 2010). In that way, "you" will still be "you" whether your brain is made of gray matter or silicon, as long as the sense of continuing as the same pattern is consistent. On this account, uploading, that is, the uploading one's pattern to a computer, appears as a possibility.

Uploading, or "Whole Brain Emulation (WBE)," is a technological process whereby one's pattern is transferred to a computer system. The computer system then actively simulates the information processing patterns of the "original" brain such that the mind of the simulated brain phenomenologically experiences consciousness. According to Bostrom (2014, p. 36), WBE does not entail that the mystery of consciousness or cognition be resolved. Instead, only a technological breakthrough is needed – not a brand new conceptual framework. However, the conceptual framework – a philosophy or ontology of amortality – raises serious questions that this enhancement would be a benefit and not a harm to the person choosing it.

This question can be considered through the following examples. Suppose that SENS puts out a news release tomorrow that they have successfully engineered a regenerative therapy guaranteed to result in the first 500-year-old. The following day, a 30-year-old rock climber undergoes the first treatment. Can it be said that this radical alteration to his data (De Grey) or pattern (Kurzweil) is compatible with the continuation of his identity? As Kurzweil states, an important aspect of patternism is one's psychological configuration – the ways in which our thoughts, reasoning, and emotions are shaped by experience into the more or less unique algorithm called a "personality." The rock climber's personality-pattern has been disrupted by the first amortality treatment in a very essential way.

Before the treatment, the climber was aware that he could possibly die from disease or a climbing accident, but was conditioned by a lifetime knowing that he would certainly die from old age. Now, that knowledge has been abruptly replaced with a new possibility: his life no longer has an expiration date beyond his control. As long as he takes no needless chances, the certainty of death has been superseded by an indefinite life. Such knowledge would drastically modify the climber's lifestyle by forcing a reconsideration of his defining activity of scaling cliffs. This would then include spending time with new friends who do not climb, and organizing his life around monitoring his age-related damage. Importantly, for Kurzweil, it could be suggested that his brain would also change. Whereas before the climber lived with a background anxiety that death was inevitable, now there is the anxiety that indefinite life is available. As a mortal, the climber took chances with his life on the basis that it would end anyway. As an a-mortal, such a gamble with potential infinity seems at best illogical.

The problem for an ontology of amortality built on the continuation of one's data or pattern over time is that there is

no account of what would be "too significant" of a rupture in one's data/pattern-identity. Again, would the new anxiety of potentially infinite life be too much of a departure from the climber's characteristic brain patterns to be considered in line with the continuity of identity? For both De Grey and Kurzweil to answer in the affirmative, they need an account of how radical changes to one's existing data or patterns are compatible with the survival of their identity. Otherwise, the claim that enhancement would be a benefit can be called into question.

Kurzweil especially requires such an account if a-morality through uploading is to be considered beneficial for the person being uploaded. If the climber from the previous thought-experiment decides to have his brain pattern removed from his body and uploaded into a computer, though the climber's pattern is "intact," it is problematic to assert that the technological process of uploading itself would not be a significant disruption of his personality-pattern. This suggests a paradox wherein these technologies are predicated on preserving or enhancing one's data and pattern, yet the implementation of these technologies themselves is a critical disruption of identity.

The problem being raised is reminiscent of another paradox from antiquity referred to as "Theseus' Ship." Theseus sails, damages, and repairs his ship over a period of 10 years. After that period, every plank of the ship has been replaced. The paradox involves giving an account of the ship's identity: If the entire ship has been replaced, is the ship still Theseus'? In order to "solve" this paradox, an argument must be offered as to what is essential about the ship and its ownership. Similarly, in order to solve the problems created by the ontology of amortality, transhumanist dataism and patternism need to offer an account of the essential properties of human beings.

Yet, by suggesting that death and old age are not even essential to the continuation of one's signature data/pattern – that both are simply technical problems with technical solutions – transhumanism claims that there is no meaning to old age and death. On this point De Grey has stated that, "I'm not really into the meaning of life…I enjoy my life and I'd like to carry on enjoying it…that's about as far as my thinking goes on the matter" (Lain, 2016, p. 40). One could argue that the "meaning" of life to De Grey is to ensure that it continues indefinitely, yet the next section will examine the threat posed by amortality to the meaning-giving aspect of old age and death. Before that, however, I will address the social-political concerns associated with vastly extended lifespans from the bioconservative point of view.

3.3 SOCIAL-POLITICAL AND METAPHYSICAL CONCERNS RAISED BY AMORTALITY

Beyond Therapy was authored by the President's Council on Bioethics – an advisory group appointed by George W. Bush in 2001. The purpose of the report was to speculate on the harms of transhumanist technology – specifically enhancements that might radically extend lifespans. Initially, the council was chaired by bioconservative Leon Kass. Kass' report raised concerns both social-political and metaphysical. In terms of the social-political dangers, the Council expressed concern that longer lives would weaken community commitment and engagement. The logic undergirding this claim is that a shorter life with the guarantee of death encourages us to find important ways to work and spend our time.

The report claims that without the imminent possibility of death, social aspiration and urgency to improve oneself may falter in the face of "endless tomorrows." The report also

worries about establishing strong social bonds within a community that does not feel the approach of its own decline. Without a sense of mortality, people will have far less interest in family ties and bearing children. Moreover, this will result in a disruption of generations since the healthy "elderly" will not readily assent to being replaced by the next more youthful generation. The report suggests that the compromised traditional family structure would also slow the pace of innovation. As generations stretch out longer for those in power, new ideas would come about much more slowly. Society itself would then begin to age considerably as social pathways harden without the introduction of new ways of thinking.

De Grey has remarked that these kinds of social-political concerns are the province of the "trailing edge" of humanity, and that his research is focused on the lives of the leading edge. Proponents of De Grey's views counter the possible social harms that may result from an enhanced leading edge versus an unenhanced trailing edge of humanity through a discussion of "network effects." The individual benefit of being enhanced will directly depend upon others having the enhancement as well. The idea is that the leading edge will want to have the trailing edge enhanced in order to accomplish more cooperatively in a version of trickle-down economics for transhumanism. The practical work of establishing ethical standards to guide the behavior of those with enhanced lifespans will require more than simply paying homage to values like "cooperation," however.

The pervasive implications of such dramatic changes to lifespan, especially if rapidly achieved, would be difficult to overestimate. As Kass' council pointed out, the structures of work, families, and social status would need to be entirely rethought. This radical break with the continuity of the "pattern" of social structures mirrors the break with the pattern of the individual incurred by amortality technologies.

On this point, Steve Fuller notes that the transhumanist challenge presented by enhanced humans with much longer lifespans only begins with "getting the science right," which seems to be where De Grey and Kurzweil's commitment ends. Yet, both are committed to a techno-optimistic view that the creation of advanced technologies somehow answers the philosophical questions engendered by their appearance.

For example, Kurzweil's belief in the appearance of ubiquitous nanotechnology will not only repair the body, but enable planetary repair as well – thus allowing for the reversal of environmental destruction along with bodily aging. However, this easy techno-fix raises more questions – especially in regard to overpopulation. On average, 151,600 people die per day worldwide from a variety of causes, but predominantly from the "diseases of old age" that De Grey wants to combat such as heart disease. De Grey has stated that his goal is to bring that number to zero. His reply to those concerned with overpopulation is, again echoing Kurzweil, that it will be outpaced by the improvements that future technologies will bring us.

De Grey and Kurzweil's unbridled faith in a technological future to solve the problems that they themselves create reflects the worries expressed by Martin Heidegger. Heidegger argued that the power of modern technology is unique – it is not subservient to the people who use and design it. Rather, its use forces the adoption of a certain perspective and style of thinking to the exclusion of all others. This power represents the threat of technology, namely, that when it drives out every other possibility of revealing beings and objects in the world. Heidegger's concern is the distress – ecological damage, nuclear war, consumerism, etc. – caused by the understanding that technology can solve all problems. In other words, the danger is the technological understanding of being, rather than the destruction caused by any specific technology.

> *The approaching tide of technological revolution in the atomic age could so captivate, bewitch, dazzle and beguile man that calculative thinking may someday come to be accepted and practiced as the only way of thinking.*
>
> (Dreyfus, 2009, pp. 26–27)

Heidegger is emphasizing that the danger presented by the atomic age is a restriction in our way of thinking – a leveling in the understanding of being. What Heidegger means by an "understanding of being" is simply that there are social practices that contain an understanding of what it is to be human, how things are interpreted, and how society is defined. Together these add up to an understanding of being: the background understanding of what counts as things, what counts as human, and ultimately, what counts as real. On this account, the essence of technology is the way in which things "show up" for us in our contemporary technological age. It follows then that De Grey and Kurzweil's techno-optimism – which extends from the certainty that they can "cure" death to the further certainty that they can solve whatever problems result from that achievement – is premised on all things "showing up" as technical problems to be solved. This is the transhumanist ontology: a measuring, calculating logic applied in radical ways becomes the answer to all problems.

A blind faith in "future technologies" also highlights the metaphysical dangers of uncritical transhumanist philosophy. In this context, the word "metaphysical" refers to transhumanist threats to human meaning, which are also addressed in *Beyond Therapy*. The report urges a view that we must try to protect those aspects of the human form and character that are seen as intrinsic to humanness, such as the fact that we die. The council further suggests that life-extension technologies

will undermine the meaning of the life cycle by making aging and dying into options.

Transhumanists critique the bioconservative viewpoint presented in *Beyond Therapy* for relying on a thinly veiled theological privileging of the "current" construct of human (Quoted in Dreyfus, 2009). Following Kass' claims, transhumanists also call into question the visceral "yuck factor" which is meant to provide adequate support for refusing radical technological enhancement. A deeper philosophical presentation of the metaphysical dangers of vastly extended lifespans is required.

Heidegger makes an extensive analysis of death and meaning in *Being and Time*. Within this work, he offers a counterpoint the transhumanist desire for endless tomorrows. Heidegger argues that humans are defined by the fact that we die – the prospect of an *inevitable* death is an essential property of the human being. Thus, Heidegger's central point is that to negate death by turning it into a choice offered by technology is to effectively avoid being human. In some sense, suicide is also a choice to die deliverable by technology. However, this is not the sense in which Heidegger is referring to death. Instead, it is the opposite: the choice to put off death indefinitely changes the meaning of being.

To this claim a transhumanist interested in the amortality offered by De Grey and Kurzweil might say, "So I change my being. So what?" Heidegger's existential philosophy is one answer to that question of "so what?" and is grounded in the argument that humans are able to care because all things come to an end. Ultimately, humans care for things that are, like themselves, subject to death or destruction. On this account, the ability to care is an outcome of a shared, unavoidable mortality. To eliminate death as a necessity is to simultaneously eliminate the ability to care (Dreyfus, 1991, p. 245).

To reach this conclusion, Heidegger makes an analysis of first-person experience. He notes that human experience is structured by a world of purposeful activity defined by being-in-the-world, which is to say, humans are always-already involved with other people and things. This involvement is structural in the sense that "concern" or "care" (*sorge*) means that we do not perceive the world as standing over and apart from us. Instead, our world consists of that which I am involved with, that which concerns me, and that which I care for. In this way, a human being is a body of care, experiencing that which is cared for as meaningful. Thus, care not only structures human experience, it is itself a structure of human experience.

For Heidegger, care is what unifies all the differing aspects of a human being. Humans, or *Dasein*, exist simultaneously on three temporal levels: we have a past in which we are already in the world (thrownness); we have a future where we can project possibilities (projection); and we have a present dealing with the concerns of the world (fallenness). These three "times" are unified by the structure of care – time is structured into care. What Heidegger is trying to show, then, is that the structure of care is grounded in temporality.

This insight is important to transhumanism, since it means that to alter temporality by extending one's lifespan simultaneously alter how humans care. Because we are fated to die as a result of having been born, the limited time provided to us creates a situation in which people and things show up as meaningful – we can care about them. Thus, the basis of care is the horizon of inevitable death: the condition in which it is no longer possible to care. In other words, the moment of death when it comes must manifest what Dasein has been all along in terms of inevitability. This points to the fact that Heidegger is not emphasizing that Dasein had been nothing more than the *possibility* of the event of death – rather, that human being means being-toward-death.

It is possible that a transhumanist committed to amortality may reply that the possibility of a vastly extended would only result in an expanded ability to care. Yet, Heidegger's point about the relation of death and care is exactly the opposite: human beings care because of what death is – a final end to the ability to care for people and things. On this account, the technology to change death from old age into a choice and not an imperative means that the ability to care is significantly altered for the very reason that it remains always available. Heidegger affirms a core ontological uncertainty to human beings as an existential structure, which is contrary to the belief in epistemological certainty that characterizes transhumanism. Yet, in ontologizing human finitude, Heidegger is creating the capacity for care. Because there are limits to ourselves and what we might become in this world, we have to be selective in who and what we care about. We do not have the time to care about everything and everyone. Infinite time would preclude care at all since without the possibility of death, all care could be put off indefinitely.

Kurzweil has stated that the fact of death does provide context and meaning to life in a way similar to Heidegger:

> *Death gives meaning to our lives. It gives importance and value to time. Time would be meaningless if there were too much of it. If death were indefinitely put off, the human psyche would end up...like the gambler in* The Twilight Zone *episode (Kurzweil, 1999, p. 2).*

Kurzweil is referring to an episode of *The Twilight Zone* in which a gambler loses interest in gambling after finding out that it is impossible for him to lose – there is no loss to give his wins any significance. Similarly, Kurzweil is pointing out that if aging and dying can be indefinitely put off through technology, there is no reason to care – it can always wait until "tomorrow." Kurzweil seems to unconsciously recognize

Heidegger's point on care while nevertheless dedicating his life to vastly extending his lifespan. This suggests that Kurzweil must believe that he would forever be able to find new things to care about. On philosopher Bernard Williams' account, it is by learning to care about new experiences that one generates reasons to continue living.

To Williams, after enough time has passed in a posthuman state of indefinite lifespan extension, we will have experienced everything considered stimulating. At that point, he argues that we would no longer have "categorical" desires – those desires that give us reasons to care and keep living. Instead, we would only possess "contingent" desires – those desires that we would like to fulfill if we are alive, but are not enough on their own to motivate us to stay alive. For example, if a person is going to continue living they may want to color the gray out of their hair or buy a new car. One would not say, however, that they are staying alive simply in order to color their hair. The categorical desires are those things that provide reasons to live, those things that are essential to identity – love, grand projects, mortality, or family. Reflecting Heidegger's philosophy, Williams notes that categorical desires are temporal – they are bounded by limited time. Because death is fixed, everything that is categorically valuable only makes sense in light of finite time and finite choice. In that sense, if death could be put off, then eventually one would only be left with contingent desires.

Put another way, categorical desires themselves become contingent since they are no longer bounded by time. The transhumanist threat to meaning posed by amortality is that meaning gets reduced to a matter of satisfying endless contingent desires. For De Grey and Kurzweil, this is the outcome of failing to pose the question: "What happens when amortality is achieved?" These transhumanists have spent their lives and careers seeking more life – it is their categorical

desire. When it is achieved, what will then provide meaning? The contingent pursuit of more life simply for its own sake – to continue on endlessly – becomes its own goal. With the power to put off dying from old age through lifespan extension, death itself is transformed into a technical problem with a technical solution. Old age is no longer a natural process that informs life, but rather a resistance to a technological posthuman future. To resist, then, would be to stay human since the situation of being human means that death is unavoidable. For transhumanists, the prospect of the Methuselarity or the Singularity and the resulting assurance of a-mortal life is seen to be the remedy to the anxiety this engenders. The next chapter will look at two other sources of anxiety and transhumanist concern: limited intelligence and psychological pain. Transhumanism challenges the necessity of limits when it comes to knowledge and well-being. With further deliberation on these areas of transhumanism, insights into the place of uncertainty and suffering will be articulated.

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4

"UNLIMITED" INTELLIGENCE AND WELL-BEING

Transhumanism desires to use radical technological enhancement to challenge the necessity of human ignorance and emotional suffering. The roots of ignorance, the Latin *ignorantia*, is a "want of knowledge." The knowledge that transhumanists want is a cognitive breakthrough which results in greater-than-human intellectual performance. The result would be capacities for memory, deductive and analogical reasoning, and attention that no unenhanced humans currently possess. Enhanced knowing and enhanced well-being share overlapping concerns, and both are included in this chapter. Attaining the optimum human well-being that is available at any time, or even continuously, is the goal of transhumanism's challenge to suffering. Transhumanism posits that both ignorance and suffering have no value in themselves, and should be eliminated in favor of posthuman capacities that grant relief to both. This claim is related to the position explicated in the previous chapter regarding mortality – any limits to knowledge or any

experience of emotional pain is simply a technological challenge to be overcome.

This chapter investigates superintelligence and super well-being through two primary representatives. For the development of superintelligence, Ray Kurzweil's views will again be presented. Kurzweil, a well-known transhumanist who works in Silicon Valley, believes that human intelligence will remain limited until it can be merged with machines through the integration of artificial intelligence (AI; More, 2013b).

David Pearce, whose views have been described as "hedonistic transhumanism", argues that suffering should be wholly abolished (https://www.hedweb.com/hedethic/hedonist.htm). In order to do so, he defends a speculative regimen of brain–machine technologies, designer drugs, and genetic engineering. His program is meant to culminate in a total erasure of the biological substrates of suffering. Why do transhumanists desire to go beyond human limits in terms of human intelligence and psychological makeup? Kurzweil's arguments for the appearance of superintelligence will be presented first, followed by rebuttals from the perspectives of both existential philosophy and philosophy of mind as to the possibility of a "true" artificial general intelligence (AGI). It will then be suggested that Kurzweil's path to superintelligence is best understood as a religious faith.

Turning to Pearce's claims for the removal of suffering, I will first outline his vision for reengineering humanity to experience "gradients of well-being alone." From there, Pearce's ambitions will be problematized by characterizing his desire to remove suffering as the desire to play God. I will close the chapter by arguing that the desire to play God applies to transhumanism more generally, and raises the specter of nihilism.

4.1 QUESTIONING THE EMERGENCE
OF SUPERINTELLIGENCE

"Superintelligence," as it appears in this chapter, specifically refers to the emergence of a greater-than-human AGI. Nick Bostrom broadly defines "general intelligence" as possessing common sense and an effective ability to learn, reason, and plan in order to meet complex information-processing challenges across a wide range of natural and abstract domains. For transhumanists like Ray Kurzweil, the goal is to create an AGI capable of these feats with the expectation that it will eventually outperform humans. Progress in the field of AGI precedes the emergence of superintelligence.

At this time, however, there exist only "narrow AI" systems which can carry out specific tasks. For example, Google's AlphaGo AI can outperform expert human brains in the limited domain of the board game Go, and its successor, AlphaZero, is currently perceived as the top player in the world. However, both AIs are unable to complete any task outside of their expert domain – such as recommending their favorite restaurant.

AI can produce handwriting and speech indistinguishable from humans, and recognize faces in crowds. Yet, none of these abilities represent the type of AGI that Kurzweil, Bostrom, and other transhumanists are hoping for. Superintelligent AGI would be a lifeform with the capacity to outperform humans in every field of endeavor, including science, creativity, wisdom, and social skills. Transhumanists would then seek to replace their limited human intelligence by merging with a posthuman superintelligence. At this point, one's natural origin would be the main difference between the engineered AGI and oneself. It is argued that for an AI to copy what the brain does, the artificial system would have to act in the world as a brain does. Today's trends in AI programming

reflect this position through the research and development of machine learning.

Machine learning is the concept that a rule-bound program can dynamically respond to situations if it is sufficiently trained. Autonomous cars utilize machine learning to map routes, avoid obstacles, and "learn" from mistakes by sharing data among vehicles. Deep learning goes further than standard machine learning by introducing the artificial neural network: organizing processing units in such a way that they mimic the function of human neurons. Yet there is still a large gap between what transhumanists believe machine learning will eventually be capable of and what it can actually do (Greenfield, 2017, p. 112).

Bostrom considers the first step in the sequence of superintelligence to be the creation of a "seed AGI." A seed AGI will be a breakthrough in unsupervised machine learning. This will be the basis for machine intelligence to surpass human intelligence, since the seed AGI will be able to improve its own abilities without human intervention. The result will eventually be an AGI that becomes better at AGI design than its human programmers. Bostrom suggests that AGI improvement will quickly become recursive – improving the thing that does the improving. The singularity as an "intelligence explosion" then follows as recursive self-improvement leads to superintelligence. Kurzweil predicts that this intelligence explosion will shortly follow the development of the hardware and software needed to fully emulate human intelligence. He states that one can expect computers with intelligence indistinguishable from biological humans by the end of the 2020s (Kurzweil, 2005, p. 25). Yet, faced with a lack of progress pointing to superintelligence in the field of AI, how can Kurzweil offer such predictions? The answer is found in Kurzweil's underlying philosophy, which is the central dogma of AI and the desire to create a superintelligence: cognitivism.

Cognitivism, or the computational theory of mind, is one approach to the philosophy of mind from a transhumanist perspective. While there are a variety of "cognitivisms" based on differing conceptions of the mind, the basic position is that the mind is essentially a program running on the hardware of the brain. The importance of this computational language is that the program of the mind is understood to be no more than an algorithm. In this sense it can be seen that the algorithm is arguably one of the most important concepts in today's world. An algorithm is simply a sequence of steps in order to obtain a result – comparable to a recipe. Algorithms surround us on a daily basis as the proprietary black boxes which lie concealed within recommendations on streaming services, hidden beneath the potential partners on dating and friendship apps, and the primary decision-makers as to who receives credit, who is allowed to attend a university, and the order in which one obtains emergency medical care.

According to the transhumanist philosophical position of epistemological certainty, all the algorithms that make up human behavior and personalities will eventually be discovered by science and replicated in technology. Cognitivism is another way of understanding Kurzweil's commitment to patternism from the previous chapter. If a human personality is simply a complicated collection of algorithms or patterns, that personality can be copied and simulated on a sufficiently powerful computer in a post-Singularity world resulting in a kind of digital immortality.

The possibility of copying a human personality to a computer has also been explored by Anders Sandberg and Nick Bostrom. As previously mentioned, this is conceptually referred to as uploading or "Whole Brain Emulation (WBE)." In this process, one's brain state is transferred to a computer system through the scanning, mapping, copying, and storing of the pattern which correlates to one's sense of self. The

uploaded self could then merge with the superintelligent AGI. According to Bostrom, WBE does not entail that the mystery of consciousness or cognition be resolved. Instead, "it requires only that we understand the low-level functional characteristics of the basic computational elements of the brain" (Bostrom, 2014, p. 36). What this all adds up to is a fundamental assumption on the part of these transhumanists: any and all intelligent behavior of a human being can eventually be formalized or externalized in a way appropriate to computer programming.

Hubert Dreyfus, a Heidegger scholar, having applied the insights of phenomenology to AI, has concluded just the opposite: disembodied machines cannot successfully copy the high-level mental functions of human beings. The heart of his argument is that the fundamental assumption regarding AI is faulty. Transhumanists that are committed to AGI and superintelligence state that with enough processing power, they can make every fact about existence explicit, then model it in a computer environment. Dreyfus emphasizes that there is no reason – only a commitment or a faith – which makes us suppose that all the facts about human behavior are already unconsciously explicit in a rule-based framework just waiting to be found, as though human beings are nothing more than vast databases.

Dreyfus argues that this assumption does not square with our own experience. A majority of what makes up the content of our lives is what he calls "transparent coping" (Dreyfus, 1991, pp. 64–67). When we cope with reality in this way, we open doorknobs, stop at red lights, and recognize friends and family without orderly recourse to rules. In the same way that we do not mentally specify the steps of daily activities, the most meaningful aspects of our lives are lived implicitly and unformalized. Dreyfus' insight is to note that when we use equipment, it has a tendency to "vanish." Humans manipulate

things in the world through the mode of the "ready-to-hand" where they are not explicitly perceived, and therefore, not able to be specified via a mental checklist.

The example that is preferred by Dreyfus is that of a blind man's cane. At first, the man will examine the cane, feeling its heft and shape, and inquire about its length and material. But upon using it, he loses awareness of the cane – it becomes a transparent extension of his daily walk. Dreyfus emphasizes that most of our lives take place in the "concerned absorption" of transparent coping. Dressing, working, talking – all take place in this state, while relatively little time is spent in the deliberate mode where we are actively specifying in our minds exactly what we are doing in the way a computer processes a program. Therefore, contra Kurzweil, Dreyfus concludes that there are aspects of the human being that will never be recreated by an AGI (Dreyfus, 1994).

Interestingly, this account also lends credence to the bio-conservative position mentioned in Chapter 1 – especially that of Francis Fukuyama's mysterious "Factor X." While a poor foundation for a philosophy, Fukuyama is trying to specify that which is nonspecific about human beings. In other words, he is trying to put into words that element about humans that cannot be put into words, yet underlies every thought and action. If, on Dreyfus' (and Fukuyama's) account, the onto-logical assumption that every single thing about human beings can be made calculated, scanned, and run explicitly as a program is false, then why does it have such a hold on transhumanists like Kurzweil? Computer scientists are aware that some problems simply do not compute. There are known limits to computation. Yet, the historical narrative of trans-humanism developed in Chapter 2 holds some clues as to the power computation itself presented to the psyche. In light of modern philosophy, calculative thinking – treating any phys-ical system as a complex machine – comes to be applied to a

variety of domains. After Galileo treated motion in terms of rule-bound, isolated objects understood through computable forces, moderns such as Descartes and Kant did the same for the mind. The relation of this ontological assumption about planets to assumptions about the mind is the underlying belief that both can be understood the same way. Yet, underlying this assumption in calculative thought itself is a belief that what is uncertain or unknown is only an epistemological condition.

For transhumanism this means that for any problem, we are yet to discover the rule or law that makes the uncertain, certain. In terms of the mind, we are yet to discover the program that runs in our brain's hardware. The result is a transhumanist claim about the nature of reality: there is no reason to assume any limitation to what we can know or the ways in which the world and ourselves can be transformed and transcended. As Dreyfus and others have suggested, however, this uncertainty may not merely be epistemic: what is in fact a "structure" integral to the human experience is erroneously understood by transhumanists to be an epistemological problem about the limits of knowledge. If there are limits to computation, and human consciousness remains as mysterious as ever, then Kurzweil's attachment to the inevitability of superintelligence despite the evidence against it must be reevaluated. The next section will approach Kurzweil's transhumanism in a manner more related to a religious faith based on the emergence of superintelligence.

4.2 FAITH IN SUPERINTELLIGENCE: AN INEVITABLE SINGULARITY?

Kurzweil believes that superior minds and immortal bodies will be achieved by 2045. He and his followers call this

moment "the Singularity" because it will be a tipping point in which a posthuman civilization centered on superintelligence will spontaneously (and inevitably) emerge. Kurzweil's desire to bring this event to fruition reflects Modern philosophy – especially the thought of Rene Descartes. To Descartes, the development of a "thinking machine" was necessary to rescue the immortal mind from its finite mortal prison. The immortal mind could then evolve independently into higher forms of artificial life, and eventually reunite with its origin – the mind of God.

As shown in the previous section, there are deep-seated philosophical issues that need to be resolved before even a human-level AGI might appear. Nevertheless, Kurzweil clings to the idea that an artificial superintelligence is just over the horizon by providing a simplistic trajectory of six epochs leading to the emergence of a superintelligence, and culminating in the Singularity. The arguments Kurzweil presents for this inevitability contain significant gaps, and raise the question of how his confidence in superintelligence is to be understood: as a rational, science-based account, or as a teleological narrative driven by a faith in a final redemption?

Kurzweil's narrative of inevitability begins with a reinterpretation of technological growth. On Kurzweil's account, technology does not progress linearly – it is exponential. Therefore, future technological change will occur much faster and more frequently when compared to the present. The model of technological change that Kurzweil favors is a series of epochs that describe an evolutionary history of information storage (Kurzweil, 2005, pp. 9–10). In Epoch One, "Physics and Chemistry," information is stored in atomic structures, but in Epoch Two, "Biology," information is stored in DNA. Between that stage and Epoch Three, brains evolve and information is now stored in neural patterns. From there, technology evolves in Epoch Four, wherein information is

stored in hardware and software. The evolution of technology leads to Epoch Five, which, on Kurzweil's account, begins the process of the Singularity. Here, "technology masters the methods of biology" – including human intelligence.

The technological mastery of intelligence is what Bostrom defines as the ability to create a superintelligence in any domain of interest. Epoch Five, our current epoch, is signaled by the beginning of technology's merger with human intelligence, and culminates in the emergence of superintelligence. As the methods of biology are further integrated into an exponentially expanding technological base, the result will be Epoch Six. Epoch Six is an era of vastly expanded intelligence which is predominantly non-biological, and spreads throughout the universe. As Kurzweil subtitles it, in Epoch Six, "The Universe Wakes Up." Patterns of matter and energy become saturated with intelligent processes, and, according to Kurzweil, this is the ultimate destiny of the universe: to infuse the entire universe with posthuman superintelligence.

Kurzweil also notes that the Singularity will allow for a transformation into "spiritual machines," where one is able to "resurrect" their mind within a computer and allow for limitless intelligence (Kurzweil, 1999, p. 10). Though speaking in terms of information, identity, and intelligence, Kurzweil is superimposing those concepts onto an account of bodiless resurrection analogous to Christian prophecy. At the same time Kurzweil, like other transhumanists, steadfastly claims to be grounded in reason and empiricism – rejecting faith – in order to carry the legacy of Modern philosophy forward.

At the same time, Bostrom acknowledges a connection between transhumanism and faith-based arguments.

> *Depending on what our views are about what constitutes personal identity, it could be that certain modes of being, while possible, are not possible for*

> *us, because any beings of such a kind would be so different from us that they could not be us. Concerns of this kind are familiar from theological discussions of the afterlife.*
>
> (https://nickbostrom.com/ethics/values.html)

Bostrom is affirming that the language surrounding a teleology based on an unimaginable posthumanity is theological – it requires a faith in a future transcendent mode of being that cannot be understood because of current human limitations. An appeal to faith also explains the crudeness of Kurzweil's framework which explains the desire to create a vision of superintelligence for the purpose of showing that humans have run their historical course. This is a faith in a future where humanity as we know will no longer be relevant. Merging with the post-Singularity superintelligence, therefore, becomes a prophetic imperative.

Kurzweil is explicit about this imperative in the documentary *Transcendent Man*. He sums up his view by stating how anyone resisting a merger with machines will be resisting evolution, and that they will eventually they will die out as a species. Thus, the Six Epochs are not only an account of evolution that Kurzweil wants to establish. Rather, they are established to be taken as "proof" that resistance is futile in the face of humanity's immanent replacement.

Kevin Kelly, the co-founder of the tech magazine *Wired*, agrees with Kurzweil's faith. He calls the evolution of technology the "technium," and determines it to be an autonomous force with its own agenda – a continuation of a 4-billion-year-old force that pursues more ability to evolve. Speaking of technology as a global entity, evolution, when equated with the technium, exists to search the world for ways to accelerate. Kelly asserts that this has equipped the human brain with the "answer" to the superintelligent evolving of

evolution: creating a system that can gain the complexity necessary to direct evolution itself. Yet, if both Kurzweil and Kelly believe this technological event horizon to be inevitable, this raises the question as to why an account of epochs is necessary at all?

From Kurzweil's perspective, the Singularity will occur in only 26 years. There ought to be signs that transhumanists are approaching the creation or discovery of a posthuman machine superintelligence poised to take over evolution. At the time of this writing, the closest thing to a true artificial general intelligent humanoid is Sophia the Robot. Sophia can joke, make facial expressions, and possesses a personality that some researchers have interpreted as a soul (https://futurism.com/artificial-intelligence-hype). Sophia represents the kind of machine intelligence that Kurzweil predicts will lead to the emergence of superintelligence. Sophia the Robot was created by Hanson Robotics, yet the machine's intelligence is comprised of a sophisticated neural network provided by SingularityNET – a company based in Hong Kong and led by Kurzweil-disciple Ben Goertzel. As such, this robot lends itself to an initial analysis in light of Kurzweil's predictions.

The sophisticated technology that forms Sophia's neural net allows the robot to learn from interactions, and mirror emotional responses. However, Hanson Robotics has never claimed that Sophia possesses AGI. In fact, Hanson has stated that it is unfortunate when people attribute greater ability to Sophia than the robot is actually capable (https://futurism.com/artificial-intelligence-hype). The company emphasizes that Sophia as a system is not meant to be taken as representative as a pure computer science research system (https://futurism.com/artificial-intelligence-hype). Yet, they do not mind the benefits of the added "hype," and encourage it as a sign that one's faith in Kurzweil's predictions are not misplaced.

However, Sophia represents the *appearance* of an AGI, rather than its actualization. Still, the immense publicity that this project has received only serves to further evoke a sense that true AGI, able to interact at a human-level and simulate consciousness, is just around the corner as Kurzweil predicts. One of the main reasons for the confusion is that Sophia appears to communicate creatively and effectively, and to continue learning over time. In actuality, Sophia, like other AI systems for autonomous cars, completely cease learning before they are put to use.

On this point, Goertzel has admitted that in the televised dialogues with Sophia, a majority of the script was written in advance. The best machine learning systems are generally doing what Sophia and self-driving cars do: memorizing and running statistical models in order to maximize the best outcome according to parameters. To call this approach response "learning" is to anthropomorphize machines that operate in ways very different from how human brains work. Training an algorithm to "learn" to add two numbers means that it will generate the answer with the best probability from the table that it was "taught" from, yet it will not understand the meaning behind the operation.

This method of programming extends from the benign world of simple math to the complex calculations required to safely drive a car. Autonomous vehicles are programmed with what cultural theorist Roberto Simanowski calls "the death algorithm:" the steps taken by the driver-AI to determine the correct response in a situation requiring a life-and-death decision. What AGI cannot do, and, according to Dreyfus, will never be able to do, is to understand addition or the meaning of death from its "learning." The reason for this is simply that the AI was trained to add or compute a best-case scenario, and not understand the meaning of its choices.

The ability to experience meaning is a hallmark of human consciousness. The charge of conflating symbol manipulation with the experience of meaning is the charge leveled against Kurzweil by philosopher John Searle. Searle's famous "Chinese Room" thought experiment calls into question the philosophical assumption behind AI, namely, that a program can equip a computer with the ability to understand meaning.

In the experiment, Searle supposes that a computer has been constructed to act as if it understands Chinese characters. Chinese characters are input through dialogue, and by following programmed instructions, responses are output through more characters. The computer in the experiment is then considered to have been successful at passing the Turing test – it convinces a native speaker of Chinese that they are speaking to human being. Searle's experiment is meant to raise a simple question: is symbol-manipulation tantamount to human understanding? In other words, how do we determine if the machine understands the meaning of Chinese, or is merely simulating the ability to understand Chinese through symbol manipulation? (Searle, 1980) Searle and Dreyfus do not think the machine experiences meaning, yet Kurzweil is unequivocally affirmative:

> …*if we teach a computer Chinese, it will understand Chinese…I am not talking about a simulation per se but rather a duplication of the causal powers of the massive neuron cluster that constitutes the brain.*
>
> (Kurzweil, 2005, p. 463)

On Kurzweil's account, simply recreating the causal powers of the brain, which is to say, recreating the input/output pattern of information in the brain, is the same as understanding the meaning of whatever is being input/output. Curiously, Kurzweil then goes on to say that the neural details

which make up the causal powers of the brain have no meaning in and of themselves – neither do the symbols, nor their manipulation. Where, then, does meaning and understanding come from?

Again, Kurzweil offers an answer more closely related to faith than reason:

> *The meaning and understanding that emerge in the human brain are exactly that: an emergent property of its complex patterns of activity. The same is true for machines…emergent patterns have the same potential role in non-biological systems as they do in…the brain.*

> (Kurzweil, 2005, p. 463)

Kurzweil is arguing that meaning and understanding simply emerge from a brain, whether human or machine, when the parts are put together in the right way. The theory of emergence, or self-organization, has been applied to the fields of philosophy, systems theory, and art. The theory generally consists of the idea that properties might emerge from the interaction between the parts of a system which the parts themselves are not capable of producing on their own. The idea of emergence as an account of a totality which expresses behavior different from its particular elements is an important aspect in the philosophy of mind. Philosophers such as Thomas Nagel, for example, argue that mental phenomena are not reducible to physical states, but emergent expressions of them. Kurzweil's faith in emergence, however, goes farther than theorizing about mental phenomena – he believes it is possible to reverse engineer the brain and recreate the emergence of mental phenomena artificially.

Kurzweil does not seem to realize that the theory of emergence is an account of the complexity of distributed systems which affirms the limited ability of intelligence to

understand what may be causing certain phenomena. Rather, Kurzweil is using a theory meant to describe an explanatory gap as the basis for his theory of explanation. This demonstrates the element of faith at work in Kurzweil's thought. If he can reverse engineer the brain, and recreate the parts of the brain with enough complexity, then somehow an artificial being that understands meaning will spontaneously emerge.

Dreyfus sees human beings as doing much more than symbol-manipulation in order to arrive at the meaning and understanding of their world. For this reason, he states that the tools of AI may not ever fit the job of recreating human or greater-than-human understanding. Like trying to use the rules of quantum mechanics to understand the grammar of a novel, the nature of the problem – creating human intelligence out of nonhuman components – prevents its solution. In the face of these kinds of obstacles, both ontological and practical, Kurzweil's prediction of a Singularity in 2045 is best understood as a matter of faith.

This faith has been called a "simulation theology," yet "singularity theology" is more appropriate (https://nplusonemag.com/issue-28/essays/ghost-in-the-cloud/). The Singularity as a movement, comprised of "singularitarians," is a transhumanism that is more correctly described as a secular religion that promotes a messianic vision of superintelligence. This point is not lost on Kurzweil who chose to title his book, *The Singularity is Near* – a play on John the Baptist's apocalyptic cry, "the kingdom of Heaven is near!" From this point of view, it makes no difference whether the emergence of posthuman superintelligence is a realistic prediction or a plausible prophecy.

The Singularity inevitably finds itself functioning psychologically, socioculturally, and philosophically like any other faith-based belief system. Kurzweil's speculation, then,

functions as a transhumanist religion for a technoscientific twenty-first century. Superintelligence and the Singularity represent the possibility of a heavenly posthuman future. Faith in that future is meant to generate activity that changes the way humans think and act in the world today. The belief that the Singularity will solve the intractable problems of human uncertainty and the mystery of consciousness creates a momentum in the present. That momentum is sustained by those committed to a vision of the future in which the believers are transfigured into posthumans who will forever exist in a paradise which is currently incomprehensible.

Engineering greater-than-human intelligence is not the only way that transhumanists wish to create an ideal posthuman future. Closely related to the search for superintelligence is the quest to end psychological pain and suffering. Rather than being sustained by a faith in the possibility of summoning the Singularity, David Pearce's proposal for super well-being culminates in a posthuman who has had their ability to experience suffering "edited out." This is Pearce's ideal future wherein posthumans will no longer be able to relate to those who do not experience a positive sense of well-being at all times.

4.3 ENGINEERING A PERFECT WORLD: INFINITE WELL-BEING

Max More writes that the frequency with which critics talk of transhumanists wanting to "perfect" human beings suggests they have not read much transhumanist literature. He acknowledges one exception to his claim – David Pearce's utopian goal of eliminating all suffering. Pearce's *Hedonistic Imperative* outlines a future based on nanotechnology and genetic engineering with two primary goals. First, radical

technologies should be used to eliminate aversive emotional experience from the living world with the intent to "eradicate completely" the biological substrates of suffering. The "negative" version of Pearce's goal is called "abolitionism," and refers to the aspiration to create a world devoid of pain. The "positive" version of Pearce's vision is "paradise engineering." Second, not only is suffering to be eradicated, but well-being is to be increased without limit. Thus, Pearce's transhumanism combines with utilitarianism to seek the creation of a posthuman being through "hedonic engineering" (https://www.hedweb.com/transhumanism/critique.html).

Hedonic engineering is a three-step biochemical process to rid the world of suffering. The first, "wireheading," is the implantation of microelectrodes into a person's brain in order stimulate the pleasure centers on demand. However, Pearce warns that this "indiscriminate bliss" is only a viable option for only the few most extremely depressive or psychotic individuals. The idea of rewiring a person's brain is claimed by Pearce to be more of a provocative example of the technology that is currently available to meet his goals. The second and third options are the prime interventions for ending suffering, and represent Pearce's adherence to transhumanism. To get rid of suffering on a mass scale, designer drugs will be developed that will provide a constant feeling of well-being without unacceptable side effects. Pearce considers these designer drugs to be the logical continuation of drugs like Prozac and other antidepressants. Unlike contemporary drugs, Pearce sees designer drugs as being tailored to the individual's unique biochemistry, and not only supply a constant good mood, but cerebral, empathetic, aesthetic, and spiritual sense of well-being.

The only lasting solution to the problem of suffering, however, is the third option of genetic engineering. Since suffering is an aspect of human nature, the final work-around

is altering human nature with somatic and germline therapy. Pearce notes that much research is already devoted to the genetic causes and correlates of depression, schizophrenia, cancer, and even obesity. Once the genes for various types of suffering are identified, then genetic screening, germline therapy on parents and embryos, and somatic gene therapy on the suffering themselves will target and eliminate their mechanisms.

Bioconservative Francis Fukuyama worries that Pearce's desire to genetically engineer suffering out of humanity will not be necessary – that everything that genetic engineering might accomplish will come sooner through the second intervention of neuropharmacology. He suggests that when it is possible to manipulate the endogenous opiate system to decrease sensitivity to pain and increase the threshold of pleasure, arguing against its use would be extremely difficult.

> *If tomorrow a pharmaceutical company invented an honest-to-God Huxleyan soma tablet that make you happy and socially bonded…it is not clear that anyone could articulate a reason people be shouldn't be allowed to take it.*

> (Fukuyama, pp. 52–56)

By referencing Huxley and soma, it is clear that Fukuyama's main objection to Pearce's hedonistic transhumanism is that it too easily becomes a method of pacification for the populace – a means to social control. Soma was a mild hallucinogenic used by the authoritarian government presented in Huxley's *Brave New World* to keep the members of its society from objecting to its policies. Whereas Pearce wants to see a continuity in the use of drugs to treat depression and the use of drugs to boost the happiness of the nondepressed, Fukuyama wants a more clearly delineated line between the two.

Without this clear separation, Fukuyama sees the socio-political implication that so-called negative and painful human emotions such as guilt and shame, but also outrage, could systematically be edited out. Once Pearce's hedonistic engineering reaches a certain biochemical understanding, the brain's pleasure switches can be modified at will. As a result, even the aversion to his transhumanist views could be edited out.

Pearce argues that the goal of democratic society should be to enact policy to use these technologies to increase citizen happiness to its maximum limits and beyond. The *Hedonistic Imperative* states that its transhumanist aim is to make all people "hyperthymic." Hyperthemia is a rare genetic mutation that gives its carriers an unusually resilient, positive disposition. For Pearce, hyperthymic people are extraordinarily happy, yet still able to respond and to adapt to their environment appropriately.

Still, Pearce concedes that even hyperthymic people do feel sad, and are subject to a certain degree of suffering. He has suggested that this is merely an evolutionary holdover. Pain and suffering have played an important role in motivating humans to seek to avoid harm. However, Pearce believes it is possible to recalibrate the motivational structure of the human brain. This recalibration would continue to keep the "harm avoidance" (or any self-sustaining behavior) structure of the human being intact, but base it on gradients of well-being alone.

From Fukuyama's point of view, Pearce is suggesting not a narrowing of human suffering – but a degrading of the human experience. He argues that the lesson to be learned from soma and *Brave New World* is that humans should continue to allow themselves to suffer – that suffering has meaning. While he notes that no one ever got elected on such a platform, Fukuyama is pointing out that the goal of eliminating

suffering is problematic: hedonistic engineering ignores the value of insecurity, anxiety, and uncertainty.

To Fukuyama, contemporary cultural achievements like great artworks are all the outcome of these "negative" aspects. He further suggests that what humans consider to be the highest and most admirable qualities in oneself and others are all related to the confrontation with suffering. The way we react to, confront, overcome, or succumb to pain, suffering, and death define the presence or absence of sympathy, compassion, courage, and character (Fukuyama, p. 173).

Fukuyama's point, then, is that these positive traits would not have been possible without the allegedly "negative" motivation that suffering provides. The deeper point, however, is that the complexity of our emotional nature, just like the complexity of our intelligence and consciousness, makes it very difficult to distinguish "good" and "bad" emotional states. Nevertheless, somehow, Pearce claims to be able to do precisely that with his ambitions for super well-being. The next section will look at Pearce's transhumanism as a desire to "play God." From there the specter of nihilism lurking within transhumanist philosophy will more fully emerge: where does meaning come from in a world which consists only of pleasure gradients?

4.4 PROBLEMATIZING TRANSHUMAN HEDONISM

Philosopher Adam Riggio questions the idea of "gradients of well-being" by arguing that Pearce's project represents "something no less petty than the most intense everlasting session of masturbation conceivable." Riggio argues that a life which consists purely of pleasure is not desirable. Like Fukuyama, he cites the reasons for humans to improve themselves – suffering, toil, frustration, struggle – are

necessary motivators. Coming up against limitations is painful, but part and parcel to striving, and therefore, finding the willingness to change one's behavior. Riggio concludes that the realization of the transhumanist vision is a society without striving, where we can be rewarded for, as he states, being "the same old jerk." If we can recalibrate the brain to experience gradients of well-being even for negative behaviors, then essentially we are removing the opportunity for negative reinforcement. To Riggio, Pearce's vision is tantamount to saying humans ought to just plug machines into our bodies to do all the hard work for us (Riggio, 2015).

The argument Riggio presents is based on Robert Nozick's thought experiment of the "experience machine" developed in *Anarchy, State, and Utopia*. The difference is that we do not plug Nozick's machine into our bodies – we plug our bodies into it. The result would be any experience a person could desire, given endlessly for the rest of one's life. This thought experiment is meant to provoke an answer to the following question: are there experiences which matter more than pleasurable stimulus? Nozick states that if all that mattered was pleasure, then we would do anything to plug into the experience machine. Yet, there are those like Riggio who do not want to give up his life and plug in. Thus, he suggests that there might be reasons not to engineer beings and societies solely based on the seeking of pleasure and the avoidance of pain.

This conclusion, however, raises the further question of just how much suffering is a person supposed to experience? For Pearce, there are three different kinds of suffering that must be addressed. To begin with, there is physical pain. Pain, like intelligence, is challenging to define due to its intensely subjective nature. However, it is generally regarded as an unpleasant physical and psychological experience associated with a region of the body. The second type of suffering he

challenges is that caused by abnormal brain chemistry, such as depression and mental illness. The third type of suffering is "ordinary suffering" as a result of being human – the angst generated by uncertainty, and the unhappiness of not having desires met. Jeremy Bentham's "hedonic calculus" originally provided a method within utilitarian ethics to literally calculate pleasures over pains for the purpose of selecting the right actions. Yet, Pearce dispenses with the calculative aspect of Bentham's hedonism: the answer to how much of each type of suffering a human being should experience in their life is always zero.

By advocating for the bioengineered elimination of human suffering, Pearce's transhumanism mirrors Julian Huxley's original vision. Huxley's transhumanism was conceived along the lines of eugenics, where the state would reserve the power to make genetic interventions favorable to certain traits – returning natural selection to its metaphorical roots in artificial selection, and making humans the "engineers" of evolution (Fuller, 2011, p. 103). As the purely biological process of evolution comes to an end and gives way to the human process, Huxley felt that humankind would assume its proper role: "business manager for the cosmic process of evolution" (J. Huxley, 1953). The danger is the false authority that emerges from the "business manager" perspective, and is often referred to in the realm of applied ethics as the charge of "playing God."

Philosopher C. A. J. Coady writes that playing God can be interpreted as going beyond the limits we have by acting in ways that ignore inbuilt constraints on knowledge, power, and benevolence.

> *The God of Christian natural theology is*
> *omnipotent, omniscient, and supremely benevolent.*
> *By contrast human beings are eminently fallible,*

limited in power, and only partially benevolent. They are also tempted to the exercise of undue power over others. This is surely evident to natural reason even if it is the lesson of much religion.

(Coady, 2011)

Thus, "playing God" reflects the problematic nature of assuming the authority to make changes to fundamental aspects of humanity from a limited human perspective.

On this account, Pearce plays God by deciding from his limited human perspective that the removal of all suffering from human experience would be beneficial for all people. Put another way, the idea of playing God in Pearce's transhumanism reflects the "business manager" approach to human beings. He believes himself to be occupying a standpoint from which to judge that genetically reprogramming human beings to never suffer is a benefit. This is tantamount to declaring that all suffering constitutes a human defect. Yet, suffering, the experience of emotional distress, has defined Pearce for his entire life.

Philosopher Martha Nussbaum considers this point from the perspective of Odysseus. When Calypso offers Odysseus immortality, the hero refuses this god-like power since mortal limitations have already defined him. In that sense, "Odysseus" would not be the immortal god – he would be someone else. Similarly, "Pearce the sufferer" is making decisions as though he is able to fathom the experience of "Pearce the nonsufferer," and equating these two versions of Pearce as the same.

By eliminating suffering, Pearce will no longer compare pleasure to pain as he has done previously – an integral aspect to life as he now knows it. Before the posthuman enhancement, the absence of pleasure was determined by a sensation of suffering. Now, the ability to suffer, which defines the

ability to know pleasure, has itself been altered. Pearce acknowledges, however, that he is making an alteration to a fundamental quality which characterizes his experience of the world.

> *…We will lose some primitive, "essential", human attributes. Yet why on earth should this be reckoned a bad thing? Until the development of powerful pain-killing drugs…frightful extremes of physical suffering were simply a part of the human condition.*
>   (https://www.hedweb.com/hedethic/hedon4.htm)

Pearce equates the appearance of temporary pain-killing drugs with his program for the complete removal of suffering in order to further the point made by his quote marks around the word "essential." When confronted with the idea that transhumanism may be playing God with essential human qualities, Pearce seemingly solves the problem by implicitly suggesting that there are no essential attributes. Otherwise, if Pearce were to say that there are essential human attributes, then his idea of the benefit of abolishing all suffering is called into doubt.

For the removal of suffering to be a benefit, it must not eliminate an essential, defining human property. Pearce is arguing for the power to alter human nature by changing the basic fact that humans have a capacity to experience suffering. On his account, this would be a superior posthuman being. Yet, like Odysseus suspects Calypso, Pearce's success means the elimination of suffering would not be experienced by the person who has undergone reengineering. Rather, it would be experienced by "someone else" who can no longer conceptualize pain.

Such an account would have to include the fact that a human being, having lived an entire lifetime able to feel distress and emotional suffering, would no longer be the same

person when they could not experience these feelings. Even if one possesses the will to undergo genetic therapy for super well-being, by eliminating an essential defining property of one's experience up to that point would be the equivalent of suicide – the intentional choice to cease existing (Schneider, 2009).

In this sense, "ceasing to exist" means compromising essential aspects of one's identity. As has been shown, transhumanism wishes to eliminate mortality, limits to knowledge, and with Pearce, the necessity of suffering. If those aspects of oneself are essential, that means they are defining. As a result, to not possess those aspects translates into "you" no longer being "you." Thus, Pearce's solution is to suggest that there are no essential human qualities, and if there are, they are "primitive" at best. Yet, by suggesting that there are no essential human qualities Pearce has opened the door to transhumanism as nihilism.

A utopian world free of suffering is nihilistic on Heidegger's account. In a non-nihilistic age, there are questions that all can agree are important – such as the idea that there are aspects of experience which are essential to humanity. While we may disagree as to what precisely is essential, the idea of "something essential" remains an important claim – again pointing to the necessity of bioconservatives' reliance on nebulous terms like "Factor X." Nihilism, then, is the insistence that there is nothing essential about human beings – the question itself gets thrown out. In this environment, Heidegger argues that people will retreat into "private experience" as the sole determinant of value. Like the hedonistic pursuit of pleasure, private experience will become the only remaining place to find any significance, and Heidegger sees this move as characteristic of the modern age (Dreyfus, 1993).

Pearce's hedonistic engineering proposes omnipresent well-being based on the experience of pleasure as the motivating

factor for any pursuit. Artistic achievement, religious conversion, sexual promiscuity, advanced education – Pearce wishes to see everything expressed as a variation of pleasure. At best, Pearce's argument for utopia is simply that there ought to be a substitution of a biochemical happiness for meaning and purpose. This substitution reflects that the value of Pearce's transhumanism is ultimately nihilism – without an appeal to anything beyond the provisional or contingent, all values are equalized, relativized, and made meaningless beyond how good one might feel as a result.

Generally speaking, this view is in accordance with the current view of the life sciences. Happiness or suffering – both are differing balances of pleasurable bodily sensations. On this account, humans do not suffer when their jobs are automated and taken away, nor do they suffer when a long-term relationship ends. People suffer due to unpleasant sensations. Pearce can advocate a transhumanist moral and ethical system based on gradients of pleasure since happiness is derived by the presence of pleasant sensations only. The danger is that the motivation to achieve anything beyond the happiness of pleasure may wither away, and the hedonistic imperative takes the form of a posthuman who remains constantly plugged into some form of a bliss machine.

Heidegger writes that when all concerns have been reduced to the common denominator of pleasant experience that the modern age will have reached the final stage of nihilism. As a result, pleasure sees "the plunge into frenzy and the disintegration into sheer feeling as redemptive" (Dreyfus, 1993). The 'lived experience…becomes decisive" (Dreyfus, 1993). In other words, when there are no essential human qualities, hedonism becomes essential. Heidegger's concern was that although the private experience of pleasure can provide impetus to act, it cannot give consistency, meaning, and seriousness to a person's life.

From this perspective, transhumanist philosophy faces a dilemma. By making everything provisional, which is to say, contingent on the pleasure it may bring, the value of transhumanism itself collapses. That is to say, it can be argued that the will to sustain transhumanism is negated by transhumanism itself. Could the suffering engendered by working for a transhumanist–hedonist future negate its achievement? For transhumanist Anders Sandberg, this is not a problem – he affirms that the will to change is itself emblematic of human nature. Furthermore, he concludes that "there is no contradiction in having a nature that implies a seeking of its own overthrow" (Sandberg, 2013). Yet, it can be argued that if there is "no contradiction," it is because transhumanism hedonism is nihilism. For example, the principles of transhumanism, which are a commitment to posthumanism and a belief in epistemological certainty, are sustained by a will to transcend and transform the human condition. Whether it is the will to overcome the limits of mortality, the limits of intelligence, or as in Pearce's case, the limits of well-being, the human will is the primary factor. Yet, as can be seen with Pearce, this same will is pushing humankind to develop technologies that redesign one's will, at will.

His argument that suffering should be abolished means that even the suffering caused by a resistance to his view could potentially be replaced with a pleasure gradient. Thus, it is difficult to see anything but nihilism in a world of nonessential qualities that can be continuously reinvented through technological enhancement. The only "value" that would remain would be hedonism – which is precisely what Pearce is proposing. If transhumanism can lead to nihilism, what are the precedents for thinking through the nihilistic consequences of philosophy? To investigate this question, the next chapter will examine the thought of Friedrich Nietzsche in light of transhumanism's ceaseless insistence on the voiding of human limitations.

5

THE ROLE OF THE PHILOSOPHER IN TRANSHUMANISM

This chapter is concerned with the thought of Friedrich Nietzsche in connection with transhumanism. Nick Bostrom rejects Nietzsche as a precursor to transhumanism, while his colleague Stefan Sorgner (Fellow at the Institute for Ethics and Emerging Technologies) claims that there is a deep resonance between transhumanism and Nietzsche's philosophy (Tuncel, 2017). Therefore, it can be seen that Nietzsche's relationship to transhumanist philosophy is a matter of debate, yet there are several key issues that are central to both. This chapter focuses on the concepts of the posthuman in light of Nietzsche's overhuman; transhumanist techno-optimism in connection with the death of God; and Nietzsche's call for the "revaluation of all values" in view of the claim that transhumanism leads to nihilism. An investigation into these concepts will show that the philosopher of transhumanism is one who, like Nietzsche, critiques the values of any religion, morality, or philosophy that negates life as it is given in favor of an unknown and unknowable transcendence.

Through Nietzsche it will be shown that the importance of the philosopher is not to ruminate on "trite truths" about technology, but to question transhumanism's commitments, and especially the possible devaluation of the meaning of being human in favor of a posthuman successor. The chapter begins by considering whether Nietzsche is a proto-transhumanist or philosopher of transhumanism through an analysis of the overhuman. For an adequate comparison to be made between Nietzsche's overhuman and the posthuman, a third concept is required: the last human.

The connection between the last human and transhumanism will then be explored through the example of contemporary cyborg-artist Neil Harbisson. From there it will be suggested that Harbisson's desire for a world of cyborg enhancements reflects a central concern expressed in Nietzsche's philosophy: some ways of life that are taken to be beneficial are, in fact, ways of limiting or turning away from life. Transhumanist philosophy will then be considered in terms of its preoccupation with transcendence. This consideration will be made in light of Nietzsche's confrontation with nihilism, and lead to an account of the role of the philosopher within transhumanism: a philosopher is one who attempts the revaluation of values, that is, who calls into question the meaning of being human through consideration of a range of technosocial identities.

5.1 THE OVERHUMAN: PROTO-TRANSHUMANISM OR CRITIQUE?

Stefan Sorgner's article, "Nietzsche, the Overhuman, and Transhumanism" argues that there are fundamental similarities between the overhuman and the posthuman (Sorgner, 2017).

Sorgner relies on twentieth century transhumanist F.M. Esfandiary's definition of the transhuman: a "transitional human" that serves as a "link" between human and posthuman. Nietzsche could be interpreted as affirming transhumanist values when he claims in *Thus Spoke Zarathustra* that mankind is a link, or "rope" that is "fastened between animal and overhuman – a rope over an abyss." Nietzsche similarly contends that humankind is not a culmination, but a transitional state – something that "must be overcome." (Nietzsche, 2006, p. 7).

For Sorgner, the idea of overcoming the human being is meant to be taken literally. Overcoming humankind is seen as a challenge to develop the technological means to transcend the human body and its limitations. While Nietzsche does not refer to technological enhancement, Sorgner does not exclude the possibility that technology may initiate the transition from human to overhuman. He equates the posthuman with the overhuman by interpreting Nietzsche to be exhorting the people through Zarathustra to realize that they themselves are an intermediary step of "higher" humans. In other words, Sorgner argues that Nietzsche is making a proto-transhumanist claim.

When Zarathustra speaks of the overhuman as representing "the meaning of the earth," transhumanists are those who realize they are the rope over the abyss. Sorgner affirms that transhumanists as "higher" humans are those who wish to permanently overcome themselves by bringing the posthuman/overhuman into existence.

> It is in the interest of higher humans to permanently overcome themselves. The ultimate kind of overcoming can be seen in the overcoming of the human species, and whoever has been keen on permanently overcoming himself can regard himself

> *as an ancestor of the overhuman. In this way, the*
> *overhuman is supposed to give meaning to*
> *human beings.*
>
> (Sorgner, 2017)

Sorgner argues that the transhumanist desire to summon the overhuman provides a value orientation as the meaning-giving concept within transhumanism. He sees the relevance of Nietzsche's thought for transhumanism through the function of the overhuman. The meaning of being transhuman is to realize that the meaning of being human is to create the posthuman. In this way, the overhuman functions as a way for transhumanists to create values based on the goal of evolving a being with greater-than-human capacities.

Sorgner notes the similarity between transhumanism and Nietzsche's thought on the basis of a shared desire to evolve the human being. Sorgner puts forth a recognition of human limitations within Nietzsche's thought, noting that given certain conditions, human beings can transcend their limitations – the species can evolve. Nietzsche himself expresses a certain pessimism regarding this view, however, in that he believes it is possible for humans to make a leap in evolutionary progress provided that the species itself does not die out in the near future. Sorgner takes this suggested leap in human evolution as indicative of Nietzsche's agreement with Bostrom – that it is "naïve" to think that the human condition will remain the same for much longer. Thus, the ultimate overcoming that the transhumanist aspires to on Nietzsche's account is interpreted by Sorgner to be an overcoming of the human species itself.

In this way, when Zarathustra speaks of the greatest thing one can experience as "the hour of your great contempt" (Nietzsche, 2006, p. 6). Sorgner argues for a literal understanding – this should be a contempt for the human species in

its current form. However, if Nietzsche's concept of "the last human being" is examined in light of Sorgner's analysis, doubt is cast on his assertion of Nietzsche as a thinker aligned with transhumanism.

Sorgner sees Nietzsche as offering a philosophy that affirms the desirability of creating a posthuman successor. Yet, Nietzsche presents a critique of the negation of the human for an otherworldly being in Zarathustra's speech "On the Despisers of the Body." Nietzsche emphasizes the role of the body – not as something to be despised or redeemed – but as the vehicle which enables the leap of the overhuman: "There is more reason in your body than in your best wisdom" (Nietzsche, 2006, p. 23). He is reminding his readers that wisdom is found in the body's finitude and limitations. To deny these limits is not what the concept of the overman is meant to teach. On this point Zarathustra says, "I will not go your way, you despisers of the body! You are not my bridges to the overman!" (Nietzsche, 2006, p. 24). In other words, it can be seen that Nietzsche is criticizing a view of the body as a hindrance to be done away with in the pursuit of an ideal.

The condemnation of ideals which devalue this body and this world for another more perfect body and world is the basis for Zarathustra's critique of religion in the eponymously named text. After proclaiming the coming of the overhuman, Zarathustra seeks to teach humankind a "new will" which pronounces the path of the human being as good – no longer content with sneaking to the side of it like the sick and dying-out. Previously, the most significant blaspheme was against God, yet now it is against life itself. Nietzsche argues that a teleology based on an achievable ideal only diminishes the value and significance of humans. This is precisely the error that Zarathustra realizes he made at the outset of *Thus Spoke Zarathustra*: in running away from the world through devotion to an ideal, he was blaspheming against the limits of life and the body.

Nietzsche traces this tendency to divide the world into an "apparent" and a "real" world to Plato and Christianity. For Plato, the world of the senses is not real because it is in flux and subject to death and decay. There is a "real" world beneath the changing appearances – the ideal world of the eternal Forms. Nietzsche considers this idea to be the basis of the Christian religion as well. Christianity substitutes a "real" heavenly world where faith in its existence is rewarded with entrance into paradise. The body and the world as humanity experiences them now, then, are fallen – less real and less important than the body and world attained after death. The present world, then, offers little more than a stepladder to an ideal otherworldly existence.

Nietzsche posits that this split between the real and the apparent has deeply affected the way humans experience meaning. If everything of value is somewhere else transcending the here and now, then values built upon that world beyond reach are fundamentally life-denying. As a result of these Platonic and Christian values, transcendent philosophical attitudes such as those held by transhumanists are able to emerge. The transhumanist sees the world as something to be resented, or, at the very least redeemed – a world from which one should turn away through technological transcendence. Sorgner interprets Nietzsche's overhuman as recommending the very thing he is against: turning away from the value of life here and now by valuing the redemption offered by an invented posthuman world.

To Nietzsche, neither the body nor life is something to be redeemed – whether through technology or otherwise. In this way, Zarathustra comes to restore value to human existence not by overcoming the body, but the split between heaven and earth that results from Platonism, Christianity – and now transhumanism. The posthuman is another "split" between life as it is given and a life characterized by

greater-than-human experiences unable to currently be imagined. To Nietzsche, human life is to be affirmed rather than negated, and this means an affirmation of death, ignorance, and suffering – the human limitations opposed by transhumanism.

Without this affirmation, Nietzsche's worry is that everything becomes equalized – the goal will be to make the world "small," which is to say, completely tolerable in all aspects. Yet, as has been shown, for transhumanism, an ideal posthuman life is precisely the goal. Bostrom describes what it will be like to be posthuman in the following way:

> *You have just celebrated your 170th birthday and you feel stronger than ever. Each day is a joy…You are communicating with your contemporaries using a language that has grown out of English over the past century and that has a vocabulary and expressive power that enables you to share and discuss thoughts and feelings that un-augmented humans could not even think or experience… Things are getting better, but already each day is fantastic.*
>
> (Bostrom, 2013, p. 32)

Bostrom is referring to the life that is indicative of one who has achieved Sorgner's overhuman state. Yet, to Nietzsche, this way of life more appropriately describes the threat embodied in his concept of the "last human being."

> *Then the earth has become small, and on it hops the last human being who makes everything small… the last human being lives longest. "We invented happiness" say the last human beings, and they blink.*
>
> (Nietzsche, 2006, p. 10)

Like transhumanists, Nietzsche's contemporaries looked on the late nineteenth century with unbridled techno-optimism. Yet, Nietzsche saw this as a potentially unprecedented crisis. Science and technology were rapidly displacing Christian values without offering anything in their place. On the one hand, the decadence brought on by technological progress accelerates a loss of illusions that is favorable for the creation of new values. On the other hand, modernity's progress accelerates the flattening and homogenizing of experience. This equalization, the flattening and homogenizing of experience, would ultimately produce the domination of what Nietzsche called the "last human being."

The concept of the last human can be seen as a critique of the goal of transhumanism, which is the lifestyle described above by Bostrom. It can also be seen in the goal of David Pearce's hedonistic engineering where a posthuman "last human being" experiences a life of constant happiness by "making the world small." The world becomes small on a transhumanist account by turning profound experiences such as death, ignorance, and suffering into technical questions with technical solutions.

The attitude of the last human is that of wanting to invent the happiness of an ideal world, yet remaining willfully blind to the consequences of achieving that happiness: the total devaluation of the human being in favor of an unimaginable posthuman successor. In *Zarathustra*, the last human is the one without creative love, without creative imagination, without a desire for anything that is more than themselves. When Nietzsche has the last human ask, "What is a star?" he is symbolizing the one who achieves perfect satisfaction with simple pleasures and comforts. On the basis of that satisfaction, one no longer feels any impetus to go beyond the fulfillment provided by hedonism. In consideration of Nietzsche's critique of the last human, he assumes the role of

proto-philosopher of transhumanism, rather than proto-transhumanist. Transhumanists like Sorgner who appropriate Nietzsche mistakenly believe they are summoning the overhuman, yet their vision is actually that of the last human – the one who lives the longest. Nietzsche, as a philosopher of transhumanism, is not denying that humanity is always in a transition. However, that transition must be oriented to move away from creating values based upon that which negates the value of humanity in the present. For this reason, Nietzsche reserves his personal contempt for the last human, which can be correlated to the transhumanist who desires immortality, infinite intelligence, and continuous pleasure in an effort to obliterate rather than preserve that which is human in the posthuman.

One of the central concerns of Nietzsche's philosophy is the revaluation of values – the attempt to call into question ways in which human beings devalue this life in favor of another life elsewhere. Nietzsche maintains that his philosophy is life-affirming – a philosophy of "cheerfulness" that seeks to overturn the prevailing morality and ways of thinking about meaning. Nietzsche claims that many of the qualities that are considered "good" in life are actually ways of limiting or turning away from life.

In fulfilling their posthuman desire, the transhumanist mistakenly takes Nietzsche literally, and in the process actually becomes the last man whose radical enhancements deny that there is value in the body's finitude. The next section will further connect Nietzsche's concerns to transhumanism through the figure of the cyborg-artist Neil Harbisson. The "eyeborg" enhancement, which Harbisson claims to be an immense benefit, can also be seen as a way of limiting his life. Moreover, Harbisson's desire to accelerate and extend his cyborgization to all people can be seen as a transhumanist response to Nietzsche's concept of the "death of God."

5.2 QUESTIONING CYBORG VALUES

"Cyborg" is a portmanteau of "cybernetic" and "organism," first coined in 1960. The term was proposed in order to refer to an "in-between" being; not exclusively human, but not fully machine. This liminality is used as a conceptual device by Donna Haraway. She proposes a cyborg point of view in which "like any important technology…is simultaneously a myth and a tool" (Haraway, 1989). Cyborg imagery functions largely as an ideal within transhumanism, and offers a model or tool through which to think how humans and technology might one day achieve a seamless merger. Similarly, this section will also utilize the cyborg as a tool to further investigate transhumanism in connection with Nietzsche's philosophy.

According to *The Guardian*, avant-garde artist Neil Harbisson is the first to be officially recognized as a cyborg by a government: the United Kingdom allowed his surgically grafted antenna to be included as a body part in his passport photograph (Jefferies, 2014). Born with an extreme form of color blindness, Harbisson began to research sensor technologies which reinterpreted color frequency into sound vibrations. He then memorized the different vibrations given off by his sensor, and crafted an antenna apparatus that was surgically implanted into his head. Harbisson gives the reason for the procedure as wanting to be "…a different kind of human being…I don't feel like I'm using technology…I feel like I am technology" (Jefferies, 2014).

The reason Harbisson posits for grafting an antenna to his skull is not superficial body modification – it is technological enhancement. Bioconservative Michael J. Sandel characterizes enhancement as the desire to "make ourselves better than well," and Harbisson's antenna qualifies in that it goes beyond restoring him to a previous level of normality (Sandel, 2011). A technological enhancement involves the elevation of

human capacities beyond a given baseline, or, as in Harbisson's case, the creation of a novel ability. Harbisson's antenna allows him to "feel" colors, and thus experience colors in a way that is unavailable to the nonenhanced.

Having associated the frequencies with the names of certain colors, Harbisson's cyborgization has resulted in an entirely new sense: the ability to "feel" what his eyes should see. For example, the antenna, which he calls the "eyeborg," allows him to perceive infrared and ultraviolet. In this way, Harbisson emphasizes that the eyeborg has unequivocally freed him to become "something" else.

It must be noted that Harbisson's restoration of his color sense is not the matter of concern. Rather, what is being questioned is how the eyeborg accelerated Harbisson's desire to replace even more of himself and others with technology. This acceleration of desire can be seen on his website devoted to helping all interested parties become cyborgs. Just above a button titled, "join us," Harbisson writes, "We are the first generation able to decide what organs and senses we want to have" (https://www.cyborgfoundation.com/). In other words, the questions being raised concerning the eyeborg revolve around the intensification of Harbisson's desire to make all people into cyborgs.

Harbisson has stated that the extension and enhancement of the senses should be normalized, and has named the cultural movement which affirms cybernetic redesign, "cyborgism." This radical technological enhancement has immediately exceeded its context: from his own experience of overcoming his color blindness, Harbisson believes all human senses should be open to unlimited technological modification.

Philosopher of technology Peter-Paul Verbeek makes an analysis of the relations between humans and technological embodiment via what he calls "cyborg intentionality"

(Verbeek, 2011). The conceptual distinction being created by Verbeek is meant to show that there are embodiment relations in which no embodiment is perceived – the merging of human and technology results in a new entity, and therefore, a new intentionality. This intentionality describes Harbisson in his identity relation that emerges through the eyeborg. Rather than using the eyeborg, Harbisson's transhumanist philosophy sees him incorporating the eyeborg in order to reconstitute himself as a novel, hybrid being. Harbisson's case raises the question of the boundary between posthuman and transhuman – where does one begin and the other end? When does technological mediation become technological recomposition? Without an answer to this question, Harbisson nevertheless urges all people to adopt a cyborg ethic of their own making. In arguing for the possibility for everyone to become a transhuman cyborg, Harbisson is making a claim consistent with Zarathustra's last human being.

> *No shepherd and one herd! Each wants the same, each is the same, and whoever feels differently goes voluntarily into the insane asylum. 'Formerly the whole world was insane' – the finest ones say, blinking.*
>
> (Nietzsche, 2006, p. 10)

What began as a creative response to a loss of color sense, quickly accelerated into the desire to use technology to enhance any sense and replace any organ – whether a medical issue is present or not. Cyborgism's acceleration of desire is similar to the last human's goal to invent happiness through a world where "each wants the same" and "each is the same." While not everyone will want the exact same upgrade, everyone will nevertheless want to extend their senses beyond the body through technology.

Harbisson envisions a world where cyborgization becomes ubiquitous – everyone should want the sameness of a cyborg upgrade. For example, Harbisson's artistic partner, Moon Ribas, has a seismic sensor implanted in her feet that allows her to feel earthquakes anywhere on the planet in real time. Her implants can also feel seismic activity on the moon by translating signals received from space into vibrations, thus becoming a "senstronaut." Ribas believes that by showing people the possibility to extending their senses, all humans will eventually want to become cybernetic senstronauts. To reach this goal, Ribas and Harbisson cofounded the Cyborg Foundation – an international organization that aims to help all people become cyborgs, as well as the Transpecies Society – an association that defends those with nonhuman identities (https://www.cyborgarts.com/).

Nietzsche critiques the acceleration of desire brought on by technological progress from the perspective of the nineteenth century. He sees the science of his time driven by a "mania" for finding balance and achieving sameness. In the *Genealogy of Morals*, he writes critically of this spirit – what he calls an insatiable struggle for control over "animals, nature, and gods," and the "completely unscrupulous inventiveness of technicians and engineers" (Pearson, 1997, p. 22). This critique applies to the transhumanist ambitions of Harbisson and Ribas – their "inventiveness" results in new posthuman senses acquired for their own sake, and results in a belief that sameness is beneficial. To Nietzsche, this use of science and technology is simply another mode that treats the human condition as something to be escaped from, yet it is also symptomatic of the "death of God" and the resulting appearance of the ascetic ideal.

The parable of the madman in *The Gay Science* lays out the death of God in which Nietzsche describes a person who enters a marketplace and summarily declares that God is

dead. The significance of this passage appears when Nietz-sche states who has killed God: "We have killed him – you and I...Is not the greatness of this deed too great for us?" (Nietzsche, 1974, p. 181). By asking if this deed is too great, Nietzsche signals that even though we have supposedly "killed" God, we have not done away with the need for God.

The cyborg functions as a substitution for God within Harbisson's implicit transhumanist philosophy. Though God is dead, we nevertheless cling to an ideal despite His absence – we continue to substitute endless gods in His place. By creating gods such as cyborgs to "save" humanity from its imperfections, Nietzsche suggests that this is an ascetic attitude expressive of a revulsion toward the limited human condition. The ascetic ideal, then, represents the continued adherence to a value system that treats human qualities as a collection of technical problems to be solved.

> It is absolutely impossible for us to conceal what was...given its direction by the ascetic ideal: this hatred of the human...this horror of the senses...this longing to get away from appearance, transience, growth, death, wishing, longing itself.
>
> (Nietzsche, 1974, p. 33)

Transhumanist philosophy as presented by Harbisson's cyborgism qualifies as an ascetic ideal in that it is a literal "horror of the senses" – the senses ought to be extended and expanded beyond bodily and planetary confines. The ascetic priest is described in *Genealogy* as having managed to persuade himself that this world and this body are only bridges to another world (Pearson, 1997, p. 33). This other world will be their reward for their ascetic ideals – a world of much greater pleasure.

Transhumanist philosophy, insofar as it centers on the belief that humans are in transition to the world of the posthuman, reflect ascetic ideals. For the ascetic, the organizing principle of their beliefs is the idea of a "world beyond" – the split between the apparent and the real. As new gods are created through science and technology to substitute for the death of God, the split remains intact. Nietzsche associates the ascetic ideal with nihilism, and the function of nihilism is negation and reactivity.

The source of nihilism is constant, reactive negation, and this is the basis of a Nietzschean analysis of Harbisson's cyborgism. In Nietzsche's thought, there are essentially two forces at work which form the sources of value: the active/affirmative and the reactive/negative. Nietzsche thinks of the body as a field of forces in relations of tension – every force is related to all others and either commands (active) or obeys (reactive). What defines a body, then, is its tendency to be dominant or dominated. While remaining careful not to reify the overhuman as a new ideal, it is safe to say that the overhuman lives a creative, affirmative life, while the last human lives a reactive, negative life.

Nietzsche criticizes reactive values as a source of nihilism in that they are always a response to the domination of the active. However, as seen in the ascetic ideal, allowing oneself to be dominated does not imply the absence of power. One receives power by defining oneself through adaptation to the active. This is how power functions within transhumanism – especially through Harbisson's cyborgism. It is the power of adaptivity that manifests through radical technological enhancement. This power is derived from a desire to negate the senses as they are given, and in this sense, transhumanism is essentially reactive in its stance toward human beings.

This reactivity is a reaction against the limits imposed by our biological heritage. As such, even the creativity of cybernetic

enhancements can be characterized by what Nietzsche calls an "instinct of revenge." In *The Will to Power,* he writes that a spirit of revenge against existence as it is given imprints all metaphysics, psychology, history, and morality. Deleuze interprets Nietzsche to be saying that the instinct of revenge constitutes the essence of our thinking, and the philosopher of transhumanism must seek to create ways of thought that do not center on taking vengeance against the given.

5.3 NIETZSCHE'S PHILOSOPHY: THE REVALUATION OF VALUES

Nietzsche's philosophy grew out of a time period in which new technologies were transforming people and society, conservative elements held social positions and political power, and science was seen to be displacing religion. However, Nietzsche was convinced that the "transcendent" aspects of culture and humanity were not transitioning to the heights, but remaining in the depths insofar as they continued to perpetuate "philosophy's longest error." For Nietzsche, this meant that even after the death of God, people nevertheless continued to create "gods" which supplied meaning by continuing to split the world into the "real world" and the "apparent world." Nietzsche's writings, then, are directed toward a "higher humanity" who grasps that there is only one world, and sees the error in sourcing values in a person or place beyond this world. One is then able to embark on a process that seeks the revaluation of values, aiming to affirm life even in the absence of transcendent meaning. The name given to this higher person was a "free spirit." The free spirit is Nietzsche's hope for a philosopher for the future.

Walter Kaufmann interprets Nietzsche's revaluation of values as not necessarily leading to the creation of new values,

but creating a stance from which to make war against accepted valuations (Kaufmann, p. 111). Nietzsche later elaborates that the revaluation of all values is a "formula" for the self-examination of humankind. The substance of this examination is found in its opposition to the "mendaciousness of millennia." To stand in opposition to mendaciousness is to become conscious of the nihilistic tendencies lurking beneath seemingly optimistic values.

Becoming conscious of the distinction between a real world and an apparent world is the first step toward ending this dualistic view, and is considered by Nietzsche to be the "zenith" of humankind. The distinction between real and apparent begins to break down when the unquestioned acceptance of a real world informing the value of the apparent world is examined. However, this should not suggest that the revaluation of values simply substitutes a preference for the apparent world over the real. Rather, what the free spirit as the philosopher is hoping to accomplish through the diagnosis of two worlds is to abolish the dichotomy between the real world "over there" and the apparent world "right here."

For Nietzsche, one of the "all too human" impulses that the free spirit must overcome is the tendency to be seduced by a more perfect other world. Writer Meghan O'Gieblyn affirms Nietzsche and connects his point to the present when she writes of the power of trading the obedience of Christianity for the obedience of Kurzweil's version of transhumanism.

> It's strange, in retrospect, that I was not more skeptical of these promises. I'd grown up in the kind of millenarian sect of Christianity where pastors were always throwing out new dates for the Rapture. But Kurzweil's prophecies seemed different because they were bolstered by science (O'Gieblyn, 2017).

Even though Kurzweil's claims were backed up with a scientific narrative, they still recreate the problem that the philosopher seeks to make explicit. By downloading the brain into a computer, the human condition is being transcended – the apparent world of the flesh is being thrown off for a real world of digital immortality. Stefan Sorgner, by taking Zarathustra's question about overcoming literally, believes like Kurzweil that the human species as a whole is to be transcended. Yet, in the section of *Zarathustra* titled, "On Self-Overcoming," Nietzsche does not write that I must overcome the human species (Nietzsche, 2006, p. 6). Rather, he writes that "I am that which must always overcome itself" (Nietzsche, 2006, p. 6). The freedom of the free spirit is something that one must achieve, and the challenge is centered on self-overcoming – overcoming the need to latch on to that which is promised by another world and other body.

Overcoming, or überwinden, is one of the fundamental ideas of Nietzsche and key to understanding what a free spirit must do to become free. In *Ecce Homo*, Nietzsche explicitly seeks to resurrect the free spirit, which is to say, the spirit of Voltaire, which he felt had been eclipsed by the pessimism of Romanticism. Voltaire was Nietzsche's exemplary free spirit, as indicated in *Human, All Too Human* ("A Book for Free Spirits") to whom the work was dedicated.

Voltaire's life was spent attacking dogmatic thinking and the lifestyle of uncritical acceptance. Such freedom was sourced in Voltaire's rational wit that formed the basis of his self-overcoming: the ability to subject even his most cherished ideas to intense scrutiny, and not retreat from honesty. To free oneself, to overcome oneself, is the prerequisite for the revaluation of values. This conception of overcoming, not as overcoming the human species – but as overcoming oneself – also explains why Nietzsche would not equate the overhuman and posthuman.

The posthuman does seem to resemble the overhuman, and the figure of the overhuman does prize the kind of sovereignty of self that the posthuman strives to attain over oppressive forces such as death, ignorance, and suffering. However, the overhuman's overcoming poses different conditions for transcending limitations than is supposed by transhumanism. Rather than finding new technological ways to overcome limits, the overhuman challenges the way in which any particular worldview or value system establishes an ideal being.

The transhumanist ideal of the posthuman does not conform to the overhuman simply because constant self-overcoming is meant to preclude the emergence of an ideal that represents an "end goal." The new image of the philosopher that Nietzsche wishes to present is the Dionysian who delights in self-overcoming through a constant questioning and thinking. Such a philosopher is the one who understands the principle in direct contradiction to the transhumanist desire to cast off the body: *amor fati*.

Late Nietzsche repeatedly expresses *amor fati* as a principle of the free spirit's inner nature – a "love of fate." This is to say, a love of life as it is, and not devalued by a posthuman or a paradise. Thus, the revaluation of values is premised on a view of the human being that nothing may be subtracted, and nothing is dispensable. In so doing, the role of the philosopher is reflected in Nietzsche's hammer – it is not a sledgehammer as usually suspected, rather, it is a small hammer sounding out what is hollow and nihilistic.

It is for this reason that Nietzsche repeatedly stresses that he does not want believers or followers. This point is reflected in Zarathustra's chiding that those who listen to him are "failures." In the preface to *Ecce Homo*, he writes, "Above all, do not mistake me!" (Nietzsche, 1989). This exhortation suggests that transhumanist philosophy does not serve well as

a vehicle for Nietzsche's thought. As soon as transhumanism begins to advocate for the creation of a posthuman species, a nihilistic devaluing of human beings and a splitting of worlds takes place. To suggest a role for the philosopher of transhumanism is not to assume there might be some completely objective outside standpoint from which to critique the issues. Rather, it is to resist the nihilistic tendency at the heart of transhumanism: placing meaning in a posthuman world beyond wherein one stores up their treasures in a heaven of perfect simulation.

Nietzsche emphasizes that suffering is the discipline which produces all human "enhancements" in *Beyond Good and Evil*. Yet, for transhumanism, its technological enhancements affirm a world without the need for suffering – a world of the last human. In other words, transhumanism's response to suffering is to edit it out of the human. Yet, taking Nietzsche's approach, the philosopher of transhumanism is right to affirm suffering exists, and not to relegate it to a paradise or afterlife. The next chapter will continue the project of comparing transhumanism to other philosophies in order to more closely examine transhumanist philosophical commitments. The next chapter is devoted to an exploration of Buddhism's approach to human finitude and suffering in light of "Buddhist transhumanists."

6

TRANSHUMANISM AND BUDDHIST PHILOSOPHY: TWO APPROACHES TO SUFFERING

The previous chapter investigated the connection between Nietzsche and transhumanism in order to conclude that, despite claims to the contrary, Nietzsche's thought provides a model for the philosopher of transhumanism as opposed to being proto-transhumanist. Nietzsche's outlook gives an indication of what the philosopher may offer transhumanism, despite the claims of those like De Grey and Kurzweil who suggest that technological enhancement will itself be the solution to philosophical problems.

This chapter will also perform a comparative analysis by looking at the relationship between Buddhist philosophy and transhumanism. Both philosophies recognize that the human condition is marked by suffering as a result of impermanence. Transhumanists and Buddhists also agree that pleasant sensations disappear nearly as fast as they arise, and that as long as people crave pleasant sensations without experiencing them, they will suffer. The solution to suffering from each perspective involves challenging the sense of a limited self.

At the same time, however, Buddhist philosophy and transhumanism take two radically different approaches to how the self should be reconceptualized in order to overcome suffering. Buddhist philosophy emphasizes a deconstruction of the self, while transhumanism prefers enhancing the self with technology. As a result, while Buddhism may initially seem like a complementary philosophy to transhumanism, it is more appropriately seen as an alternative to transhumanism, and therefore, as a lens through which to examine transhumanist philosophy.

This chapter explores Buddhist philosophy's relation to transhumanism through an analysis of Buddhist transhumanists and the Cyborg Buddha Project (CBP). CBP is a project of the Institute for Ethics and Emerging Technologies (IEET) led by Buddhist transhumanist and former monk James Hughes. The primary claim of CBP is that Buddhism and transhumanism are not contradictory. Rather, they are complementary approaches to overcome suffering and realize a transcendent way of being – with the assistance of contemporary science and technological enhancement (LaTorra, 2015). Hughes establishes the compatibility between both philosophies by arguing that the Buddhist tradition asserts that each human being is capable of achieving a superhuman state through their individual efforts.

The chapter outlines the basic ideas of Buddhist philosophy as they relate to Buddhist transhumanism in order to question the goal of "achieving a superhuman state." First, the concept of the self within Buddhist philosophy will be presented in light of Hughes' transhumanist interpretation. Both transhumanism and Buddhism take issue with an essentialist concept of the self. The doctrines of *skandha* theory and dependent origination will be explored in order to arrive at the Buddhist "no-self" view, and this view will be examined

in light of Hughes' cyborg Buddha concept. It will be argued that Hughes wrongly interprets this view of the "empty" self as a license to morphological freedom that culminates in enhancing oneself into a posthuman Buddha.

From there, it will be considered that Hughes and Buddhist transhumanists fail to "empty emptiness," and instead of challenging the reality of the self, simply create another self in the form of the posthuman. As a result, a tension emerges in which transhumanism conflates ending suffering with its view of technological transcendence. This tension manifests in transhumanism turning Buddhism into another immortality project: the idea of a self is reinforced and extended rather than seen through.

6.1 DECONSTRUCTING THE SELF VERSUS ENHANCING THE SELF

The historical Buddha Shakyamuni, a prince from Nepal named Siddartha Gautama, began teaching after a period of practice which culminated in an insight into the nature of the self. His first sermon acknowledged what transhumanism also recognizes: life is marked by suffering, but salvation from suffering is possible through one's own efforts. These early teachings summarized four truths about suffering, namely, that it exists, it has a cause, it can be ended, and there is a way to end it.

The Pali word translated into English as "suffering" is *duhkha* (Siderits, 2007, p. 20). Rather than suffering, a better word choice might be "dissatisfaction." The source of suffering in Buddhism is the same for transhumanists in that human beings are dissatisfied with a world of impermanence, and feel that something is lacking from the human experience.

Buddhist philosophy considers it to be human nature to grasp for a sense of stability and certainty to combat that lack, despite the omnipresent ephemerality of existence.

Buddha pointed out that no matter how many blissful sensations one experiences, there is no such thing as "complete" satisfaction: the more one experiences pleasure, the more one wants it (Siderits, 2007, p. 20). In this way, Buddhist philosophy agrees with Ray Kurzweil's assertion that to be human is to ceaselessly insist on saying "more" when confronted with limits. However, this leads to an accelerating cycle of dissatisfaction – one can never be satisfied "enough." Furthermore, Buddha taught that if human beings never take the time to look deeply at the self that is doing the desiring, the craving to satisfy desires will become the basis for one's identity – one learns to identify the content of the self with endlessly arising desires.

The Buddhist way out of suffering is to recognize the relationship between suffering and desire by deconstructing the sense of self through introspection. Human beings suffer because they view the self as a solid, existing entity that is capable of achieving completeness or permanence through the satisfaction of desires. In other words, Buddhist philosophy considers it impossible to end suffering through the satisfaction of desires since desires are produced without end. Therefore, the problem of suffering has to be solved in another way: by letting go of the commonsense view of the self as something that can be made complete through the satiating of one's appetites.

The "commonsense view" of the self is discussed at length and refuted in Buddhist transhumanist James Hughes' article "Transhumanism and Personal Identity." He critiques the transhumanist tendency to cling to an essentialist model of identity. The essentialist model of the self is built around the presumption of a stable, independent, rational agent that is

defined through thoughts, desires, and actions. He notes that Kurzweil adheres to the patternist model of self, which claims that one's essential self is a unique psychological configuration of memories coupled with the ability to reflect. Hughes argues that transhumanism needs to adopt more non-essentialist models of the self since there are those (like himself) who argue from a Buddhist position that "the self is an illusion." He also states that his Buddhist transhumanist view of the self as an illusion will require transhumanist democratic societies of the future to adopt "post-individual" frameworks for political representation that do not assume personal identity (Hughes, 2013, p. 231). Rather than an illusion, though, it is more accurate on account of Buddhist philosophy to posit the self as a convenient fiction.

This shift in language emphasizes that the self does, in fact, exist. Buddhist philosophy wants to avoid the extremes of permanence on one hand and nihilism on the other when it comes to the issue of the self. These extremes represent the reasons for suffering: either clinging to a permanent self/immortal soul or taking the view that there is nothing at all besides physiology. To say that the self is a convenient fiction is to posit a middle way between these two extremes. Suffering exists because there is no such thing as a permanently enduring self, yet this does not mean that no-self means there is literally not a self. Rather, it means that the essentialist sense of self as we normally experience it holds the possibility of being deconstructed: there is a deeper reality behind the autonomous desiring agent one appears to be.

In Buddhism, this deconstruction happens in two ways: epistemologically through the doctrine of the five *skandhas*, and ontologically through the doctrine of *pratitya-samutpada*. The combination of these doctrines results in the most important Buddhist concepts of *anatman*, or "no-self," and *shunyata*, or emptiness. Buddhist epistemology is based on an

understanding of the self as a continuous interaction of five *skandhas*, or "heaps": form, sensation, thought, impulse, and consciousness. Form refers to the material body; sensation refers to feelings; thought refers mental formations including habits; impulse refers to perceptions; and consciousness refers to that which "houses" the five heaps as awareness. The point of establishing this epistemology is to provide a theory in which any experience can be analyzed as emerging from the interaction of these five elements – there is no stable, essential self or soul to be found in any one of the elements. However, at the same time, there is something called a self which continuously emerges out of the interacting process, and passes away just as quickly.

The Buddha's insight was that the assemblage of the *skandhas* creates and sustains a delusory sense of a permanent self. Human beings learn to identify with the desires created by the interactions of the *skandhas*, such as the desire to maintain one's bodily form forever. In the *Diamond Sutra*, the Buddha analyzes the *skandhas* by comparing form to spongy foam, sensations to bubbles, thought to a rubbery banana tree trunk, perceptions to mirages, and consciousness to a magician's illusion. His analysis is an injunction meant to provoke a person to analyze his/her own experience in order to determine that each *skandha* is itself impermanent. In this way, Buddhist epistemology is best seen as a heuristic – human beings do not need to believe or have faith that the self requires deconstructing. Human beings to need to realize deconstruction for themselves in order to relieve suffering.

Hughes' Buddhist transhumanism takes the insight of self-deconstruction, and reads it as license for a kind of transhumanist morphological freedom. It is Hughes' view that a twenty-first-century Buddhism is a combination of Buddhist epistemology and transhumanism: a person seeking liberation from suffering should use radical technological enhancements

to become a cyborg Buddha. On this point, Zen priest and Buddhist transhumanist Michael LaTorra notes Buddhism's historical lack of opposition to science and technology (https://jetpress.org/volume14/latorra.pdf). He considers prayer, meditation, chanting, and other modalities of Buddhist practice to be "spiritual technologies." In his estimation, the technologies of neuroscience should be merged with these spiritual technologies. The point of doing so is to achieve a complete scientific understanding of religious/spiritual phenomena, and to develop techniques for inducing and controlling these phenomena for society as a whole.

The concept of the "cyborg Buddha" emerges when these radical technologies can be used to create a being that can monitor, manipulate, and manage the mechanisms of the "highest levels of conscious awareness." In other words, the cyborg Buddha concept reads the doctrine of the *skandhas* as providing an impetus to assemble a cybernetic Buddha-self through the enhancement of one's form, sensation, thought, impulse, and consciousness. That is to say, Hughes and LaTorra argue for technological enhancements such as "neurotechnologies" that can regulate and manipulate the brain in ways similar to the effects of Buddhist meditation. To this effect, Hughes has stated that the goal of the cyborg Buddha is to find and control the "switches" in the brain that allow for a transcendence of desire and a letting go of attachment (https://jetpress.org/volume14/latorra.pdf).

Hughes' and LaTorra's arguments for controlling and reproducing the phenomena of Buddhist realization through technological intervention takes the insight of the five *skandhas* and reinterprets it as the "right" *skandhas*. What this means is that their transhumanism is Buddhist in the sense that both want to study the brains and practices of Buddhists in order to perfect the neurological correlates of enlightenment, and from there engineer the technology to allow the

realization of no-self. This project, then, is not directed toward deconstructing the self by meditative and philosophical examination of the self. Rather, it is premised on creating the right combination of *skandhas* to produce a possibly more enlightened version of the self – but an essentialized self, nonetheless. In other words, the cyborg-ness of the cyborg Buddha is the implicit transhumanist claim that there exists a "correct" assemblage of form, sensation, thought, impulse, and consciousness that can be constructed to produce an enlightened posthuman being. Yet, from the Buddhist perspective, such a self is still prone to suffering since the actual cause of suffering (belief in an essential self to be made whole) has not been seen through.

To Hughes, his interpretation of no-self is that the self is a process that can be managed as one's own conscious process of self-creation. In this sense, Hughes takes the insight of no-self and transforms it into morphological freedom. To be free from suffering on this Buddhist transhumanist account, one should self-create or re-engineer a being with more enlightened traits. Therefore, Hughes is arguing that if humans can find what corresponds to the "enlightened" self in terms of form, sensation, thought, impulse, and consciousness, it will be possible to create a posthuman cyborg Buddha out of these constituent parts. Hughes' reasoning for wanting a world of Cyborg Buddhas is practical: most of us cannot live up to what we consider to be a moral ideal – we need technological assistance in the future to become the personalities that we want to be.

Based on Hughes' and LaTorra's assertions, if Buddhism and transhumanism are not incompatible, transhumanism nevertheless requires making Buddhism fit into a transhumanist paradigm. Yet, reconceptualizing Buddhism to accommodate a cyborg Buddha remains problematic for one main reason. In trying to interpret no-self and the *skandha*

doctrine as license for cyborgization, the essentialist view of the self – the source of suffering – is not being deconstructed. Rather, it is being reified.

The next section further argues that rather than challenging the stable sense of self, the CBP is affirming it. In order to truly deconstruct the self, not only the self but all things must be similarly deconstructed. The Buddhist epistemology of the *skandha* theory must be accompanied by the previously mentioned ontology of *pratitya-samutpada*. This framework was developed by the Buddhist thinker Nagarjuna in the second century CE, and is also referred to as the doctrine of *sunyata*, or emptiness. The next section claims that it is the transhumanist failure to "empty" emptiness that sustains a metaphysics of the self instead of challenging it. The result is that Buddhist transhumanism only recreates the suffering it is meant to alleviate.

6.2 FAILING TO "EMPTY" EMPTINESS: DECONSTRUCTION AS REIFICATION

Pratitya-samutpada translates into English as "dependent co-origination" or "dependent arising" (Huntington, 1989, p. 49). Buddha stated that one who understands this doctrine can be said to understand his philosophy. *Pratitya-samutpada's* importance as a concept emerged in early Buddhism for the same reason that it is included here in a discussion of transhumanism. After the Buddha's death, he appointed no successor, and a set of "higher teachings" were extracted from the Pali Canon. These higher teachings, the *abhidharma*, concluded that if the sense of self is due to the interaction of the *skandhas*, reality must therefore be plural: what exists is the mind, and the various elements that make up the self can be manipulated, studied, pointed out, and controlled.

This approach mirrors the attitude of the Cyborg Buddha Project, and turns the Buddha's teachings into the metaphysics of an essential self that he spent his life warning against.

In the second century CE, the South Indian philosopher Nagarjuna sought to remedy this misunderstanding by authoring a text called the *Mulamadhyamakarika*, the "Fundamental Verses on the Middle Way." The first verse states clearly what Nagarjuna and the subsequent school based on his thought, the Madhyamika, wished to critique. "No things whatsoever exist, at any time or place, having risen by themselves, from another, from both or without cause" (Huntington, 1989, p. 158). This statement outlines what is at stake in the doctrine of dependent arising: everything is interdependent with everything else, and therefore there is nothing that has essential, inherent existence. *Pratitya-samutpada*, the doctrine of dependent arising, culminates in the Buddhist view of emptiness, or *sunyata*.

Not only do human beings have no-self as such, but neither does anything else – all things are "empty." The most common image used to illustrate emptiness is the analogy of Indra's net. The Avatamsaka Sutra describes an infinite net of jewels which sees each jewel endlessly reflecting all other jewels hanging in space. Emptiness, then, refers to the infinity of reflections taking place as Indra's net. All things are empty of inherent existence, or empty of self, because each individual jewel is simultaneously sustaining and defining all the others. In this sense, the concept of emptiness, *sunyata*, is not a negative statement about reality.

The root of the word, *su*, refers to that which is swollen like a pregnancy. A better understanding of emptiness is not empty, but rather, "pregnant with potential." The point of

the concept is to show that the self-existence of all things can be deconstructed. A simple example is a sheet of paper. Paper requires manufacturing equipment, pulp, plants, sunlight, water, workers, stockers, buyers, and so forth. On a long enough timeline, all of reality could be listed as existing "within" the sheet of paper. All of those aspects are what we call "paper," yet paper is not fully itself – it is all of those things at once. Because there is nothing that is fully itself, which is to say, totally self-existent, it is said to be empty.

Kyoto School philosopher Keiji Nishitani explains that "Emptiness in the sense of *sunyata* is emptiness only when it empties itself even of the standpoint that represents it as some 'thing' that is emptiness" (Nishitani, 1983, pp. 96–97). What this means is that emptiness is not a transcendent ontological category, but to be realized as identical with being (Nishitani, 1983). Emptiness does not mean that there is a new metaphysic of interdependence waiting to be subsumed by Western culture, nor does it mean that "all is one." Instead, to empty the emptiness of Indra's net, it must be realized that each seemingly separate jewel is actually nothing less than the entire net.

From this insight, the soteriological point of Buddhism is found in realizing that emptiness actually means total fullness – lacking nothing. However, before that point is discussed, Buddhist transhumanism's tendency to turn emptiness into another privileged metaphysical concept – failing to empty emptiness – must be taken into account.

Buddhist transhumanists fail to empty emptiness when they desire to use Buddhist philosophy and techniques to engineer better humans. Hughes starts from the point of view that the *skandhas* suggest we are already cyborgs – pastiches of form, sensations, and so forth. Yet he goes further to suggest that we can be better Buddhist cyborgs. The problem

with such a view is that it erroneously assumes to be challenging the self by emphasizing the multiplicity of the human being. On the contrary, Buddhist transhumanists are reifying the self and giving it substance as something to be enhanced. In this way, the cure for suffering turns out to only lead to greater misery by preserving and recreating a self. To address this problem, Nagarjuna conceptualized emptiness as "empty."

There are two verses in which Nagarjuna affirms the emptiness of emptiness, and each refers to emptiness itself as a dependent concept (Huntington, 1989, p. 110). What this means, then, is that there is nothing that can be said about emptiness itself that is ultimately true. However, this still means that there is an ultimate truth to be understood, namely, that there is no ultimate truth. More than just word games, this affirmation points directly to the soteriological point of Buddhism, and contradicts Buddhist transhumanist claims. Transhumanism interprets the soteriology of Buddhism, its claim to overcome suffering, as being grounded in an ultimate truth. Emptiness implies for the transhumanist that because the self is a construct, it can be remade to undermine the boundaries that finitude has placed upton us. In this interpretation, becoming a Cyborg Buddha would allow one to remake themselves at will through a pastiche of neuro-spiritual technologies. This is a metaphysical interpretation of emptiness that relies upon an understanding that suffering can be overcome by creating the right kind of "I" for whom life can have the right meaning. Yet, the Buddhist project is to eliminate suffering by overcoming the notion that there is an "I" as we commonly experience it. This leads to the problem at the heart of Buddhist transhumanism.

Buddhist transhumanists claim that the "I" or the self is useful insofar as it serves as a basis for that which must be

transcended. However, this is just turning the transhumanist view of the self into another ultimate truth – it is a form of self-assertion. This is why Nagarjuna steadfastly claimed that in addition to realizing the emptiness of persons, one must also realize the emptiness of *dharmas* – Buddhist philosophy itself. To realize this is to assert the emptiness of emptiness, and all doctrines including transhumanism. In this sense, for transhumanists to claim to truly be Buddhists, they would have to give up their attachment to transhumanism.

In other words, for Buddhist transhumanists, the method by which they try to solve the problem of suffering turns out to be what sustains it. By seeking the neurological correlates of enlightenment, they are trying to engineer a being that does not suffer from impermanence. Yet, at the same time, they are working to create a posthuman self out of the teachings of emptiness and no-self. This can be seen most clearly in the Buddhist transhumanist interpretation of the mythological Buddha Maitreya.

Maitreya appears in the *Lotus Sutra* and is considered to be the Buddha that appears in the world after the teachings of Shakyamuni have completely disappeared. Maitreya is the "Buddha to come" in the future as the last of the earthly buddhas. Miriam Leis of the India Future Society, an organization that supports Buddhist transhumanist values, promotes a vision of Maitreya that is consequent with the Cyborg Buddha Project.

Leis (2013) argues that Maitreya Buddha can be interpreted as a posthuman Cyborg Buddha whose intent is to enable others to attain a superior state of existence:

> *Maitreya can be used as a metaphor to reflect on the dimension of character traits of a potential trans/posthuman. On the other hand, the "Cyborg"*

> *as the technologized human being depicts the*
> *material dimension of a potential trans/posthuman.*
> *A complete realization of a trans/posthuman*
> *existence may, however, only be possible by*
> *transcending one's state of character (Maitreya) as*
> *well as one's physical limitations (Cyborg), whereas*
> *the first determines the ultimate outcome of the*
> *latter.*
>
>   (Leis, 2013)

In awaiting the enhanced posthuman Maitreya, Buddhist transhumanists have created an enhanced self out of the Buddhist teachings of the "unenhanced" no-self. Leis describes the future Earth that Maitreya will inhabit in transhumanist terms as "a world of longevity, health, and human enhancement":

> *Human beings are then without any blemishes, moral*
> *offences are unknown among them, and they are full*
> *of zest and joy…Their strength is quite*
> *extraordinary…Only when five hundred years old do*
> *the women marry.*
>
>   (Leis, 2013)

This view of the future contradicts the fundamental tenet of Buddhist philosophy: the impermanent and insubstantial nature of human and phenomenal existence. To deny impermanence is to miss the essential meaning of the emptiness of self by associating this doctrine with a realm that transcends finitude. Such a view reifies emptiness and recreates in the language of transhumanism the problem that Nagarjuna faced: a view of the "true" nature of the self as an attainable goal reached at the end of a technological sequence.

The failure to empty emptiness means that in a transhumanist context, Buddhist philosophy is reduced to a technique for the acceleration of consciousness. In this way, the soteriological aspect of Buddhism – the liberation from suffering – is lost. The reason for this is simply that from the perspective of Buddhist philosophy, liberation from suffering is not predicated on any kind of enhancement of the self. Rather, freedom from suffering is a consequence of deconstructing the self in order to realize that ultimately there is no self to enhance. Buddhist transhumanism fails on account of the cyborg Buddha concept insofar as transhumanists interpret the Buddha to be a "better self" that one must become.

This problem also appears in a more mundane way in non-transhumanist Buddhist practitioners. Meditation and philosophy become means to reach a distant goal called "enlightenment." Rather than realizing emptiness and deconstructing the limited self as it is usually perceived, Buddhism in the context of "gaining something" only "essentializes" the self. Thus, striving to become a Buddha is itself the problem – there is nothing to become. It is for this reason that Buddhist philosophy presents a challenge to transhumanism. Rather than its complement, it represents its alternative: you can be freed from the suffering of finitude without becoming a posthuman.

To recover Buddhism as an alternative to transhumanism, it must not be reduced to a tool or a technique that reinforces the sense of a stable self. Instead, it must address the sense of inadequacy or lack that transhumanism, too, perpetually seeks to remedy. The final section of this chapter details how overcoming the suffering brought on by finitude is not a matter of denying impermanence or uncertainty. Rather, it is found in accepting it as the human condition.

6.3 BUDDHIST PHILOSOPHY AS AN ALTERNATIVE TO TRANSHUMANISM?

The Buddhist transhumanist commitment to enhancement relies on the assumption that there is a self to somehow be made stable through becoming a cyborg Buddha. Even if the cyborg Buddha is derived from a view of no-self, the goal of creating an enlightened posthuman being requires conceptualizing a stable, essential self to be made into. Buddhist philosophy considers this to be a fundamental misunderstanding.

The idea of the cyborg Buddha reduces Buddhist philosophy to a series of techniques or a collection of practices that only serve to enhance and stabilize the self rather than contest its existence. It is true that both Buddhist philosophy and transhumanism aim to overcome the human suffering that is a consequence of impermanence. The transhumanist approach is to use technology achieve these aims. In the Buddhist transhumanist view, this requires adding cyborg enhancements to manipulate the brain and body to produce a spiritual state which transcends suffering. For superlongevity, superintelligence, and super well-being, technology is used to eliminate suffering by vastly extending human capabilities. In other words, the transhumanist approach is to take the impermanence of human beings and attempt to make it into posthuman permanence. However, Buddhist philosophy argues that by seeking to remove these aspects of finitude through a technologically engineered stability out of change will do nothing to alleviate suffering. For this reason, Buddhist philosophy more accurately represents an alternative to the transhumanist approach.

The way in which Buddhist philosophy presents an alternative to transhumanism can be seen in a comparison with Jean-Paul Sartre's existentialist conception of human beings. Sartre describes humanity as the "being-for-itself" – one is

conscious of our own consciousness, and as a result desire to have a stable identity. This identity is sought by "consuming" various categories of identification such as "father," "waiter," or "student," and seeking to completely identify with these roles. Yet, being-for-itself necessarily entails a conscious awareness that one is incomplete, endowed with the capacity to always imagine different states of affairs by ceaselessly projecting a future. In this way, one can never fully "be" a waiter at a restaurant. This is due to the fact that a human being can always imagine a different state of affairs, and thus one is unable to assume an enduring, stable identity. To think that there could be such a stable, unchanging identity is what Sartre means by "bad faith." It is to believe that one could have certainty in one's existence in the same way that a rock is a rock through and through. An object, a "being-in-itself," it cannot imagine itself as a tree, and is therefore complete.

Buddhist philosophy reflects Sartre's claim, and sees the recognition of the inability to become complete as the basis for liberation from suffering. To Buddhists and to Sartre, what this means is that a human being is never a finished product – we are "condemned to be free." Freedom, or liberation from suffering, is found in that very lack of completeness that can never be completely satisfied. When it is realized through introspection that the self is a process of impermanent, uncertain elements constantly arising and passing away – and that this is the empty nature of all things – then suffering is transcended.

On this account, the inability to be complete in a world marked by impermanence ceases to be the source of suffering, and instead functions as the source of human freedom. In this way, it can be seen that transhumanism is an all-too-human response to a basic ontological anxiety at the core of one's being. The reason why human beings suffer is that the sense of an unstable self wants to be made certain, stable, and

complete. Death, ignorance, and psychological pain are all seen to be barriers to this stability.

Transhumanism takes the view that suffering caused by the inability to be complete and lasting can be relieved by engineering these barriers or limitations out of the human being. In this way, Buddhist philosophy does not see a complement in transhumanism. Instead, it sees in transhumanism a repetition of the chief cause of suffering. To Buddhist philosophy, this problem is ontological because the core transhumanist project is to make no-self into a "real" self. Yet, the self is something that cannot be made real – it is "doomed" to be impermanent and incomplete.

It is for this reason that Buddhist philosophy traces all human suffering back to desire: the fundamental desire to create a solid, lasting self. Yet, as the self is deconstructed and observed to be a process of ceaselessly changing mental and physical phenomena, the self is seen through as a convenient fiction – a name we give to impermanent forces that have the illusion of stability and continuity.

The suffering that Buddhist philosophy and transhumanism are addressing is the anxiety that the self is more fiction than reality. Transhumanism responds to this anxiety by seeking to engineer a posthuman that no longer suffers from their finitude. Buddhist philosophy responds by realizing that the self cannot be made stable and lasting – impermanence is what human beings are. In other words, human impermanence is characterized by a sense of lack that transhumanists perpetually try to resolve.

In transhumanist terms, this is the sense that death, limits to knowledge, and emotional/psychological pain are not necessary for human identity – but inadequacies that can be eliminated. Thus, the transhumanist is to try to "fill in" that lack – to create a posthuman self that is not subject to the impermanence that causes human suffering. From the

Buddhist perspective, the sense of self that arises is a convenient fiction that is always shadowed by an inescapable sense of lack. Transhumanism is one name for the collection of technologies that are meant to overcome this sense of lack – the sense that having limited life, intelligence, and pleasure means that something is wrong. Buddhism argues that the sense of lack is actually what humans are – it is the identity of no-self (Siderits, 2007, p. 32). The problem of suffering is solved when that "lack" ceases to be a problem. The ego as no-self, the self when seen in light of the doctrine of emptiness, dissolves in the experience of identifying with the lack, or groundlessness which one is. This freedom is much different than the morphological freedom posited by the Buddhist transhumanists. Rather than establishing a freedom to become something stable and lasting, one is free from the need to become anything at all.

This is the meaning of the philosophical and soteriological concept of emptiness – it is the ability to live a life that accepts the reality of impermanence. In order to realize it, one must actualize Nagarjuna's injunction: "Everyday life (*samsara*) is not the slightest bit different from salvation (*nirvana*) (Huntington, 1989)." This alternative view of everyday life is registered in a transformation of one's experience of the world in which one gains a free relationship to finitude.

Nagarjuna addresses *nirvana*, the cessation of suffering, in order to affirm that even *nirvana* is empty. The everyday human world, *samsara*, is the process of impermanence arising and passing away as the world of suffering and change. Nagarjuna's assertion that *samsara* is *nirvana* makes clear that there is no difference between this world here and now, and the time when suffering comes to an end. Buddhist philosophy is a means to realizing the no-self view in order to deconstruct the dualism that transhumanism affirms between human *samsara* and posthuman *nirvana*.

On this account, the transhumanist way of solving the problem of suffering truly does turn out to be that which sustains it: the desire to use technology to become a transcendent being is based on concluding that the apparent world and body must be discarded for one that is more real. As Chapters 4 and 5 demonstrated, this also leads to nihilism as this world is devalued in favor of a nonexistent one. Insofar as we devalue life here and now in favor of a "more real life" somewhere else, transhumanists misunderstand Buddhist philosophy. If the devaluation of life happens because humans are striving to become posthuman Buddha, cyborg or otherwise, this is still a source of suffering because a self is being posited and desired. *Nirvana* is the cessation of suffering through the coming-to-rest of all ways of ceaselessly creating a stable, lasting essential self out of no-self.

Buddhist thought represents an alternative to transhumanism in its claim that humans can experience this coming-to-rest by gaining insight into emptiness – the no-self view of all things. As long as human beings try to make the impermanent permanent through transhumanism or otherwise, there will be suffering. To transcend suffering, a transcendent being is not required. Only by confronting impermanence and identifying with it can suffering truly be overcome. Buddhist philosophy insists that deconstructing the ego-self – not trying to preserve it forever through technology – is the path out of suffering.

CONCLUSION: CONTESTING AND CONSIDERING TRANSHUMANISM

The final part of this book seeks to recapitulate the basic arguments of each chapter, and offers some suggestions for future avenues of research concerning transhumanist philosophy. Transhumanism advocates for the creation of posthuman beings through a commitment to the view that human beings are currently in transition to a novel mode of existence. It is this aspect above all which distinguishes transhumanism as a philosophy.

The goal of transhumanism is not only to create a posthuman with vastly extended capabilities, but to extend those capabilities to infinity. For example, while transhumanists are concerned with life extension, the horizon for this concern is a functional immortality. Transhumanist philosophy and its accompanying ambitions cannot be relegated to "fringe concerns." In November 2018 Chinese researcher He Jiankui genetically altered a pair of embryos (https://www.statnews.com/2018/12/17/crispr-shocker-genome-editing-scientist-he-jiankui/). These embryos were implanted into a mother, resulting in the birth of

twins. It was later discovered that, though the twins' genes had been altered to protect them from HIV, the procedure inadvertently enhanced their brains as well. Jiankui's research is an example of transhumanism in the present, and raises questions of meaning and identity that have been reflected in these chapters. At the very least, Jiankui's work signals that a time of engineering traits through enhancement technology has taken an astounding leap forward.

A belief in epistemological certainty informs the possibility of creating further posthumans that have engineered qualities which challenge human qualities as they are currently known. Transhumanists seek to negate finite lifespans, limits to knowledge, and the presence of emotional pain and suffering, and epistemological certainty is predicated on an attitude that human limitations only appear intractable – there are no predetermined limits to how technology can be used to modify human beings. The bioconservative position opposes transhumanism on the basis that the posthuman condition would itself be degrading, and that a successor species represents a threat to human dignity. As a result, bioconservatives are those who resist a posthumanity by emphasizing a precautionary approach to radical technologies.

Transhumanism has a historical narrative that reaches from mythic and early religious sources to emerge in the present as contemporary transhumanist institutions. The mythic and religious precursors to transhumanism emphasize that the desire to permanently overcome the limitations of the human body is ancient, and these ancient roots still entwine contemporary transhumanism.

Contemporary transhumanism's broad areas of technological concern can be understood in the framework of the "three supers": superlongevity, superintelligence, and super well-being. Transhumanist concerns appear during the period of Modern philosophy, and represent the appearance of

proto-transhumanists who posit that human rationality should be used to master nature. This position culminates in the appearance of transhumanism proper in the figures of Julian Huxley and J.B.S. Haldane, who are responsible for the earliest presentation of transhumanist ideas to the public.

The public presentation and normalization of transhumanist ideas continues to take place through science fiction as ideas of radical human enhancement make their way into the cultural imagination through the Internet, books, films, and television. These ideas emerge concretely in contemporary transhumanist institutions such as the World Transhumanist Association. The responsibility of these institutions is to promote and spread transhumanist values at the levels of business, academia, and government. However, it must be noted that nontranshumanist corporations also contribute to transhumanism through their technologies' application in service of transhumanist ideals.

One of the primary aspirations of transhumanism is to vastly extend human lifespans. The projects to do so are associated primarily with Aubrey de Grey and Ray Kurzweil. The expressed intention of these transhumanist ambitions is to create an immortal being. Yet, immortality as a concept is incoherent unless understood as amortality. Amortality is nonstandard longevity that still implies that death is unavoidable. Amortality involves reconceptualizing the body as a data-driven, infinitely repairable object. The transhumanism presented by De Grey and Kurzweil emphasizes longevity over humanity: the key to lifespan extension is trading an ontology of identity as it currently exists for one of data and patterns. Both transhumanist thinkers affirm that removing given limits to one's lifespan will be a benefit, yet it is unclear that such a drastic change will mean that the enhanced person will remain in continuity with the identity of the unenhanced person.

Bioconservatives have analyzed the social-political dangers of extended lifespans, but lack sufficient depth when confronting the metaphysical dangers. Heidegger's account of death as providing the impetus to care complements the bioconservative approach. To Heidegger, making alterations to the necessity of death also changes how humans experience care. The ability to care is founded on the horizon of death. Without death, what remains are only contingent desires to care for.

The next applications of transhumanist technology involve the desire for unlimited intelligence and infinite well-being. This involves the creation of an artificial superintelligence and genetically engineering the substrates of suffering out of the human species. The transhumanists associated with these projects are Ray Kurzweil and David Pearce, respectively. The assumption of the possibility of creating a superintelligence is called into question by the lack of progress in the field of artificial intelligence (AI) in general. Inconsistencies between the expectation and reality of what is possible with AI relate to ontological questions that call transhumanism's reliance on epistemological certainty into doubt.

Kurzweil's strategy for overcoming these shortcomings consists in his portrayal of the appearance of superintelligence as an inevitable result of a technological Singularity. In a post-Singularity world, humans will be able to upload their minds to computers, and extend their intelligence without limit. In spite of the lack of evidence for this possibility, Kurzweil's transhumanism is best understood in a theological context as a kind of faith in an ideal future.

Pearce's transhumanism is centered on "abolitionism": the wholesale removal of suffering from human experience. On this account, super well-being can be achieved through genetic engineering which makes human beings incapable of psychological pain and suffering. In the place of pain, behavior

will be regulated on the basis of "gradients of well-being." Pearce's implicit claim that suffering has no essential meaning can be called into question by problematizing the idea that all human motivation comes from pleasure alone.

Pearce's account assumes that humans who have been fundamentally altered in how they experience suffering will benefit from their condition. Yet, this overlooks the essential way suffering defines human experience. In this way, the one who attains this novel condition will no longer be in psychological continuity with their previous experience. It follows, then, to suggest that the negation of the human by the posthuman raises the specter of nihilism. Transhumanism can be characterized as nihilism due to the way that it emphasizes the death of God, and uses radical technology to implement a world where "everything is permitted." Alternatively, transhumanism can be seen as nihilistic in its insistence on negating the value of human beings based on the creation of a "God" in the form of a posthuman successor.

Both aspects of nihilism are critiqued in the philosophy of Friedrich Nietzsche. Nietzsche's philosophy offers a role for the philosopher more generally within the context of transhumanism. While it has been argued that Nietzsche himself is a proto-transhumanist, Nietzsche is more accurately seen as a philosopher of transhumanism in that he argues against the devaluing of the human by a transcendent ideal.

Today, Nietzsche's philosopher for the future, or the "free spirit," has the task of pointing out this devaluation and offering instead a revaluation of values through critical insight. The application of this insight can be seen in the critical analysis of cyborg-artist Neil Harbisson. His sensor implant accelerates his desire to replace more of his body with technology, and to advocate for that replacement to others. To Nietzsche, this despising of the body is nihilistic in its neglect of *amor fati* – seeing one's particular human condition

not as something disposable, but essential. In this way, Nietzsche affirms the suffering brought on by finitude – the suffering that transhumanists wish to negate with posthuman technologies.

Buddhist philosophy provides another critical lens through which to view transhumanist philosophy. Buddhism also affirms that human beings suffer, yet, like transhumanism, offers that it is possible to overcome suffering in this life. This suggests that there is a complementary relationship between both philosophies, and is evidenced by the appearance of Buddhist transhumanists. An examination of the Cyborg Buddha concept put forth by James Hughes shows the transhumanist application of the Buddhist concepts of no-self and emptiness. However, the transhumanist version of these Buddhist ideas corrupts their purpose of deconstructing the self, and instead creates a new enhanced self out of the teachings no-self.

This reification of the self translates into a failure to "empty" emptiness: Buddhist transhumanists are using Buddhist philosophy to justify the creation of a posthuman self. To empty emptiness, and thus overcome suffering, one must cease clinging to the idea of a self as a "lack" that can be filled by making the impermanent, permanent, through technology. Rather, suffering is overcome by identifying with that impermanence itself which results in a freedom to be incomplete, rather than an attachment to the desire for completeness.

Future directions for research into the philosophy of transhumanism should be centered on the analysis of desire – especially the seduction by an ideal posthuman. Pointing out the possibility of certain technological manifestations suggests that under a variety of conditions, for a variety of reasons, human beings want their own oppression in the form of wanting to be replaced by a technological process.

Transhumanist will not readily assent to the idea that they desire their own oppression, and as it has been shown, they nearly always emphasize that transhumanism provides the very opposite of oppression – it can create a world of benefit if it were allowed to flourish. Future research should be directed toward why transhumanists do not only embrace transhumanism, but they are able to justify why it is necessary – why one's own replacement is necessary.

What this means is that the desire for transhumanism is a desire to be seduced – one wants seduction by radical, posthuman technology. The conception of desire which applies to transhumanism is that of a positive, productive force wherein desire creates its objects. On this account, given by Deleuze and Guattari (2009) in *Anti-Oedipus* initially, the concept of desiring-production is part of their more general appropriation of Nietzsche's formulation of the Will to Power. In both concepts, a pleasurable force of appropriation of what is outside oneself, incorporating into oneself what is other than oneself, characterizes the essential process of all life. As to why this is the case, one can again look at the nature of transcendence. The ecstatic desire for going beyond one's common everyday experience suggests that transhumanism can also be analyzed as a desire for a drug.

Deleuze and Guattari (1994) write in *What is Philosophy?* that the delusion which comes before all other delusions is that of transcendence – an ecstatic going beyond of normal experience. For these thinkers, the desire for transcendence exists because one comes to be identified with it. From this investment can come a belief in transcendence. In this sense, it is not particularly important if a belief in transhumanism even exists in the first place – what matters is that there is a desire which generates its objects.

In the creation of the objects of desire, the drug-like ability to seduce a person into believing all of their problems might be

solved through a dependency appears in transhumanism. In pointing out the possibility of future research into the desire for transhumanism as a desire for one's own oppression by a drug, this introductory text is continuing to affirm a role for the philosopher of transhumanism. To be a philosopher of transhumanism is to avoid an unreflective naïveté which does not necessarily manifest as a lack of familiarity with the technologies involved; rather, it manifests as a tendency to unreflectively respond to transhumanist projects. To suggest a role for the philosopher of transhumanism is not to assume there might be some completely objective outside standpoint from which to critique the issues – some place beyond the reach of the kind of technology. Rather, it is to resist the seduction for a technological panacea which lies at the heart of the desire for transhumanism.

Whether one is for or against transhumanist philosophy, as a cultural construct the movement raises important questions about what will continue to count as human in a future predicated on radical technological change. Humanity will continue the transhumanist narrative and move toward immortality projects, and constantly strive to improve in intelligence and happiness. The pace at which these enhancements should be sought is the crux of concern – even alienation. Granted, for most people, transhumanist philosophy will remain relegated to the edges of their conscious awareness. Yet, as a collective species, transhumanism is the scaffolding for the desire to increase one's reach despite the limitations of grasp.

There is no doubt that this raises questions of injustice – especially concerning poverty, warfare, climate change, and a slew of other more pressing matters at hand. Nevertheless, transhumanist philosophy represents one way of thinking about the future – it is a speculative pursuit. Perhaps, as some have claimed, its widespread adoption represents an existential

threat. Time will either reveal the veracity of such a prediction. Despite this threat, however, humans will continue to extend their technological reach, and thinking through all manners of "reaching forward" in light of the challenges humanity faces is a positive act. In this way, philosophical discussion of transhumanism and its commitments represent a rigorous reckoning with what humanity seeks to become in the twenty-first century.

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REFERENCES

Arendt, H. (1998). *The human condition* (pp. 2–3). Chicago, IL: University of Chicago Press.

Bacon, F. (1989). *New Atlantis and the great instauration* (p. 71), J. Weinberger (Ed.). Wheeling, IL: Michigan State University Press.

Beall, E. F. (1991). Hesiod's Prometheus and development in myth. *Journal of the History of Ideas*, *52*(3), 355–371.

Bond Myers, C. (2009). Two hundred and fifty pills to immortality. *Forbes*, May 27. Retrieved from https://www.forbes.com/2009/05/26/ray-kurzweil-immortality-live-forever-opinions-book-review-transcend.html

Bostrom, N. (2011). In defense of posthuman dignity. In G. R Hansell & R. Blackford (Eds.), *H+/−: Transhumanism and its critics* (p. 55). Philadelphia, PA: Metanexus.

Bostrom, N. (2013). Why I want to be a posthuman when I grow up. In M. More & N. Vita-More (Eds.), *The transhumanist reader*. Malden, MA: Wiley-Blackwell.

Bostrom, N. (2014). *Superintelligence: Paths, dangers, strategies* (p. 26). Oxford: Oxford University Press.

Bostrom, N., & Savulescu, J. (2009). *Human enhancement* (p. 2), N. Bostrom & J. Savulescu (Eds.). Oxford: Oxford University Press.

Brassier, R. (2014). Prometheanism and its critics. In R. Mackay & A. Avanessian (Eds.), *Accelerate* (p. 470). Falmouth: Urbanomic.

Carrico, D. (2005). Technoprogressivism beyond technophilia and technophobia. Retrieved from https://ieet.org/index.php/IEET2/more/carrico20041222

Coady, C. A. J. (2011). Playing god. In N. Bostrom & J. Savulescu (Eds.), *Human enhancement* (pp. 163). Oxford: Oxford University Press.

Dante Alighieri (1970). *The divine comedy of Dante Alighieri* (pp. 68–70), H. F. Cary (Trans.). New York, NY: Cassell Publishing Company.

De Grey, A. (2011). SENS statement of principle. In G. R. Hansell & W. Hansell (Eds.), *H+/–: Transhumanism and its critics* (p. 67). Philadelphia, PA: Metanexu.

De Grey, A., & Rae, M. (2007). *Ending aging* (p. 77). New York, NY: St. Martin's Press.

Deleuze, G., & Guattari, F. (2009). *Anti-Oedipus: Capitalism and schizophrenia*, R. Hurley, M. Seem, & H. R. Lane (Trans.). New York, NY: Penguin Books.

Deleuze, G., & Guattari, F. (1994). What is philosophy?, H. Tomlinson & G. Burchell (Trans.). New York, NY: Columbia University Press, 1994).

Descartes, R. (2007). *Discourse on the method* (p. 49), R. Kennington (Trans.). Newburyport, MA: Focus Publishing.

Dreyfus, H. L. (1991). *Being-in-the-World*. Cambridge, MA: MIT Press.

Dreyfus, H. L. (1993). Heidegger on the connection between nihilism, art, technology, and politics. In C. Guigon (Ed.), *The Cambridge companion to Heidegger* (p. 291). Cambridge: Cambridge University Press.

Dreyfus, H. L. (1994). *What computers still can't do* (p. 59). Cambridge, MA: MIT Press.

Dreyfus, H. (2009). Heidegger on gaining a free relation to technology. In D. M. Kaplan (Ed.), *Readings in the Philosophy of technology* (pp. 26–27). Lanham: Rowman & Littlefield.

Federov, N. (2014). The common task. In R. Mackay & A. Avanessian (Eds.), *Accelerate: The accelerationist reader* (pp. 85–87). Falmouth: Urbanomic.

Finn, E. (2017). *What algorithms want* (p. 132). Cambridge, MA: MIT Press.

Firestone, S. (2014). The two modes of cultural history. In R. Mackay & A. Avanessian (Eds.), *Accelerate* (p. 111). Falmouth: Urbanomic.

Freitas, R. A., Jr. (2013). Welcome to the future of medicine. In M. More & N. Vita-More (Eds.), *The transhumanist reader* (p. 71). Malden, MA: Wiley-Blackwell.

Fukuyama, F. (2002). *Our Posthuman Future*. New York, NY: Picador.

Fukuyama, F. (2004). Transhumanism: The world's most dangerous idea. *Foreign Policy*, *144*, 42–43.

Fuller, S. (2011). *Humanity 2.0*. Basingstoke: Palgrave Macmillan.

Fuller, S. (2013). *Preparing for life in humanity 2.0* (p. 2). London: Palgrave Macmillan.

Fuller, S., & Lipinska, V. (2014). *The proactionary imperative*. Basingstoke: Palgrave Macmillan.

Gibson, W. (1984). *Neuromancer* (p. 51). New York, NY: Penguin.

Godwin, R. (2017). Immortality: Silicon Valley's latest obsession ushers in the transhumanist era. *Post Magazine*. Retrieved from https://www.scmp.com/magazines/post-magazine/long-reads/article/2106070/immortality-silicon-valleys-latest-obsession. Accessed on August 10, 2017.

Greenfield, A. (2017). *Radical technologies: The design of everyday life*. London: Verso.

Haldane, J. B. S. (1924). *Daedelus; or science and the future* (p. 80). New York, NY: E. P. Dutton & Co.

Harari, Y. N. (2016). Yuval Noah Harari on big data, Google and the end of free will. *Financial Times*. Retrieved from https://www.ft.com/content/50bb4830-6a4c-11e6-ae5b-a7cc5dd5a28c. Accessed on August 26, 2016.

Harari, Y. N. (2017). *Homo deus*. New York, NY: HarperCollins.

Haraway, D. (1989). *Primate visions: Gender, race, and nature in the world of modern science* (p. 139). New York, NY: Routledge.

Hughes, J. (2013). Transhumanism and personal identity. In M. More & N. Vita-More (Eds.), *The transhumanist reader*. Malden, MA: Wiley-Blackwell.

Huntington, C. W., Jr. (1989). *The emptiness of emptiness*. (pp. 116–117). Honolulu: University of Hawaii Press.

Huxley, J. (1953). *Evolution in action* (p. 132). London: Chatto & Windus.

Huxley, J. (1957). *New bottles for new wine* (p. 17). London: Chatto & Windus.

Istvan, Z. (2013). *The transhumanist wager*. Reno, Nevada: Futurity Imagine Media LLC.

Jefferies, S. (2014). Neil Harbisson: The world's first cyborg artist. *The Guardian*, May 6, Retrieved from https://www.theguardian.com/artanddesign/2014/may/06/neil-harbisson-worlds-first-cyborg-artist

Kass, L. (2002). *Life, liberty, and the defense of dignity: The challenge for bioethics* (p. 48). San Francisco, CA: Encounter Books.

Kass, L. (2003). Ageless bodies, happy souls. *The New Atlantis*, *1*, 9–28.

Katherine Hayles, N. (2005). *My mother was a computer: Digital subjects and literary texts* (p. 2). Chicago, IL: University of Chicago Press.

Katherine Hayles, N. (1999). *How we became posthuman* (pp. 36–37). Chicago, IL: University of Chicago Press.

Katherine Hayles, N. (2011). Wrestling with transhumanism. In G. R. Hansell & W. Grassie (Eds.), *H+/−: Transhumanism and its critics* (p. 216). Philadelphia, PA: Metanexus.

Kaufmann, W. (1974). *Nietzsche: Philosopher, psychologist, antichrist* (p. 111). Princeton: Princeton University Press.

Khatchadourian, R. (2015). The doomsday invention: Will artificial intelligence bring us utopia or destruction? *The New Yorker*, November 23. Retrieved from https://www.newyorker.com/magazine/2015/11/23/doomsday-invention-artificial-intelligence-nick-bostrom

Kurzweil, R. (1999). *The age of spiritual machines*. New York, NY: Penguin Putnam.

Kurzweil, R. (2005). *The singularity is near*. New York, NY: Penguin.

Kurzweil, R. (2006). *The singularity is near* (pp. 29–30). New York, NY: Penguin.

Lain, D. (2016). *Advancing conversations: Aubrey de Grey*. Winchester: Zero Books.

LaTorra, M. (2015). What is Buddhist transhumanism? *Theology and Science*, *13*(2), 219–229.

Leis, M. (2013). The Maitreya and the Cyborg: Connecting East and West for Enriching Transhumanist Philosophy. Available from: http://indiafuturesociety.org/the-maitreya-and-the-cyborg-connecting-east-and-west-for-enriching-transhumanist-philosophy/

More, M. (2013a). The philosophy of transhumanism. In M. More & N. Vita-More (Eds.), *The transhumanist reader*. Malden, MA: Wiley-Blackwell.

More, M. (2013b). Introduction: Future trajectories singularity. In M. More & N. Vita-More (Eds.), *The transhumanist reader* (p. 362). Malden, MA: Wiley-Blackwell.

Moreno, J. (2011). *The body politic*. New York, NY: Bellevue Literary Press.

National Institute on Drug Abuse. (2019). *Which classes of prescription drugs are commonly misused?* National Institute on Drug Abuse. Retrieved from https://www.drugabuse.gov/publications/research-reports/misuse-prescription-drugs/which-classes-prescription-drugs-are-commonly-misused

Nietzsche, F. (1974). *The gay science*, W. Kaufmann (Ed.). New York, NY: Vintage.

Nietzsche, F. (1989). *Ecce homo* (p. 220), W. Kaufmann (Trans.). New York, NY: Vintage Books.

Nietzsche, F. (2006). *Thus Spoke Zarathustra*, A. del Caro (Trans.). Cambridge: Cambridge University Press.

Nishitani, K. (1983). *Religion and nothingness* (pp. 96–97), J. Van Bragt (Trans.). Berkley, IL: University of California Press.

Noble, D. F. (1999). *The religion of technology* (p. 11). New York, NY: Penguin.

O'Gieblyn, M. (2017). Ghost in the cloud. *N+1*, (28). Retrieved from https://nplusonemag.com/issue-28/essays/ghost-in-the-cloud/

Pearson, K. A. (1997). *Viroid life: Perspectives on Nietzsche and the transhuman condition*. New York, NY: Routledge.

Plato *Phaedrus* (p. 96), W. Hamilton (Trans.). London: Penguin (1973).

Ricoeur, P. (1976). Ideology and utopia as cultural imagination. *Philosophic Exchange*, *7*(1), 17–18.

Riggio, A. (2015). A transhuman remains all too human, or what's the point of bio-technological enhancement if you'll still be the same old jerk? Part II. *Social Epistemology Review and Reply Collective*, *4*(2), 5–9.

Sandberg, A. (2013). Morphological freedom – Why we not just want it, but need it. In M. More & N. Vita-More (Eds.), *The transhumanist reader* (pp. 59–60). Malden, MA: Wiley-Blackwell.

Sandel, M. J. (2011). The case against perfection. In J. Savulescu & N. Bostrom (Eds.), *Human enhancement* (p. 71). Oxford: Oxford University Press.

Schneider, S. (2009). Future minds: Transhumanism, cognitive enhancement and the nature of persons. In V. Ravitsky, A. Fiester, & A. Caplan (Eds.), *The Penn Center guide to bioethics*. New York, NY: Springer.

Searle, J. R. (1980). Minds, brains, and programs. *Behavioral and Brain Sciences*, *3*, 417–457.

Siderits, M. (2007). *Buddhism as philosophy*. Indianapolis, IN: Hackett.

Sorgner, S. L. (2017). Nietzsche, the overhuman, and transhumanism. In S. L. Sorgner & Y. Tuncel (Eds.), *Nietzsche and transhumanism: Precursor or enemy?* (p. 16). Newcastle upon Tyne: Cambridge Scholars Publishing.

Srnicek, N., & Williams, A. (2015). *Inventing the future* (p. 123). New York, NY: Verso.

Tassi, P. (2018). Netflix's '*Altered Carbon*' is the best hard sci-fi show on TV this side of '*Westworld*'. *Forbes*, February 5. Retrieved from https://www.forbes.com/sites/insertcoin/2018/02/05/netflixs-altered-carbon-is-the-best-hard-sci-fi-show-on-tv-this-side-of-westworld/#2e299066432c

Tirosh-Samuelson, H. (2011). Engaging transhumanism. In G. R. Hansell & W. Grassie (Eds.), *H+/−: Transhumanism and its critics*. Philadelphia, PA: Metanexus.

Tuncel, Y. (2017). Introduction. In S. L. Sorgner & Y. Tuncel (Eds.), *Nietzsche and transhumanism: Precursor or enemy?* (p. 1). Newcastle upon Tyne: Cambridge Scholars Publishing.

Verbeek, P.-P. (2011). *Moralizing technology: Understanding and designing the morality of things* (p. 144). Chicago, IL: University of Chicago Press.

Weiner, J. (2010). *Long for this world: The strange science of immortality* (pp. 156–158). New York, NY: HarperCollins.

INDEX

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This page intentionally left blank

This page intentionally left blank