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Biotechnology and Human Dignity

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Abstract Cover Page

Biotechnology and Human Dignity

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An abstract of
A thesis submitted to the Faculty of the
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2015

Abstract

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Biotechnology and Human Dignity
By Keenan Wills Davis

Wielding technological power to alter the human condition is no new phenomenon. However, the current rate of change in such power as well as its remarkable scope and ease of access will certainly present heretofore unseen difficulties of extraordinary consequence. To ethically address the ways in which we might use biotechnology to modify human nature, we must have recourse to an overarching guiding concept such as human dignity. The greatest threats to human dignity result from a reductionist understanding of various philosophical dualisms, including mind-body, nature-nurture, and fact-value. This thesis will promote a moderate and pragmatic naturalist ethics for harmonizing these irresolvable dialectics in service of human dignity, and will illustrate the resulting methodology through the specific example of cognitive enhancements.

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Introduction:

Bioethics and Human Dignity in the Twenty-First Century

Bioethics. In what way does tacking on the prefix "bio-" to the discipline of ethics impact the meaning and purpose of the field of bioethics? Derived from the Greek word "*bios*" or "life," this prefix implies a level of embodiment, of enactment, of ethics enlivened. While philosophical ethics is often abstract and idealistic in its analysis of morality, bioethics seeks to instantiate and apply. It is necessarily pragmatic. The bioethicist must be trained in and sufficiently familiar with abstract philosophical methods and idealistic moral norms, yet he or she must be focused on the ways in which those concepts manifest in the real world, specifically in the evolving world of health care, medical science, and biotechnology. Bioethics is the field of applied ethics promoting healthy human life.

The term bioethics also implies an ethical approach rooted in and inspired by our lives. In addition to its top-down application of abstract principles to everyday life, bioethics formulates those principles from the bottom-up through lived experience. It is therefore a form of naturalism, generating and developing ethical theory from clinical, research, and otherwise embodied encounters. As such, it is a profoundly interdisciplinary endeavor, bringing into dialogue a great diversity of perspectives, academic and professional. Bioethics recognizes that moral knowledge can--indeed, must--be understood as inseparable from our actual practices and the contexts of our daily lives. The bioethicist acknowledges that there is no way to escape our subjectivity to achieve a purely objective view of any issue or dilemma, and he or she generates moral claims in light of those

limitations. Bioethics is the field of applied ethics that takes into account the embodied nature of human life.

By balancing top-down application of ethical concepts with bottom-up refinement of those concepts, bioethics is uniquely situated to address humanity's greatest challenge in the twenty-first century: the power of biotechnology. Throughout history, technology has empowered us to augment our environment and even improve ourselves in various ways. From beer-brewing to psychopharmaceuticals, irrigation farming to genetically-modified crops, the printing press to Google Glass, our mastery of the natural world grants us increased and increasing power for self-determination. The wielding of technological power to alter the human condition is no new phenomenon. However, the current rate of change in such power as well as its remarkable scope and ease of access will certainly present heretofore unseen difficulties of extraordinary consequence. Until now, we have been able to overcome morning grogginess with a cup of coffee. In the future, some hope to use cognitive enhancements to overcome the need for sleep entirely. Currently, we have pharmaceuticals that partially reduce that need. Prudently used, coffee does not threaten the human experience. Whether the latter two might is a matter of serious debate, especially in the field of bioethics.

We continue to gain greater control over not just wakefulness but affect, intellect, aging, reproduction, and myriad other aspects of our humanity. The biotech revolution has led to the rapid development of countless novel therapies and treatments for various diseases--a tremendous boon. Yet, more ethically challenging is the use of those technologies and the development of others for enhancement purposes. Rather than use technology merely to correct a deficiency or disability, we have an unprecedented capacity

to boost human abilities from average to above-average (or even from above-average to further above-average). We can also enhance ourselves through the creation of abilities previously absent in humans.[1] The distinction between treatment and enhancement is not always a useful ethical distinction, but enthusiasm for the enhancement project overall shines light on the fact that we are now greatly empowered to alter our condition more fundamentally. We now have the technology to profoundly change human health, human life, and human nature. Should we? This is our generation's most important question to answer.

Technological progress has always brought with it both promise and threat. Its power to augment our nature can be, and has been, used for good and for bad. Evaluating the enhancement project in particular, however, proves to be anything but the straightforward division between good and bad technologies. While some in bioethics argue extreme reductionist positions, ranging from the claim that all enhancements are inherently wrong to the claim that no enhancements are inherently wrong, we will see that a more fruitful conversation results from nuanced consideration of particular technologies in particular contexts. Furthermore, in making these considerations, we will need to appeal to the more nuanced, multifaceted ethical concept of human dignity. To determine the extent to which and the manner in which a particular technology is deployed, we will have to evaluate the impact of said technology in terms of human dignity: In what ways does it contribute to our dignity? In what ways does it threaten our dignity?

Originating from the Latin "*dignitas*" or "worthiness," human dignity is broadly defined as the foundational concept used to grant humans respect, rights, or moral status.

[1] One example that recently received popular attention is night-vision attained through the injection of a solution directly into the eye.

Such a fundamental notion for ethics carries great potential to be abused, and conflicting definitions often result in vastly different responses to ethical conundrums. It is no surprise then that the concept of human dignity features prominently and often controversially in bioethics. The President's Council on Bioethics commissioned an entire compilation of essays, titled *Human Dignity and Bioethics*, featuring submissions from some of the most outstanding thinkers in a variety of fields. Likewise, the British Academy commissioned a comparable collection, titled *Understanding Human Dignity*, aimed at clarifying the debates raging in bioethics throughout which the concept of human dignity is ubiquitous. Each of these timely volumes recognizes the gravity of the enhancement debate and the pressing need to address the challenge of biotechnology through considered dialogue and collaboration between areas of expertise. A rigorous, balanced, and interdisciplinary understanding of human dignity is necessary to address the challenge of the enhancement project.

Some of the greatest threats to human dignity result from an overemphasis of one or more aspects of our nature at the expense of another. This overemphasis usually reflects an extreme philosophical position that insufficiently appreciates the need for moderation and balance in ethical decision-making. For example, humans are cognitive animals. This characterization as both cognitive and animal draws attention to the tension between our minds and our bodies as constitutive of our overall nature. Human dignity, we will see, requires an appreciation of this tension and of the inseparability of mind and body. Technologies such as head transplants, that separate out and unduly privilege mind over body in ethical consideration, will result in a violation of human dignity. These violations are typically grounded in a severe misunderstanding of human nature.

In place of radical and reductionist philosophy, respect for human dignity requires a restrained and humble ethics. The defining features of an ethical theory guided by human dignity are balance, harmony, and moderation. Inspired in large part by the ethics of Aristotle and the methodological approach of bioethics, this thesis aims to propose just such a theory, called "moderate naturalism." Moderate naturalism seeks to uphold human dignity by grounding its moral claims and methodology on the proper understanding of human nature--one that prudently navigates the tension between various ethical dialectics: mind-body, as well as fact-value and nature-nurture. These dialectics underlie every moral theory, but moderate naturalism acknowledges and embraces the irresolvable tension inherent in them, leading to a humble methodological pragmatism. Accordingly, technological and scientific progress may proceed in a measured and reasonable manner that maximally contributes to human dignity.

Throughout this thesis, we will use the paradigm of cognitive enhancement technologies to explicate the details of moderate naturalism and to compare it to various other moral theories. Cognitive enhancement serves as a particularly complex and provocative category of the ways in which we might modify human nature. Given the enormously significant impact of cognition on our understanding of personal identity, the cognitive enhancement debate brings out some of the most radical and absolutist positions, both in favor and against. Negotiating moderate naturalism's necessary balance with regard to specific types of cognitive enhancement will reveal the flaws in extreme ethical theories and will illuminate the appropriate relationship between biotechnology and human dignity. Moderate naturalism demonstrates how the progress of technology should best proceed.

Chapter 1 will review the literature surrounding the enhancement debate in bioethics. This includes a description of several themes that will greatly inform our understanding of moderate naturalism. Firstly, we will discuss the status and future of enhancement technologies. We will then analyze the potential impact of such technologies on human dignity. Most of the chapter will be dedicated to investigating the primary responses to the enhancement project, including most notably the conflicting transhumanist and bioconservative perspectives. Our investigation will highlight the consequences of overemphasis with regard to the aforementioned ethical dialectics: fact-value, nature-nurture, and mind-body.

Chapter 2 will more fully examine the meaning of human dignity and its role in ethics. Defined in terms of Aristotle's concept of "*eudaimonia*" or "human flourishing," human dignity represents the ethical significance of human nature and of a proper understanding thereof. Human nature is profoundly complex and multifaceted, so the collaborative, interdisciplinary, and pragmatic methodology of bioethics will be necessary to most fully inform our understanding of human dignity. In response to those scholars who believe human dignity to be a useless idea, it will be shown that human dignity is in fact the critical foundation of bioethics and any naturalist approach to ethics. In this chapter, we will elaborate on the meaning of naturalism and the relationship between mind and body, nature and nurture, as well as the facts of our nature and consequent normative obligations. In so doing, we will address the so-called naturalistic fallacy, which asserts that an "ought" claim cannot be derived from an "is" statement. This will entail a discussion of how to embrace the irresolvable tension in our ethical dialectics and find a golden mean in

support of human dignity. We will touch on the importance of practical wisdom and cultivated character as well as the role of empirical evidence in ethics.

Chapter 3 will explore the moderate naturalist methodology in greater detail and apply it to a paradigm case of cognitive enhancement technologies. Having laid out the overall understanding of *eudaimonic* human dignity and the pragmatic method for achieving it, we will then apply what we learn to particular cognitive enhancement technologies. This will enable us to begin to see how the moderate naturalist approach operates to resolve specific cases. Moderate and practical as it is, our methodology will show that radical biotechnologies which disrupt human flourishing are unethical violations of human dignity, while more modest enhancements can be implemented safely and prudently without unwarranted risk to our dignity.

The conclusion will consider several heuristics that summarize and synthesize the overall moderate naturalist methodology for policy-makers. Ultimately, the task of guiding biotechnology is not a matter of whether it will happen but when and how. As it does, these heuristics will help society's leaders and decision-makers to ensure that enhancements and biotechnologies in general are developed and implemented in a manner respectful of human dignity. Indeed, we will see that with proper management enhancements can even be used to democratize and promote human dignity among greater numbers of people. All of this depends our pragmatic naturalist methodology guided by the essential concept of human dignity.

Chapter 1:

Biotechnology and Human Enhancement

The term "human enhancement" brings to mind for many the idea of a comic book hero with superpowers or a science fiction utopia with endless exciting technological possibilities. The project to enhance ourselves, however, is no fiction. It is quite factual, pervading our daily lives and indeed our history. From coffee to eyeglasses to yoga, we routinely seek greater control over our mental, emotional, and physical abilities. However, bioethics today faces a pressing new problem, because we may have reached a point where biotechnology enables us to fundamentally alter human nature. Beyond modest augmentation of our capacities, emerging technologies promise superhuman and even radical "posthuman" enhancements.

To many of us, these possibilities are exhilarating; to many others, they are terrifying, dehumanizing, and undignified. Yet, what compelling reason exists *not* to use our technological power to redesign human nature? Are new enhancement technologies appreciably different from the old? The central challenge we face today is determining which biotechnologies are compatible or incompatible with our dignity as humans and in what contexts. This is a colossal challenge, which will require a rigorous understanding of the enhancement project, a substantive definition of human dignity as a guiding ethical concept, and an effective, context-sensitive evaluative methodology. This chapter will take the first step by analyzing the enhancement project and important responses to it.

Enhancement vs. Therapy

Enhancement technologies are often framed in contrast to those technologies used for therapeutic purposes. Therapies are reparative, used to correct a deficiency, treat an injury, cure a disease, or overcome a disability. Overall, they aim bring an unhealthy person back to health. Enhancements, on the other hand, are additive, used to improve upon an ability, extend it beyond the basic needs of health, or create a new one. They aim to bring a healthy person above the species-typical "baseline." The treatment-enhancement distinction is fraught with controversy, however, as terms such as "health," "disease," and "normal" are exceedingly unclear and subject to much debate. Defining the species-typical "baseline" or even providing a basic definition of health is not a task with a straightforward solution. Furthermore, many technologies that function patently as enhancements have been deemed well within the purview of ethical healthcare providers, preventive medicine and vaccinations, plastic surgery, and palliative care being only a few examples. Lastly, many therapies *are* enhancements or can be used as such. The same chemical, device, or activity can serve to restore a function in one person and heighten that function in another. Distinguishing enhancement from therapy is neither clear-cut nor particularly useful when considering a particular technology in the abstract.

Laura Colleton explains that the distinction does become a useful one primarily when speaking in financial terms. This is because even if these categories are difficult to delineate in the theory, they are enforced by insurance companies and governmental organizations in practice. She writes that "scientists may not recognize this line, but insurance companies do." More specifically, "the line between therapy and enhancement is

the line where medical necessity stops and optional or elective procedures begin."[2] So called "medical necessity" entails obligation to treat on the part of health care providers and those organizations that fund treatment. Therefore, in establishing policies regarding whether or not to cover a particular intervention, institutions do indeed draw the lines between disease, health, and enhancement. Paul Wolpe adds that based on their chosen definitions, third party payers will also create policies delimiting extent of access. For instance, in the case of new pharmaceuticals, he explains, companies will determine whether or not to regard them as "medical drugs," "over-the-counter," or even possibly a new "class of drugs available only to those who can show legitimate social need."[3]

Each of these classifications and the provision of all "services under the rubric of medicine," Wolpe explains, "is, ultimately, somewhat arbitrary, the product of social negotiation and historical precedent." Any exclusive, abstract, static distinction between therapy or enhancement will fail, as our species-typical baseline is in dynamic flux. These terms must be responsive to changes in society and the practice of medicine. A category such as enhancement only functions in cultural and historical contexts, and decisions about how to use enhancements "will be the product of a long series of conversations in the professional literature and in public fora as these technologies develop."[4] Individual biotechnologies in theory are not themselves enhancements or therapies; rather, as used in practice within a specific historical-cultural ensemble, they can be more effectively categorized.

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[2] Laura Colleton, "The Elusive Line Between Enhancement and Therapy and Its Effects on Health Care in the U.S.," *Journal of Evolution and Technology* Vol 18, Issue 1 (2008): 70-78.
[3] Paul Root Wolpe, "Treatment, Enhancement, and the Ethics of Neurotherapeutics," *Brain and Cognition* 50 (2002): 392.
[4] Wolpe, "Treatment, Enhancement, and the Ethics of Neurotherapeutics," 390.

This is an example of the more general dual-use phenomenon of technology. The dual-use problem results from the fact that a single technology can be used for a host of different ends, such as therapy and enhancement, good and bad, depending on the agent in control and the context of its use. For instance, a baseball bat can be used by an athlete or by a criminal. It can be used for hitting a homerun or for hitting a person. That person could be an innocent victim or a violent intruder into one's home. Baseball bats as a technology do not inherently contribute to or threaten human dignity. Rather, the combination of a baseball bat with a particular context can be dignified or undignified. The ethically salient impact of technology on human dignity depends profoundly on the society that implements it, with its history and institutions. Instead of focusing our efforts on the ethical evaluation of enhancements as a whole or in the abstract, this is our first indication that we will be better served analyzing the details of specific technologies in specific contexts.

Types of Enhancement

There is an incredible variety of enhancement technologies and techniques, but they may generally be separated into the following categories: physical enhancements, reproductive enhancements, and cognitive enhancements. We will briefly summarize the first two and focus primarily on the latter moving forward. These types of enhancement share many features, but also carry with them a unique combination of ethical implications. Working through the details of the technology will aid us in our efforts to evaluate the ethical challenges of the enhancement project generally and of implementing particular enhancements.

Physical enhancements are those technologies that augment the form or function of the human body. Currently, this includes contact lenses and protein powder as well as cosmetic surgery and prostheses. Countless physical enhancements are essential elements assisting us in our daily lives. The ubiquity of physical enhancement technologies such as vitamins and exercise equipment further demonstrates the ethical acceptability of enhancement at all. As we will see is true of all enhancements, ethical controversy usually results from the context in which a technology is used. For example, many performance-enhancing substances have been deemed unacceptable in competitive sports, because they confer an unfair advantage over an opponent. However, here the ethical problem is not the chemical itself (assuming it is safe to use), but the way in which its use manifests in a given setting. Outside of competition, many of these chemicals are perfectly ethical for personal use. Even Gatorade can be considered a performance enhancer. Context-sensitivity will be necessary to evaluate emerging and proposed physical enhancements, such as anti-aging technologies and bionic limbs.

Reproductive enhancements are technologies that grant us greater control over the process of having children. Many of these have proven tremendously helpful for those couples having trouble conceiving, arguably bolstering their human dignity. Artificial insemination has existed for human use for over a century, and many other interventions such as fertility drugs are relatively commonplace. Some technologies are more ethically fraught as a result of their greater implications for the ideals of marriage and intimacy. For example, in vitro fertilization is looked down upon by some for artificially replacing the conjugal process. Others oppose all reproductive technologies that result in the destruction of embryos, arguing that their right to life outweighs the reproductive desires of another.

Reproductive enhancements reveal the necessarily relational effect of technologies. An important part of evaluating biotechnologies in context is understanding their impact on human dignity at the levels of family, community, and society.

Lastly, the category of cognitive enhancements is an especially extensive one, ranging from technologies that control to various degrees our affect, intellect, memory, creativity, motivation, and even moral character. Some are as simple and common as a cup of green tea, others as radical and alien as uploading the mind to a computer. In all, cognitive enhancement can be defined as, "the amplification or extensions of core capacities of the mind through improvement or augmentation of internal or external information processing systems."[5] We will see that this is the most useful and ethically interesting biotechnology paradigm to explore in detail because of its profound implications for personal identity, decision-making, and other essential neurochemical contributors to human nature and human dignity.

Responses to Enhancement

While we have made clear that biotechnologies will need to be evaluated on a case by case basis, the two most vocal groups in the debate hold general opinions about the enhancement project as a whole. These rival groups are transhumanists, in favor of enhancement, and bioconservatives, largely opposed. Their differences stem primarily from their drastically divergent understandings of human nature and human dignity. Bioconservatives view the enhancement project as a threat to human dignity, while transhumanists either believe that human dignity is a meaningless concept or that it is not

[5] Nick Bostrom, "Smart Policy: Cognitive Enhancement and the Public Interest," access April 20, 2015, http://www.nickbostrom.com/papers/smart-policy.pdf

incompatible with enhancement. Bioconservatives believe that human nature is sacrosanct and inviolable, while transhumanists believe that human nature is an impediment to be overcome. In both cases, we will see, their beliefs about biotechnology are grounded in radical reductionism with regard to various ethical dialectics: mind-body, nature-nurture, and fact-value.

Transhumanism

Fully in favor of enhancement, transhumanists see themselves as heirs to the traditions of "secular humanism and the Enlightenment," holding that "human nature is improvable through the use of applied science and other rational methods, which may make it possible to increase the human health-span, extend our intellectual and physical capacities, and give us increased control over our own mental states and moods."[6] Nick Bostrom, Oxford professor and transhumanism's most prominent voice, asserts that "transhumanists view human nature as a work-in-progress, a half-baked beginning that we can learn to remold in desirable ways."[7] He believes that humans "need not be the endpoint of evolution" and that through "rational means" such as the development of ever more powerful technological enhancements we can progress to an entirely new state of being, sufficiently distinct from *Homo sapiens* as we are currently found. The future of humanity is one in which we are replaced. First come "transhumans," or transitional humans, featuring

[6] Nick Bostrom, "In Defense of Posthuman Dignity," accessed April 20, 2015, http://www.nickbostrom.com/ethics/dignity.html. Also published in *Bioethics* 19 (2005): 202-214.
[7] Nick Bostrom, "Transhumanist Values," accessed April 20, 2015, http://www.nickbostrom.com/ethics/values.html.

augmented and additional capacities, and eventually “posthumans” who are so radically different in nature that we cannot begin to fathom their plane of existence.[8]

For many in the pro-enhancement movement, this scientific progress should not be slowed by deference to human dignity. They believe it is not a concept that should guide our technological progress at all. Some claim that it is inextricably religious in content.[9] Some claim that it is without content, invoking Ruth Macklin's famous editorial "Dignity is a Useless Concept," which suggests that human dignity needlessly complicates bioethical discourse and ultimately amounts to nothing more than respect for autonomy.[10] [11] Many thinkers, not only among transhumanists but throughout bioethics, are deeply suspicious of human dignity as a concept. The use and basic meaning of human dignity is an issue to which we will return in greater detail in the next chapter.

Many other transhumanists claim to be promoters of human dignity, even going so far as to assert that enhancements can lead to a unique form of "posthuman dignity." To thinkers like Bostrom a progressive understanding of human nature forms the basis of our dignity, consisting in “what we are and what we have the potential to be.”[12] In essence, enhancement technologies, intended to overcome the limitations of human nature, do not inherently threaten our dignity, and “human and posthuman dignity [are] compatible and complementary.”[13] In fact, in his chapter featured in the President's Council's *Human Dignity and Bioethics*, he suggests that “voluntary, deliberate enhancement *adds to* the

[8] Bostrom “Transhumanist Values"
[9] Steven Pinker, "The Stupidity of Dignity," *The New Republic*, May 28, 2008.
[10] Ruth Macklin, "Dignity is a Useless Concept," *The BMJ* 327 (2003): 1419.
[11] Institute for Ethics and Emerging Technologies, "Ruth Macklin joins the (trans)humanist bioethics resistance movement contra Kass," December 20, 2003, http://ieet.org/cybdem/2003/12/ruth-macklin-joins-transhumanist.html
[12] Bostrom, "In Defense of Posthuman Dignity," 10.
[13] Bostrom, "In Defense of Posthuman Dignity," 10.

dignity of the resulting trait, compared to possessing the same trait by mere default [emphasis added]."[14] Some even argue that enhancement is a moral obligation, so that we might more significantly improve the world around us.[15] Whatever constitutes dignity is not dependent on or determined by human nature, but is a property that can be augmented in unnatural ways too. For transhumanists, dignity, if it matters at all, is asserted as voluntary self-determination. Enhancement technologies are its prime expression.

Bioconservatism

The opponents of transhumanism, known as bioconservatives, see current enhancement technologies and future posthuman ideals as inherent violations of human dignity. Some see human nature as the great achievement of a long process of evolution. We are the pinnacle species. More religious bioconservatives see in human nature the sacred handiwork of God. They believe man was made in God's image, so human nature is sacrosanct. In general, bioconservatives seek to conserve human nature as it exists, and they see the enhancement project as dehumanizing and unnatural. While they may not be complete Luddites, bioconservatives take a strongly precautionary view of technology, worried that it will disrupt the delicate balance of human nature and dignity.

Bioconservative Francis Fukuyama described transhumanism as containing "the world's most dangerous ideas," with its focus on the continuous upgrading of human

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[14] Nick Bostrom, "Dignity and Enhancement," accessed April 20, 2015, http://www.nickbostrom.com/ethics/dignity-enhancement.pdf. Also published in *Human Dignity and Bioethics: Essays Commissioned by the President's Council for Bioethics*, (Washington D.C.: www.bioethics.gov, 2008).

[15] John Harris, "Enhancement is a Moral Obligation," in *Enhancing Evolution: The Ethical Case for Making Better People*. (Princeton: Princeton University Press, 2007), 19-35.

nature.[16] He says that "we want to protect the full range of our complex, evolved natures against attempts at self-modification."[17] He believes that human dignity rests in what he calls "Factor X," "some essential human quality underneath that is worthy of a certain minimal level of respect."[18] For bioconservatives, we have moral status because we are human beings with a given nature. If we continue to strip away, add, or modify aspects of our nature, we may eventually (perhaps more quickly than we expect) reach a point where we can no longer recognize ourselves as humans worthy of dignity. Human dignity is therefore in a precarious position, susceptible to violation through excessive enhancement, the precise limit of which we do not know.

In this sense, human nature is not only worth preserving, but it can provide normative guidance in determining what upholds and what threatens human dignity. For most bioconservatives, we should not tamper with that which we do not fully understand. There is enormous risk in the enhancement project that we might irreversibly disrupt all that is good, sacred, and worth preserving in our lives now. They believe in a strong precautionary disposition, changing only those things that must for a compelling reason be changed and nothing else, especially because the consequences of modifying human nature are so unpredictable. In the opinion of more essentialist bioconservatives, our nature directly determines our values: whatever is natural is good, and unnatural is bad. Enhancements that threaten our nature as it currently exists should therefore be entirely proscribed.

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[16] Francis Fukuyama, "The world's most dangerous ideas: transhumanism," *Foreign Policy* 144 (September–October 2004): 42–43.
[17] Francis Fukuyama, *Our Posthuman Future*, (New York: Macmillan, 2003), 172.
[18] Fukuyama, *Our Posthuman Future*, 143.

Philosophical Reductionism

The defining feature underlying both transhumanism and bioconservatism is an oversimplification of human nature. This occurs through a reductionist philosophical approach to various ethical dialectics: mind-body, nature-nurture, and fact-value. Both camps fail to appreciate the irresolvable yet fruitful tension inherent in these dialectics, instead opting to excessively privilege one pole over the other. For example, in suggesting that we should seek to upload our minds to be hosted as a type of software, transhumanists are utterly disregarding the constitutive and necessary contributions of our bodies to personal identity, human nature, and human dignity. Both camps come to extreme ethical conclusions as a result of their overemphasis on one dialectical pole or the other. We will see that such reductionism leads to beliefs and actions that are more likely to threaten human dignity than uphold it. In reality, most thinkers--including those who articulate the most radical positions--tend intuitively to fall somewhere between the two poles in practice. Yet, by analyzing the logical consequences of the opposing camps' philosophies and placing them in conversation, we will discover the valuable contributions of each side to the question of dignity in bioethics. This will assist us in more easily navigating the aforementioned ethical tensions and attaining a more robust and nuanced method for evaluating technological enhancements.

Mind/Body

The overarching difference between transhumanists and bioconservatives rests on divergent understandings of the relationship between mind and body in human nature. In everyday vernacular, it is not at all uncommon to distinguish between mind and body. We

might say that our mind is worn out from doing too many calculus problems for homework, or that our body is sore after wrestling practice. Additionally, notions of legal culpability invoke "*compos mentis,*" or being of sound mind, even when the body is fully functional; and, patients suffering from Locked-in syndrome are said to have fully functioning minds, while their bodies are wholly paralyzed. Though we know that the mind in some sense dwells in the body, these expressions indicate a level of independence. On the other hand, we also recognize a level of dependence when we advise someone to exercise so that they might cheer up or to take a walk to clear their mind. The extent to which we emphasize this independence or dependence will largely determine our comfort with efforts to technologically modify or replace the body, such as in certain cognitive enhancement methods.

Transhumanists' Understanding of Mind/Body

Transhumanists see the mind-body relationship as a strict dichotomy, in which the body serves as a vehicle or mere substrate for the mind. Just as we have developed the technology to replace limbs and organs, so too, the logic goes, we will be able to replace the organic body as a whole. Some believe we will be better served by hosting the mind in a more stable, capable, controllable, and upgradable vehicle such as a cyborg body. Other transhumanists go a few steps further, arguing that we should upload our minds digitally, leaving behind our biology at all levels, opting instead for "the transfer of a human mind to a computer."[19] Ray Kurzweil suggests that the human mind is simply an abstract pattern

[19] Nick Bostrom, "A History of Transhumanist Thought," Accessed April 20, 2015, http://www.nickbostrom.com/papers/history.pdf, 11 Also published in *Journal of Evolution and Technology* 14, Issue 1, April 2005.

that can be run as software on a sufficiently powerful computer.[20] With regard to personal identity, "you survive so long as certain information patterns are conserved."[21] Proposed advantages of living *in silico* include making back-up copies of oneself, the ability to travel at the speed of light, and the opportunity to live in a fantasy virtual universe of your own design.[22]

Transhumanists radically privilege the mind over the body, seeing our biology as a vestigial encumbrance to be transcended. Put simply, the conscious mind is the self and the body is a constraint on the self's possibilities. In many ways, we already use technology to overcome our bodily limitations. We use pen and paper to record our personal memories, we use search engines to discover information, we use cellular devices to communicate across the globe. Transhumanists simply want to take this technological progress and innovation to its logical extreme, in which we become more intimately one with our devices and tools. Rather than pen and paper, we can use video capture software to preserve our memories; rather than search engines, we can upload all of the internet to our brains; rather than cellular communication, we can bypass speech and directly communicate through thought patterns. Enhancement technologies will empower us to replace parts of the body or the body in its entirety in favor of more capable, more controllable, and more powerful alternatives, thereby liberating the mind from its shackles.

Transhumanism's Philosophical Origins - Mind/Body

[20] Ray Kurzweil, *The Singularity is Near*, (New York: Penguin, 2005), 166.
[21] Nick Bostrom, "The Transhumanist FAQ (Version 3.0)" Accessed April 20, 2015, http://humanityplus.org/philosophy/transhumanist-faq/
[22] Bostrom, "Transhumanist Values," 7.

This line of thinking depends on a Cartesian premise that mind and body are distinct, with the body alone subject to the physical laws of nature. To Descartes, only the internal operations of the mind--the thinking "I"--are to be trusted as authentic representations of oneself. The body and our natural senses are susceptible to manipulation and error, while the mind can operate more faultlessly through reason and logic. Locke later built on this conclusion, suggesting that one's identity consisted entirely of the operations of the mind: "This may show us wherein personal identity consists: not in the identity of substance, but...in the identity of consciousness."[23] In his view, a person is not constituted by the body but by continuous self-identification through memory.

In making this claim, Locke became the progenitor of perhaps the most popular modern definition of personal identity: psychological continuity. Proponents of this definition believe that one's self is constituted by psychological criteria specifically. Philosopher Derek Parfit at Oxford University is one of the most cited scholars promoting the argument that "psychological continuity is all there is to identity"—there is no bodily component.[24] Parfit asserts that, upon reflection, most of us would admit that this is at least the primary manner in which we define ourselves. There are many examples in modern culture that we encounter regularly. Consider, for instance, the trope of the body-swap in movies and television.[25] There are countless examples in which the minds of two characters swap bodies, typically to experience life from the other's perspective and attain a deeper appreciation of the other. It is not terribly difficult to imagine maintaining one's

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[23] John Locke, *An Essay Concerning Human Understanding* [1694], (London: Griffin and Company, 1836), 231.
[24] Derek Parfit and Godfrey Vesey, "Brain Transplants and Personal Identity: A Dialogue," in *Introduction to Philosophy: Classical and Contemporary Readings. 3rd Edition, e*d. Louis P. Pojman, (New York: Oxford University Press, 2004), 345.
[25] Often called the "*Freaky Friday* Flip," and seen in at least three different episodes of Power Rangers

personal identity while seeing the world out of another's eyes. As we have seen, transhumanists follow this logic to its extreme and treat the body as nothing but a vehicle for the mind, in no way necessarily constitutive of who we are. We are entirely defined by our memories, past experiences, and reflective personalities--our higher-brain function.

For transhumanists, human dignity is not threatened as long as our selves--our autonomous minds--are not threatened. This leads to a libertarian streak within the movement. They believe that nobody should interfere with an individual's freedom to modify his body and mind as he sees fit. As such, biotechnologies should be widely available in the marketplace, giving people the opportunity to maximize their autonomy and direct their own life free of coercion. [26] Human dignity, to transhumanists, is best achieved through "morphological freedom," unrestrained freedom to enhance the body as one sees fit. Subjecting the body completely to the desires of the mind does not threaten our humanity. Rather it allows us "to express what is truly human even further."[27]

Bioconservatives' Understanding of Mind/Body

Bioconservatives strongly oppose this strict mind-body dualism and its implications, levying a variety of critiques. The more religiously inclined among them suggest that man as an embodied being is created "in God's image and likeness."[28] Creatures of God would be wise not to rebel against our given form. Not only would this represent a transgression against His will, it would carry the potential to disrupt a network of goods from which we were intentionally designed to benefit, including gratitude, humility, the ability to

[26] Nick Bostrom. 'In Defense of Posthuman Dignity'
[27] Anders Sandberg, "Morphological Freedom -- Why We not just Want it, but Need it," (talk given at the TransVision 2001 conference, Berlin, June 22-24, 2001).
[28] Gen 1:26

overcome temptation. In their article "Biotech Enhancement and Natural Law," Ryan T. Anderson and Christopher Tollefsen argue that certain uses of biotechnology are inherent "violations of human dignity" because they disintegrate or threaten the constellations of human goods present in our gifted nature. This argument does not require a religious perspective at all. Rather, it sees human nature, both body and mind intertwined, as complex beyond our mastery and delicately balanced, the product of a omnipotent creator or eons of evolution. Very little if any room exists within which one may stray from this given, natural reality without compromising human dignity.[29]

Without recognizing humanity's dependence on God, our hubris could result in another Tower of Babel as excess pride leads us to strive for ever more perfection and God-like power. We already have some basic experience with this phenomenon, as is made clear by widespread abuses of and dependency on cosmetic surgery and Botox. Oddly, a utilitarian view of the body seems to make us even more obsessed with it. To create the conditions for magnifying such a superficial and grasping existence would be utterly hostile to human dignity. To many religious bioconservatives, the enhancement project and its devaluing of the human body represent a Gnostic temptation deeply threatening our sacred relationship with God. To the more secularly inclined, devaluing the body fundamentally misunderstands human nature and its fragility, threatening our relationship with goods that are accessible only in our embodied form.

Bioconservatism's Philosophical Origins - Mind/Body

[29] Ryan T. Anderson and Christopher Tollefsen, "Biotech Enhancement and Natural Law," *The New Atlantis*, Spring 2008, accessed April 20, 2015, http://www.thenewatlantis.com/publications/biotech-enhancement-and-natural-law.

The bioconservative critique of mind-body dualism also has its origins in an understanding of human nature. Bioconservatives point out that the mind and body are simply not as separable as Descartes or the transhumanists might believe. They argue that the body is not a mere vehicle or substrate but is constitutive of our selves. Some criticize the psychological definition of self by pointing out that identity seems to persist despite changes in psychology. Consider for instance the loss of memory, either acutely through amnesia or over time with age. At age 26, one remembers relatively few direct memories from age 13 and far fewer direct memories from age 3. How can we say that a person is identical with her previous self, if those memories do not remain? More radically, this psychological definition of identity would have to be amended if we were to develop a technology for implanting or uploading memories--recalling a specific memory does not necessarily make it yours. Furthermore, certain changes in personality are regarded as quite natural, ordinary, and healthy: our goals, interests, anxieties, and desires change over time as well. Parfit and philosophers in his camp have admirably attempted to respond to most of these critiques, developing a narrower psychological definition of identity.[30] Yet, perhaps a more realistic critique might simply be that disembodied higher-brain function alone is insufficient to fully describe how we intuitively tend to understand human nature and personal identity.

It seems to be an oversimplification to assert that our bodies are not at least partly constitutive of our psyche and of our personalities. To put it very frankly, transferring the mind of 7'2" basketball legend Dikembe Mutombo into the body of a young girl would be

[30] "X at t1 is the same person as Y at t2 if and only if X is uniquely psychologically continuous with Y, where psychological continuity consists of overlapping chains of strong psychological connectedness, itself consisting in significant numbers of direct psychological connections like memories, intentions, beliefs/goals/desires, and similarity of character" (Parfit, 1984, p.207)

jarring to Mr. Mutombo's identity, probably irreparably so. He would not be able to behave the way his identity so requires, as athlete, husband, father, etc. Concordantly, a study in the *Journal of Medical Ethics* found that many conjoined twins of sufficient age to do so, "express a desire never to be separated because it will result in such a profound change of identity."[31] Formation of one's identity occurs in a certain embodied context, and a radical change to that context is disruptive to identity.

Additionally, whereas psychological continuity does find itself primarily organized by and established in our higher brain function, it would be misleading to suggest that it is entirely a manifestation of the central nervous system alone. Our nervous system is spread throughout our bodies, and peripheral reaches of this system very often act independently of our brains. Some of this is natural instinct, some the result of years of training ("muscle memory"). When a man withdraws his hand from a hot stove or a high-level basketball player makes her jump-shot, this is done without measured forethought, yet we would certainly still ascribe the action to each respective individual.[32] He and she performed each of those actions, which are mere examples of countless experiences, memories, and constituents of identity not under the direct control of the higher brain.

Acknowledging finally that our brain itself--including the "higher" regions like the cerebral cortex--*is* part of our body, the dividing line between psychological and bodily components of personal identity remains increasingly blurry. The nebulous notion of "mind" clearly emerges from the integration of central, peripheral, and enteric nervous systems with the endocrine system (and probably much more) within a certain embodied

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[31] M.Q. Bratton, "*One into two will not go: conceptualising conjoined twins*," J Med Ethics 2004; 30: 279–285.

[32] Professional basketball players and coaches emphasize the need not to over-think; being "in your head" is one of the primary causes of missed shots.

context. With an interpretation of human nature nearly opposite that of the transhumanists, Thomas Hobbes critiqued "certain metaphysicians," like Descartes and Locke, who claim that mind can be thought of without body:

> ...they infer that there is no need for a thinking body...they also think that quantity can exist without body and body without quantity, so that a quantitative body is made only after quantity has been added to a body. These meaningless vocal sounds, 'abstract substances,' 'separated essence,' and other similar ones, spring from the same fountain.[33]

For Hobbes, not only is an abstract psychological definition of personhood insufficient, but it should be subsumed within a strictly biological definition. Our mind is a mere emanation of our body. To Hobbes and other materialists, we are body alone.

If we are identical with our bodies alone or if our identities are constituted to any significant degree by them, then threats to our bodies are threats to our selves, and may violate human dignity. For this reason, bioconservatives see the enhancement project as dehumanizing and dangerous. We do not possess the wisdom of God, and our human nature is exceptionally fragile. Tinkering and tampering, especially for the sake of superficial desires, are bound to have disastrous consequences for our dignity: "We need to realize that there is more at stake in the biological revolution than just saving life or avoiding death and suffering. We must also strive to protect and preserve human dignity."[34] Therefore bioconservatives have a strong precautionary disposition with regard to any technologies, and strongly oppose the enhancement project overall.

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[33] Thomas Hobbes, *De Corpore* [1655], III.4, ed. Karl Schuhmann (Paris: Vrin, 1999), 34.
[34] Leon Kass, *Life, Liberty, and the Defense of Dignity: The Challenge for Bioethics*, (San Francisco: Encounter Books, 2002), 1.

Nature/Nurture

The difference in conceptions of human nature with regard to mind and body align closely with another divergence between transhumanists and bioconservatives. The two camps vastly differ in their understanding of the relationship between nature and nurture, or the division between inborn features of human nature and those features in need of cultivation or molding. Though historically used in the field of psychology, this distinction has found its way into much of our daily lives. Just as we saw in terms of the mind-body dichotomy, it can often be useful to speak of our natural abilities or predispositions as independent from our efforts and environmental influences. We might say that someone is "a natural" at their sport, or that one "just isn't hard-wired" for the study of physics. One might also hear a defense attorney claim that his client should not be held legally culpable for robbery, because his actions were entirely the result of his up-bringing. Furthermore, sociologists point out that our vocational training largely determines the way we interpret the world around us: medical education, for instance, socializes physicians to behave with particular dispositions in their practice. Nature and nurture can be useful concepts for defining various aspects of the human experience individually and collectively. The degree to which we emphasize the role of nature or nurture in constituting who we are will significantly impact how ready we are to modify aspects of our human nature.

Transhumanists' Understanding of Nature/Nurture

Just as transhumanists see no intrinsic value in the human body, they likewise view our nature as a whole as a limited, frail, lamentable state in need of transformation. Not

only do they not privilege our material embodiment, they do not privilege any aspect of our inherited status quo whatsoever, from inclinations to emotions to information processing and beyond. All of these aspects of our nature are temporary, flawed solutions to eternal problems that can be addressed more effectively, productively, and powerfully through artificial enhancements that we design ourselves. For example, the evolution of pro-social behavior may have led to strong ethical capacities within groups, but it made us very hostile to members of out-groups. Through moral enhancement (a form of cognitive enhancement), we can correct evolution's error and become better tuned to the needs of our global peers.

"Had Mother Nature been a real parent, she would have been in jail for child abuse and murder," claims Bostrom.[35] The goal of transhumanism is to use abstract reason in order to "strive to overcome human limitations and weaknesses" and "profoundly alter the human condition."[36] A frequently used phrase among transhumanists is that "the important thing is not to be human but to be humane."[37] Bostrom cites as an intellectual forbear J.B.S. Haldane who suggested that every great technology appears at first "indecent and unnatural."[38] Nature is no guide for progress, no basis for dignity. As we saw above, transhumanists believe that human dignity depends in no way on what we have, and entirely on what we make of ourselves. Dignity itself can be enhanced! They vehemently emphasize the power of nurture to transcend our nature.

Most transhumanists see nature as the opposite of nurture. It represents the biological baggage that restricts and constrains us. Nature is the reason we age and die; it is

[35] Bostrom, "In Defense of Posthuman Dignity," 8.
[36] Bostrom, "Transhumanist Values," 3.
[37] Bostrom, "The Transhumanist FAQ (Version 3.0)"
[38] Nick Bostrom, "A History of Transhumanist Thought"

the reason we suffer and feel pain; it is the reason we have limited intellectual understanding and moral control. These are the limitations of our evolution, which until now we have been stuck with. This is the understanding of nature as "often right to tamper with."[39] Science and rationality can overcome our regrettable nature in whatever ways we may desire. Enhancement technologies potentially hold the key to immortality,[40] eternal bliss,[41] and superintelligence.[42] A posthuman being is one free from the body and nature entirely. In this sense, human nature has value only insofar as it provided "the raw material" for our journey forward.[43]

Transhumanism's Philosophical Origins - Nature/Nurture

The modern belief that our selfhood depends entirely on the role of nurture originates again with John Locke and his theory of the *tabula rasa*. Deeply intertwined with his psychological definition of identity, Locke's philosophy regards human mind at birth as a blank slate without information, understanding, or preferences, and therefore without prejudice or other human corruptions. He believed that all of who we are emerges from our sensory experience, upbringing, and our freely chosen path in life. To Locke, we are free to define ourselves as we see fit. This perspective has been used, especially in the 20th century, as an ideological rebuttal to those who understand Darwinian heritability as suggesting that human nature is entirely genetic and innate.

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[39] Bostrom, "The Transhumanist FAQ (Version 3.0)"
[40] Max More, "Deathism and Immortalism," *Cryonics* 12, No.3, (March 1991).
[41] David Pearce, "The Abolitionist Project," accessed April 20, 2015, http://www.abolitionist.com/.
[42] Kurzweil, *The Singularity is Near*, 254.
[43] Bostrom, "The Transhumanist FAQ (Version 3.0)"

John Watson, one of the founders of the psychological theory of behaviorism, believed so strongly in the *tabula rasa* theory and in the potential for nurture to rationally condition humans that he claimed:

> "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors."[44]

With this perspective, there are no natural constraints on what we can become. The possibilities are limitless and open to our rational free choice. Transhumanists maintain this belief in the extreme: that human nature itself has no intrinsic significance at all and need not interfere with our desires. Dignity need not depend on restricting ourselves to the human form or to human nature at all. The greatest achievement of progress will occur when we can manipulate, design, and enhance our selves--understood as our completely unfettered mind or consciousness--in absolutely every way we can freely imagine.

Bioconservatives' Understanding of Nature/Nurture

Bioconservatives, on the other hand, see our nature as something worth preserving, indeed inviolable. Just as they suggest the mind is utterly dependent on the body, they believe that human dignity is utterly dependent on human nature as it currently exists. This is because they believe that our inherited nature is indispensable for the human experience and for a good life. While transhumanists see the loss of human nature as a good thing,

[44] John B. Watson, *Behaviorism*, (New Brunswick: Transaction Books, 2009), 82.

bioconservatives treat the adjective "dehumanizing" as effectively synonymous with undignified and unethical. We have already mentioned the religious grounding for this claim--that human nature as created is sacred. To modify our created nature, then, is to potentially threaten our relationship with God.

Bioconservatives also argue this point in terms of moral character. Rather than emphasize the potential for progress in overcoming our nature, they prefer to focus on gratitude for what we have. For example, Michael Sandel argues that a disposition of appreciation for our nature as "gifted" is a healthier and more ethical mindset than a disposition of mastery. The enhancement project and its goal to freely manipulate human nature "represent the one-sided triumph of willfulness over giftedness, of dominion over reverence, of molding over beholding."[45] Bioconservatives argue that this techno-libertarian orientation leads simultaneously to arrogance and selfish restlessness, disrupting the moral landscape in which openness to the "unbidden" engenders humility, responsibility, and solidarity. In this way, some argue that control over our genetics will lead to a "new eugenics" movement and treat our features as commodities, susceptible to the corrupting influence of economic forces. Instead, they believe that moral wisdom results from personal limitations and the proper acceptance of our finitude.

Other bioconservatives emphasize the likelihood that this arrogance will backfire. Fukuyama's theory of "Factor X" suggests that human nature is a complex whole that is easily disrupted through modification, resulting in a violation of our dignity. This is to say that the human condition is fragile and enhancements to one facet will result in unanticipated damage to another. As a result of the belief in extremely high probabilities

[45] Michael Sandel, *The Case Against Perfection*, (Cambridge: Harvard University Press, 2009), 85.

for negative consequences, bioconservatives live by a strong precautionary heuristic, opposing all unnecessary modifications to our nature. They believe human flourishing and dignity are most accessible in the situation we currently experience and understand.

Bioconservatism's Philosophical Origins - Nature/Nurture

The belief that we cannot be reduced to our nurture stems in modern times from the materialist philosophy of Thomas Hobbes, who claims that humans are born with a nature that we can come to know through self-reflection. At the very least this nature compels us to defend ourselves and to promote our own interest. Hobbes codified these two aspects of our nature as follows: "one, the postulate of human greed by which each man insists upon his own private use of common property; the other, the postulate of natural reason, by which each man strives to avoid violent death."[46] In his view, neither ethics nor politics could be conducted without a proper understanding of human nature. Nurture is inextricable from nature, just as mind is inextricable from body.

This has been corroborated by modern nativists in the fields of evolutionary psychology and neuroscience. Steven Pinker, for instance, argues against Locke's theory of the "blank slate" by pointing to neuroscientific findings that humans have from birth specific cognitive modules for learning various skills such as language acquisition and facial recognition. These modules are genetically inherited as the result of the advantage they conferred in our evolutionary history. Consequently, we have a shared human nature that places constraints on what we can do without being disordered. Bioconservatives strongly embrace these findings, using them to suggest that our nature has been carefully honed

[46] Thomas Hobbes, *On the Citizen*, eds. Richard Tuck and Michael Silberthorne, (Cambridge: Cambridge University Press, 1998), 6.

throughout history. They believe that human dignity will be threatened if this refined nature is threatened.

Strict nativism, the view that we are utterly determined by and reducible to our nature, is not currently a powerful force in modern psychology or philosophy. Thinkers such as Francis Galton and Herbert Spencer tried used such reductionism to justify social Darwinism and various eugenics movements, which culminated in the Holocaust and other atrocities of the twentieth century. They reasoned that "survival of the fittest"[47] and the laws of evolution apply to humans as strictly biological creatures. Therefore, welfare programs that support the needy are morally unjustified--"inferior" or "unfit" humans ought to die out:

> The forces which are working out the great scheme of perfect happiness, taking no account of incidental suffering, exterminate such sections of mankind as stand in their way, with the same sternness that they exterminate beasts of prey and herds of useless ruminants.[48]

This extreme determinist line of thinking has since been widely and harshly disavowed. Yet, it is worth pointing out that social Darwinism represents the radical privileging of nature over nurture, entirely conflating the facts of our nature with the good.

Fact/Value

This leads to the final related ethical dialectic dividing the transhumanists and the bioconservatives, which roughly synthesizes and builds upon the previous two. The camps differ in their treatment of the relationship between facts and values, emphasizing either

[47] a phrase coined by Spencer
[48] Herbert Spencer, *Social Statics*, (London: Strand, 1851), 416.

the separation of the two or their conflation. The distinction between facts and values can be useful, such as when we need to differentiate between what happens when we describe the color of someone's shirt and when we describe what moral obligations we have to that person. We commonly hear of this distinction as "objective description" versus "subjective evaluation." Yet, facts and values are also interdependent to a significant degree. Consider the example, frequently encountered in this debate, of the term "cruel." To describe an historical figure as cruel is both a descriptive statement and an evaluative statement. The two cannot be disentangled. The debate between transhumanists and bioconservatives depends in large part on the extent to which they emphasize or deemphasize this entanglement. We will see later that this carries great ethical implications for defining human dignity and measuring enhancement technologies against it.

Transhumanists' Understanding of Fact/Value

Transhumanist premises, we have seen, thoroughly separate mind from body and nurture from nature. Similarly, their philosophy corresponds with a strong emphasis on the incommensurability of facts and values. They are believers in a form of G.E. Moore's "naturalistic fallacy," which states that ethical or evaluative claims cannot be conflated with natural properties such as desire or happiness. One cannot derive an "ought" from an "is." In other words, just because an act makes you happy or is desired does not mean that it is necessarily the right thing to do. For example, a man's desire to eat an ice cream cone, along with the fact that it makes him happy, does not result in a moral claim as to whether or not he should eat one. For transhumanists, facts do not directly determine values.

Their ethical system is a form of anti-naturalism, which asserts, as we have seen, that human nature has no normative meaning. The facts of our nature cannot establish our ethical values. Rather than base evaluative judgments on the biological predispositions of humans, anti-naturalists see the desires of human nature, especially those of the body, as misleading and frequently even unethical. Anti-naturalism depends on top-down reasoning, taking abstract rational principles, such as human rights or respect for autonomy, and specifying them to concrete ethical decisions. For example, in deciding to pursue mind uploads and other enhancements, transhumanists appeal to their understanding of human dignity as rational self-determination and conclude that they are justified in their pursuit. Their evaluation is made with reference to pure, abstract reason, and not at all to the facts of human nature as it currently exists. This abstract idealism is what leads to transhumanists' utopianism and unceasing faith in the power of technological progress.

Transhumanism's Philosophical Origins - Fact/Value

The strict dualism of fact and value also has its origins in the Cartesian separation of mind and body. This positive and analytical approach to ethical deliberation assumes a conscious mind using exacting logic untainted by the body and biology. It depends on a notion of pure abstract reason or absolute free will. One example from this tradition is Kant's categorical imperative, which abstracts morality away from particular contexts and scenarios, asserting that one should act "only according to that maxim whereby you can, at

the same time, will that it should become a universal law."[49] Kant argued that this maxim could not be generated or justified empirically (or *a posteriori*).[50] Rather, moral knowledge must be *a priori,* based on pure reason, with value judgments derived logically from that knowledge. Reason transcends the limitations of human nature and the human body and leads to an ethic of truly free good will, entirely detached from coercive sense-dependent factors such as fear, appetite, pain, and pleasure.[51] Once those *a priori* axioms are developed, they can be applied algorithmically to specific circumstances. For anti-naturalists, including those subscribers to transhumanism, human dignity and other ethical concepts are built on formal analysis and necessary and sufficient criteria.

Bioconservatives' Understanding of Fact/Value

Bioconservatives, we have seen, strongly emphasize the ethical significance of human nature and our embodied form. They are naturalists in that they are more comfortable giving ethical weight to empirical facts, sometimes to the extent of conflating them entirely. The facts of our nature, including its many properties beyond abstract reason and beyond our full comprehension, provide the key to understanding the ultimate good for human beings as well as the ideal means of achieving it. For example, to defend the moral claim that it is wrong to own slaves, bioconservatives would argue that it is clearly evident that enslavement does not contribute to a good life. This evidence rests in the facts of human nature that we inherently desire freedom and we are inherently averse to being

[49]Immanuel Kant, *Grounding for the Metaphysics of Morals [1785]*,trans. James W. Ellington, (Indianapolis: Hackett Publishing, 1993), 30.
[50] Immanuel Kant, *Critique of Pure Reason [1781],* trans. Marcus Weigelt, (New York: Penguin Classics, 2008), 1.
[51] Kant, *Critique of Pure Reason*, 15.

forced into servitude. They would also invoke reason as grounded in embodied experience to argue that freedom naturally and demonstrably contributes to human flourishing.

Similarly, bioconservatives oppose the enhancement project on the grounds that it would disorder our natural desires and the good life that depends on them. Radical technologies like mind uploading and potentially even more modest enhancements like attention-focusing drugs could interfere with our ability to flourish as humans. These examples further demonstrate bioconservatives' tendency to consider the unity of mind and body in their judgments. Bodily experiences such as pain and pleasure provide relevant information for moral calculus. Naturalists would respond that Moore's naturalistic fallacy insufficiently considers the whole of human nature, including the biological and the bodily, in ethical decision-making. With this striking appreciation for what already exists, bioconservatives often view technological progress in dystopian terms. They are eminently pessimistic about the ways in which we will manipulate ourselves the consequences of such manipulation.

Bioconservatism's Philosophical Origins - Fact/Value

Naturalism is the embrace of fact and value as interconnected. The strictest of naturalists utterly conflate fact and value, suggesting that nature itself is the standard for determining what is ethical. In their eyes, anything that violates human nature or nature more generally is immoral. This absolute reductionism is what led to social Darwinists, who viewed ethics as nothing but an empirical science. Tamer versions of this naturalism, however, are invoked by religious believers and by environmentalists. They see the created world as our natural habitat and the as ideal guide in not only avoiding ruination of our

condition but also in achieving what is best for us. We should regard the world and its contents with deference, rather than think we can "play God" and master the natural order.[52]

Natural law theory, with its origins in Thomas Aquinas, suggests that a system of normative ethics can be derived from study of the natural world, rendering its prescriptions more fundamental than civil or positive law. This would also make ethical decisions universally applicable, regardless of culture, era, location, or upbringing, because they are based in our shared human nature. Natural law therefore is a form of moral realism, suggesting that there are right and wrong actions, discoverable through mature reason, that comport with our essence as human beings. Aquinas also suggested that there are certain basic goods that contribute universally to human flourishing and to our moral perfection. He claimed that life, procreation, knowledge, and sociability are the four basic human goods "to which man has a natural inclination," and which "are naturally apprehended by reason as good, and therefore as objects to be pursued."[53]

Bioconservatives inspired by the natural law tradition would evaluate enhancement technologies in terms of their likelihood to promote or violate these basic goods, moral perfection, and human dignity. Their evaluation would regard the facts of our current nature as ethically significant but not utterly determinate. Our status quo is not dispositive proof against modest intervention for the sake of our basic goods, but our essential human nature must not be compromised. Stricter naturalists, including bioconservatives, are therefore extremely wary of unnecessary changes.

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[52] Ruth Chadwick, "Playing God," *Cogito* 3, Issue 3 (1989): 186-193.
[53] Paul E. Sigmund, *St. Thomas Aquinas on Politics and Ethics: A New Translation, Backgrounds, Interpretations*. (New York: Norton, 1988), 49.

Conclusion

Transhumanists emphasize humanity's potential for progress, while bioconservatives emphasize how lucky we are for what we have. The camps' respective conceptions of ethics, and of human dignity in particular, reflect these emphases. The acute philosophical emphasis of nature over nurture or of mind over body (and their opposites) results in reductionism and more radical conclusions about how we should understand our relationship with our current condition. These radical conclusions are that either our current human nature determines or constrains our future goals or that it has no role in formulating our values. By focusing on mind separated from body and nurture unfettered by our nature, transhumanists are able to maintain utopian dreams about where the enhancement project might take us. By focusing on the body and the severe constraints imposed by human nature, bioconservatives come to starkly dystopian views of the enhancement project and its potential to violate our delicate and complex dignity.

The next chapter will be an attempt to show that the power of biotechnology is overstated by both sides of the debate, resulting in misguided ethical positions in turn. Transhumanists and bioconservatives alike envision science-fiction posthuman worlds featuring utterly unrecognizable human states. However, taking a less hyperbolic and more realistic account of where we are now will help us better contextualize this conversation. Modest enhancements that are proven safe and effective will be assimilated into our societies, while disruptive radical enhancements that threaten our identities will not. The assumption that the enhancement project will produce either a paradise or a "brave new world" is almost certainly false. Using our current state as a mere starting

point, we will see that there are broad limits to what humans will choose to do to themselves moving forward.

The distinctions of mind and body, nature and nurture, and facts and values can be useful as conceptual divisions--such as when we distinguish between physical and cognitive enhancements--but they are not strict metaphysical dualisms. By overcoming these false dichotomies, we can more seriously and effectively evaluate which technologies contribute to human dignity and which do not. Most importantly, we will see that enhancements cannot be assessed categorically, abstractly, or in overly reductionist terms. We must do our best to analyze particular biotechnologies in particular social contexts and in a given social order. Upholding human dignity requires practical wisdom and a cultivated moral imagination capable of responding virtuously to a diversity of concrete situations. With a thorough understanding of human dignity and how best to promote it, we will then be able to lay out the theory of moderate naturalism.

Chapter 2:

Eudaimonic Human Dignity

In the previous chapter we examined the ethical positions that result from a reductionist understanding of human nature. Transhumanists believe that human dignity either means nothing or provides so little guidance that it amounts to nothing. They maintain the attitude that one's dignity is unharmed as long as it is free of external coercion. Bioconservatives, on the other hand, believe that human dignity is exceedingly complex and fragile, susceptible to threat at every turn. They treat the human condition as the result of the optimizing process of evolution or creation and believe that any efforts to willfully change that course will bring doom.

Each of these groups errs too strongly on one side or another of the mind-body dialectic and its related division, nature-nurture. By claiming that personhood is defined primarily by the autonomous mind, transhumanists come to the conclusion that value judgments and ethical principles can be generated in the abstract, independently of facts. By claiming that we are defined more by our innate nature including crucially the human body, bioconservatives conclude that value judgments and human dignity depend essentially on preservation of what we have. They believe that facts directly determine values. Both of these positions are overly essentialist and simplistic. Though each group provides a good amount of useful insight, they each fall prey to the temptation to overstate their case.

It is easy to make the claim that we are defined by a single thing or another. This line of reasoning proceeds linearly: if a technology boosts our free conscious mind, then it is

good; or, if an enhancement changes the way our body works, then it is bad. In reality, things are not so straightforward. We are not reducible to just our mind or just our body. Our identities depend deeply on both the embodied nature we genetically inherit and the ways we are uniquely nurtured by parents, society, and our personal decisions. More difficult to fully appreciate, we will see, is the relationship between facts and values--the way human dignity depends on human nature holistically understood. Human dignity is a tremendously complex ethical concept, because human nature is tremendously complex. There are aspects of the human condition worth preserving and aspects worth improving upon. Conservation and growth are both valuable, in proper proportion, for human dignity.

The details of human dignity depend on understanding the facts of our nature, but are not linearly determined by them. In this way, our moderate naturalism can be viewed as a sort of tempered form of Natural Law, careful not to overstate the positive normative guidance of nature. More than anything, nature generally and our inherited human nature specifically represent valuable and necessary constraints. We will see that this negative, almost apophatic view of nature's normative significance allows for a more pluralistic and, indeed, realistic method for paths forward that uphold human dignity. These paths will emerge from a nuanced (but not determined) analysis of the relationship between mind and body, nature and nurture, and fact and value. These dialectics exist in irresolvable tension, requiring not reduction or synthesis but thoughtful harmonization at numerous levels. Learning how to harmonize these dialectics will guide us toward understanding what constitutes human dignity and what paths lead to human flourishing. Only then will we be in a position to ethically distinguish those aspects of human nature worth preserving and those in need of greater development.

Embodied Cognition: The Mind-Body Relationship

As we saw in the previous chapter, human nature and our understanding of persons cannot be reduced purely to psychological or bodily definitions. Rather, human nature depends vitally on both mind and body, which are deeply intertwined together. We are cognitive animals. The difference in interpretation of the mind-body relationship is the most significant gulf between transhumanists and bioconservatives, because it has the most to illustrate about the constitution and role of human nature, a necessary foundation for the other two dialectics. The fields of neuroscience and cognitive psychology have contributed copiously to understanding this relationship, revealing much about how our embodied cognitive nature develops from birth and how it is trained over a lifetime to make us who we are.

In the last few decades, we have learned more about the complexities of the brain than in all of history combined, including in particular the details of its relationship with the body. These findings grant astounding and original insight into our historical philosophical and ethical questions. Philosopher Mark Johnson believes that we cannot forsake empirical knowledge of the brain when speaking about ethics:

> [W]e cannot do good moral theory without knowing a tremendous amount about human motivation, the nature of the self, the nature of human concepts, how our reason works, how we are socially constituted, and a host of other facts about who we are and how the mind operates.[54]

[54] Mark L. Johnson, "How Moral Psychology Changes Moral Theory," in *Mind and Morals: Essays on Cognitive Science and Ethics,* ed. Larry May, Marilyn Friedman, and Andy Clark (Cambridge: MIT Press, 1998), 49.

Philosophers like Johnson, Daniel Dennett, and Paul Churchland have discovered that knowledge of human nature and its ethical implications necessarily involves delving into the cognitive sciences. At the same time, neuroscientists like Antonio Damasio, Joseph LeDoux, and Michael Gazzaniga have realized that their findings have immense philosophical consequences:

> A lot of information is available about how the brain works, and while it may not yet be sufficient to fully explain persons, it should certainly encourage us to begin thinking about the problem.[55]

With neuroscientific insight into human nature and philosophical perspectives of cognitive science, we can come to comprehend not only the mind-body relationship, but the complex relationships of nature and nurture and of fact and value. We need the facts of human nature to calibrate our values for nurturing.

Every human is born with 100 billion neurons in a genetically inherited combination, broadly identical between individuals (how else could we generalize about the human brain?), but varied in the instantiated specifics. These similarities and variations are further pronounced through the formation of synaptic connections, which dynamically strengthen and weaken as a result of both inherited and environmental factors. This process is called synaptic weighting, and the distinctive arrangement of connections, some stronger and some weaker, dictates how the brain will process, interpret, and respond to the world around it.

There are great consistencies between the blueprints of nearly all human brains, down to the localized brain regions and even to the ridges and folds; and yet our unique

[55] Joseph LeDoux, *Synaptic Self*, (New York: Penguin, 2002), 2.

experiences shape us individually, causing idiosyncratic adjustments to and expressions of the blueprint. The greatest number of adjustments are made during childhood development, as an individual encounters an increasing diversity of novel stimuli and recurrence of common stimuli. These adjustments continue throughout one's life as cognitive resources are drawn upon to meet the needs of different situations. Overall, synaptic weighting depends on the frequency and timing with which we engage (or do not engage) particular connections or combinations of connections. We are born with a basic universal nature that is in turn directly shaped by the particular ways in which we are nurtured.

Many synaptic connections are present in innately occurring dedicated modules or subsystems. For example, a visual stimulus is received and processed first by activating the retinal neurons of the eye, with the activation pattern then making its way down the optic nerve and eventually reaching the visual cortex of the brain. This information pattern is transformed at different stages along this path, which is "where the bulk of the brain's *computation* takes place. This is where past learning shows itself, where character and insight come in, and where intelligence is ultimately grounded," according to Paul Churchland.[56]

Churchland explains that through a lifetime of nurturing our parallel and distributed neural subsystems, we come to hone them for solving commonly encountered problems. For instance, through social interaction the visual subsystem is trained in concert with those synaptic pathways used for processing emotion, and we eventually come to recognize a face as happy or afraid:

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[56] Paul M. Churchland, *The Engine of Reason, the Seat of the Soul*, (Cambridge: MIT Press, 1999), 11.

> The human family displays a wonderful diversity of faces, but each one strikes out in its own idiosyncratic directions from what might be called the standard, average, or prototypical human face.[57]

Exposure to a vast number of faces helps condition the brain to recognize an idiosyncratic "fingerprint" activation pattern that includes a universally shared family of features for each facial expression. The image of an upturned smile, squinted eyes, and raised cheeks, along with countless features that entirely evade articulation, registers as a prototype for "happy." Our brain learns to recognize and comprehend happiness, not through abstract necessary and sufficient criteria, but through regular encounters in daily life.

Sensory understanding occurs by measuring the conformity of the object we perceive to an established prototype, composed loosely of what Wittgenstein called "family resemblances."[58] Similarly, conceptual understanding depends on measuring conformity to learned prototypes and familiar categories: "the appearance of concepts in living cognitive creatures consists in the same sort of learned partitioning of neuronal activation spaces."[59] Just as a happy face is recognized by certain shared, recurring traits, the conceptual prototype of happiness contains a family of salient features, such as feelings of satisfaction, pleasure, and approval. The details of these concepts, as well as their causes and effects and affective valences, are understood through repeated experience with them.

Learning prototypes, through detection and processing of salient features, is principally a subconscious, instinctive occurrence. This is very fortunate as life would be utterly exhausting (if not impossible) if we had to consciously will every mental process.

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[57] Churchland, *The Engine of Reason, the Seat of the Soul*, 29.
[58] Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe, P.M.S. Hacker, and Joachin Schulte, (Hoboken: Wiley Blackwell, 2010), §67.
[59] Churchland, *The Engine of Reason, the Seat of the Soul*, 50.

This also "allows us to discriminate and recognize far more than we can typically express in words," as our activation patterns are registered whether or not we can explain what we are experiencing.[60] Our remarkably sophisticated neural networks, from perception to interpretation, can pick out relevant information and subtleties in context without the need to articulate why or how. "The sheer amount of information stored in a well-trained network the size of a human brain, and the massively distributed and exquisitely context-sensitive ways in which it is stored therein, preclude its complete expression in a handful of sentences, or even a large bookful."[61] Our gut feelings reflect a form of intuitive knowledge based in past experience that is usually worth trusting, even when we cannot quite explain its cause. We know what happiness looks like and means not because of abstract syllogisms but because we have seen smiling faces, heard laughter, felt a warm embrace, and experienced the emotions that attend these interactions.

This is the crux of the theory of embodied cognition, describing the relationship between mind and body. According to the theory, conscious cognition and understanding are only possible in an embodied context. This is because our theoretical notions are cobbled together entirely from the building blocks of physical stimuli. For example, George Lakoff and Mark Johnson demonstrate that the abstract notion of understanding is itself often represented metaphorically in terms of embodied visual experience:

> I *see* what you're saying. It *looks* different from my *point of view*. What is your *outlook* on that? I *view* it differently. Now I've got the *whole picture*. Let me *point something out* to you. That's an *insightful* idea. That was a *brilliant* remark. The

[60] Churchland, *The Engine of Reason, the Seat of the Soul*, 21.
[61] Churchland, *The Engine of Reason, the Seat of the Soul*, 293.

> argument is *clear*. It was a *murky* discussion. Could you *elucidate* your remarks? It's a *transparent* argument. The discussion was *opaque*.[62]

Our everyday language is saturated with comparable examples to the point that they usually go *unnoticed*. V.S. Ramachandran and E.M. Hubbard add that language itself--conceptual understanding par excellence--may even have its origins in "this ability to make connections between sensory modalities."[63] Words and concepts only have content because we can associate them with the experiences in which they were enacted.

All of this seems to indicate that a strict separation of mind and body is impossible. If our understanding of neuroscience is true, then Descartes is simply wrong. Kant's notion of pure reason is a myth, and human thought can only exist with a human body. A human mind deracinated from its body is no longer a human mind. Without physical, emotional, and perceptual engagement with the world, a mind is incapable of building and refining its conceptual prototypes. Our mind only understands in terms of what our body has experienced. By way of normative ethics, rules such as "be kind" are only possible as a result of and in promotion of their embodied expression. Kindness is a virtue because we have prior exposure to kind actions and their effects. Rules, principles, and virtues have no source or content without lived expression, including the emotional, intellectual, and bodily impact of that expression. Ethics is learned from the bottom-up. This, we will see, is vital to understanding human dignity and the fact-value relationship.

If ethics were the algorithmic top-down application of rules, then we would be stuck in an infinite regress of applying rules to rules (e.g. "what rule tells us how to apply

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[62] George Lakoff and Mark Johnson, *Metaphors We Live By*, (Chicago: University of Chicago Press, 2008), 48.
[63] V.S. Ramachandran and E.M. Hubbard, "What Neuroscience Can Teach Us about Human Nature and the Potential for Change," *The Internet and the University*: Forum 2003, 31. Accessed January 1, 2015: https://net.educause.edu/ir/library/pdf/ffpiu032.pdf

this rule?") with no external grounds for evaluating their success. Kantian notions of absolutely free and good will are unhelpful for navigating the world in which we live. Whether we like it or not, every one of our decisions--ethical or otherwise--results in a measurable outcome. Necessarily, our brain evaluates "success" in terms of bodily sensations, such as pain and pleasure in their simple and profound, emotional and physical varieties. From the time we are born, we perform actions and evaluate their consequences in a sort of perpetual trial-and-error learning process. For example, a child might share her toy and find that this act evokes a smile from her friend. By associating certain actions and beliefs with pleasurable outcomes, she learns how to succeed in the social and ethical world and gives content to concepts like kindness. Accordingly, we will see in the coming sections the way in which the concepts of human nature and human dignity are made meaningful through empirically assessable outcomes.

Does this mean that our autonomous minds are an illusion? Are we nothing more than our bodies or servants to bodily desires? To say that ethics is learned from the bottom-up is not to say that the mind is entirely directed or determined by the body. Rather, they exist in permanent, dynamic, irresolvable tension. Though Descartes and Kant may have faulty premises, their search for pure ethical principles was not entirely in vain. By abstracting ethical concepts from our embodied experiences, we do "purify" them in a sense, even if never wholly. We are not unthinking pleasure zombies. Language and theory are extremely useful, as long as we recognize their origins and limitations due to our bodily nature. Through the mind, we develop ethical systems and a moral imagination capable of creatively and hypothetically applying our refined concepts to novel, multifaceted scenarios. Because no pure or perfect ethics is possible, though, we must come to terms

with the fact that judgments will always be relatively provisional, a more intricate and measured exercise of the same trial-and-error practiced by the little girl sharing a toy with a friend. The mind is an emergent phenomenon of the brain and body. Consequently, our limited bodily nature simultaneously makes possible and constrains its power. A meaningful and pragmatic understanding of human dignity will have to take the reality of embodied cognition into account.

Moral Selves: The Nature-Nurture Relationship

The contents of our mind are amassed through use of our bodies. In this way, our capacity for nurture, including our values and beliefs, is built from our nature, including our innate tendencies and desires. At the same time, our nature, down to the connections between our neurons and their strengths, is shaped by nurture, including the manner and regularity with which we perform certain actions. Nature and nurture are mutually constitutive. Our genetic makeup and our lived experiences each dynamically influence each other, and each contribute significantly to who we are as persons.

Understanding the mind-body relationship is the foundation for a proper understanding of human nature as a whole and dignified persons as an ethical concept. It begins to show us that we cannot be reduced to a single defining component. We are not simply psychological beings or biological beings. We are constrained by a shared blueprint, but we enact and modify it in our own freely chosen way. We are identical to each other in basic human ways and yet diverse, individual, and irreplaceable persons nonetheless. A full understanding of human nature and human dignity rests on this tension between nature and nurture--the ways in which human beings are one with and continuous with the world

around us and the ways in which we are distinct from it as individual persons with dignity and worth.

As we have seen, the cognitive sciences reveal much about our shared neural architecture, its formation and function. Social scientists and anthropologists from Westermarck famously to Donald Brown more recently have codified more and more about the universal features of our underlying human nature that emerge from this embodied cognitive foundation. They have surveyed evidence that indicates myriad "human universals" or traits shared across eras and cultures.[64] These include abstractions in speech and thought, aesthetic pursuits, exchange of goods, mourning rituals, family hierarchy, and many others. Evolutionary psychologists have documented similar "psychological universals" in beliefs and thought across peoples.[65] Assuming an effective mode of communication, interacting with a human from another time and place would illuminate many shared values, concerns, and traits.

Scientific inquiry into the facts of human nature places the human species squarely within the natural order. Indeed, we share 98 percent of our genetic code with chimpanzees, a fact that indicates that many of our tendencies and needs are shared between species. We all seek to survive and reproduce, we are made of the same organic molecules, and we are all glued to the earth by the force of gravity, at the very least. This is true of humans as well as bacteria. Such investigation into our nature-as-phenomenon reveals a great deal about *what* we are. However, what room does that leave us for *who* we are?

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[64] Donald Brown, *Human Universals*, (New York: McGraw-Hill, 1991).
[65] Ana Norenzayan, "Psychological Universals: What are they and how can we know?" *Psychological Bulletin* 131 (5) (September 2005):763-84.

We can study human beings like we study geological formations, attempting to objectively examine things like form and function or cause and effect, using disinterested, clear, and sound reason. However, unlike the case with geological formations, when we study human nature, we are analyzing ourselves. We are the matter of interest. There is always a particular human doing the observing and describing of humans. Though we might try to fully objectify the human experience as physical or chemical causes and effects, we always bump up against the reality of our own subjectivity as we play the role of the observer. Subjectivity is the world of reasons, values, intentions, and justifications that can never be fully escaped. This phenomenon of writing *about* ourselves is unique to humans, and the internal aspect of our selves prevents us from achieving a completely external view of human nature. We can never achieve what Thomas Nagel calls the "view from nowhere."[66] There is always a felt lacuna between talking about humans and talking as a human.

In short, humans are both object and subject. We can study aspects of human nature but we can never totalize it. The relationship between nature and nurture is one in which *what* we are can never wholly define *who* we are. As we have begun to see in terms of cognition, nature and nurture are necessarily intertwined, and one cannot be reduced to the other. Humans have a common nature that is uniquely instantiated in individual persons. For instance, we are all obliged to consume a certain number of calories to maintain our health, yet we have different tastes and variously refined palates in achieving that end. Our objective needs engender and constrain our subjective realization of them. Scientific investigation can shed light on the common nature and patterns of instantiation,

[66] Thomas Nagel, *The View from Nowhere* (New York: Oxford University Press, 1986).

but it can never capture the entirety of one's personhood. Objectification of humans by humans is inherently limited.[67]

Strict naturalist Francis Crick declares as his so-called "Astonishing Hypothesis" that "'You,' your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules."[68] Such a claim implies that our subjectivity is merely an illusion that we need to overcome. To those who privilege nature over nurture, we can be reduced to the interactions of our material ingredients. We are no more than the sum of our molecular components. However, somewhat ironically, this claim is being made by a thinking subject and directed to other thinking subjects. In the performance of his assertion, Crick demonstrates that we cannot be reduced to our constituent parts, that nurture cannot be totally subsumed into nature.

Crick's hypothesis is "astonishing" because it fails to correspond to our lived reality. As humans, we know that while his description of our electro-chemical function helps us comprehend one aspect of human nature, it does not capture the wholeness of our subjective experience. Our joys and sorrows may occur on the substrate of nerve cells and chemicals, but they are indeed "more than." The human experience is one of self-direction, values, autonomy, intentions, reasons, and goals. Our subjectivity may be an emergent property of our genetic, chemical, and neural nature, but much of it evades scientific description and can only be thoroughly appreciated through lived experience. Consider the analogy of a painting: combining in a particular order certain hues, textures, and

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[67] This is probably true with regard to other animals that experience some level of subjectivity as well.
[68] Francis Crick, *The Astonishing Hypothesis: The Scientific Search for the Soul*, (New York: Simon and Schuster, 1995), 3.

brushstrokes results in a beautiful landscape. This artwork and its beauty cannot be described in empirical terms of the paint colors, canvas, and individual strokes alone and must be apprehended through direct experience that reveals it as greater than the mere sum of its parts. Much of the magnificence, along with its aesthetic effects on an audience, may evade description entirely. Likewise, human beings are more than just molecules. Moderate, pragmatic ethics requires not only an empiric sensibility but also an aesthetic one.

Even the attempt to view humans purely in scientific, objective, rational terms carries subjective weight. The scientific enterprise in general and the particular effort to transcend our subjectivity when applying it to ourselves are both inextricably value-laden. The hypothetico-deductive model has connotations in terms of how to judge observations, why we seek knowledge, what to believe, and how to prioritize information. Choosing to employ the scientific method at all implies value judgments about the worth of the object of investigation. Furthermore, the results of scientific inquiry are then inevitably reintegrated into our future first-person engagement with the world. Deciding that human nature merits understanding is a choice made in terms of reasons, both abstract and practical. There is no value-neutral manner of evaluating anything, even what we tend to call facts. Subjective personhood is simply not escapable: "One cannot just exit from the domain of moral reflection: It is simply there."[69] Normative concepts, such as human dignity, necessarily guide all that we choose to do.

Were we entirely at home in the world of cause and effect, then there would be no place for reasons, intentions, or beliefs. This is the worldview of those, like Crick, who

[69] Thomas Nagel, *The Last Word* (New York: Oxford University Press, 1997), 21.

embrace scientism. Scientism views humans as more complex versions of instinct-driven animals, essentially governed by the same automatic rules. They see every action as the inevitable response to a stimulus or cause. Free will is an illusion. Arguably, this is also the perspective of religious fundamentalists, who see every decision predestined by God. They believe we have no role to play in directing our futures, because destiny is entirely in God's hands. In both cases, reducing humans to nature alone, evolved or created, leads to absolute confidence and certainty. However, we will see that this reductionism also increases the likelihood of violating human dignity and neglecting the worth of individual persons. In reality, dignity requires seeing humans as complex persons, not just things.[70] Consequently, we will have to acknowledge and come to terms with some uncertainty in life.

We are not merely objects. That which eludes objectification is our status as autonomous, thinking agents (perhaps what some mean when they refer to a person's "soul"). Yet, it is important to note that we are not merely subjects either. As the previous section showed, neuroscience has decisively laid to rest Locke's notion of the *tabula rasa*. Nurture is indeed constrained by embodied human nature. Further proof of this is found in twin studies. Having developed from the same fertilized egg, identical twins share the same DNA. Taking advantage of this fact, these studies measure the incidence of various traits and diseases between twins. Any differences in outcome would therefore be due to environmental factors. A meta-analysis of fifty years worth of twin studies found the following: "Estimates of heritability cluster strongly within functional domains, and across

[70] In Kantian terms, we must treat people as ends and not as means alone.

all traits the reported heritability is 49%."[71] In other words, though individual traits show variable heritability, the overall impact on our traits is split almost evenly between genetics and environment or experience.

The extreme positions of genetic determinism and absolute freedom, or pure objectivity and pure subjectivity, are erroneous. Nature and nurture each represent useful ways that we might speak about the human experience, but they are not a true dichotomy in the end. We describe *what* we are through a scientific account of our universal human nature; we describe *who* we are through first-person dialogue and exchanges about values and reasons. Our distinctive personhood depends on our natural human capacities, while our universal nature is instantiated in unique thinking and choosing individuals. A holistic understanding of human nature recognizes, as Pascal famously stated, that "man is neither angel nor beast, and the misfortune is that those who seek to become angels become beasts."[72] We are both of the natural world and outside of it. Human nature is the irreducible intersection of object and subject, inherited genotype and expressed phenotype, causes and reasons, and facts and values, as we will explore in the next section. Attempts to reduce us to one or another domain fail to appreciate our full worth and risk violating human dignity.

Ultimately, there are no necessary and sufficient metaphysical criteria for defining personhood. An individual cannot be reduced to nature or nurture, to Locke's psychological definition of self or to Hobbes' materialist definition. Though criterialism[73] in its many

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[71] Tinca J C Polderman, Beben Benyamin, Christiaan A de Leeuw, Patrick F Sullivan, Arjen van Bochoven, Peter M Visscher & Danielle Posthuma, "Meta-analysis of the heritability of human traits based on fifty years of twin studies" *Nature Genetics* 47, (2015): 702–709. doi:10.1038/ng.3285

[72] Blaise Pascal, *The Miscellaneous Writings of Pascal* (London: Longman, Brown, Green, and Longman, 1899), 197.

[73] Criterialism here means the view that persons can be defined or identified by essential criteria.

forms appears to provide certainty, it does not accurately describe persons in their wholeness and subjectivity. Rather, we must settle for a slightly less absolute understanding of personhood. It must be restated, though, that just because criterialism is false does not mean that we lack essential properties or cannot be described. We can and do have objective features, such as being a member of *homo sapiens*, having a human brain, and being a talented trombone player. The falsity of criterialism simply means that explanations and identifications need not be stated in terms of strict logical necessity. To illustrate, consider that there may not be a single component of a suspect on trial to which we could point indicating with infallible certitude that he is identical with the person who committed a crime; yet, we could still present evidence, including fingerprints and witness testimony that indicates with reasonable certainty the identity of a criminal (our justice system depends on it).

Cognitive prototypes, whether recognizing a happy face or grasping the idea of happy, are an amalgamation of interpreted embodied experiences. Likewise, personhood and identity, whether in prosecuting a criminal or making a decision that reflects one's authentic self, are narrative amalgamations of one's enacted experiences and traits. In each case, we come to know, recognize, and believe things through interpretation of facts and empirical justification. We arrive not at proof but warrant. In the same way we cannot prove beyond all skepticism that the sun will rise as it has every other day of our lives, there is a nonzero chance of being wrong, but, practically speaking, these experiential-experimental methods have served us well for millennia. Our powers of perception and deduction can be and are used to sufficiently justify these beliefs. Persons, with both

objective traits and subjective experience, are not absolutely defined by one or the other but by their relationship as performed throughout life.

Michael Gazzaniga has even demonstrated that there is a module in the left-hemisphere of the brain, "the interpreter," dedicated to so unifying our sense of self![74] The interpretive function of the left hemisphere generates the feeling that we are integrated persons, spinning a narrative out of the information provided to it by all other modules. It receives physical, mental, emotional, and subconscious input from throughout the body and brain and synthesizes it into a conscious autobiography. By consistently participating in certain actions, strengthening some synaptic weights over others, our character emerges with priorities, preferences, and personality, dreams, desires, and dispositions. As a result of our universally inherited interpreter module and our personal history of actively stimulating it, from the first sight of our mother's face to deep reflection on the notion of virtue, we understand our selves effectively as the cognitive prototype "me."

The proper balance of nature and nurture, recognizing both our dynamic subjectivity and our objectivity on which it is built (and builds), is achieved in the view of humans as "moral selves." This what Charles Taylor suggests when he writes that "we are only selves insofar as we move in a certain space of questions, as we seek to find an orientation to the good."[75] Alasdair MacIntyre uses a similar line of thinking to define persons in communal or interpersonal terms. In contrast to modern individualistic conceptions of self, MacIntyre argues that a person is defined primarily by his moral commitments and the ethical narratives of which he is a part, both by birth and by choice.[76]

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[74] Michael Gazzaniga, *Human*, (New York: Harper Collins, 2008), 294.
[75] Charles Taylor, *Sources of the Self*, (Cambridge: Harvard University Press, 1989), 34.
[76] Alasdair MacIntyre, *After Virtue*, (Notre Dame: University of Notre Dame Press, 2007).

This conception of our nature as persons incorporates our natural or inherited capacities as well as our traits that result from environmental influence and from autonomous choices. Viewing humans in this way is much more likely to lead to ethical conclusions and decisions promoting their dignity.

Psychologists Nina Strohminger and Shaun Nichols conducted a series of studies to assess the ways in which laypersons defined selfhood and identity and found that most people intuitively understand personhood in ways similar to those of Taylor and MacIntyre.[77] Their experiments asked people to consider the hypothetical fate of someone who suffers brain trauma, takes a psychoactive drug, moves from one body to another, is reincarnated after death, or undergoes age-related cognitive changes. From these experiments, they found that "folk intuitions largely accord with the psychological view" of selfhood that we are chiefly defined by our personalities, beliefs, and memories. However, they note that specific aspects of the psychological criteria are much more highly valued than others--some ranked even lower than certain bodily criteria--thereby "challenging a straightforward view of psychological continuity" as the definition of selfhood.

Across the five different experiments, Strohminger and Nichols found "strong and unequivocal support for the essential moral self hypothesis," which states that moral traits are considered more important than any other traits in defining personal identity. Even the respondents' ranking of memories (Locke's privileged feature of identity) was that they were "important to the extent that they have resonance with personal relationships." This finding is corroborated by previous studies indicating that people are much more reluctant to take pharmaceutical enhancements that will affect traits fundamental to self-definition,

[77] Nina Strohminger and Shaun Nichols, "The Essential Moral Self," *Cognition*, 131 (2014): 159-171.

for which they listed empathy and kindness as the primary examples.[78] These studies demonstrate quite plainly that morality is central to what it means to be oneself, to be a person, and "to what it means to be human."[79] In a sense, our ontology depends on our ethical roles and character.

It is likely that this moral definition of self has evolutionary origins, as such traits are consistent predictors for how individuals will behave in cooperative social partnerships. These pro-social tendencies then could have become reified in traditions, such as those religious customs surrounding conceptions of the soul (a notion which epitomizes a moral essence of self). Strohminger and Nichols conclude that "The self is not so much the sum of cognitive faculties as it is an expression of moral sensibility; remove its foothold on that world, and watch the person disappear without it."[80] According to these studies, not of abstract logic and metaphysics but of actual lived and expressed human nature, we are first and foremost social and moral selves. It appears that when our left-hemispheres generate our narrative identities, we privilege above all else how we enact our roles within a network of ethical relationships. Personhood is an emergent phenomenon of mind, body, and circumstance. In practice, not only are values constrained by facts, but values can be ontologically constitutive of facts. We are our character. Without our moral "soul," we are no longer persons. Once more, nurture and nature are mutually sustaining, and each is an invaluable part of who we are and how we achieve human dignity.

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[78] J. Riis, J.P. Simmons, and G.P. Goodwin, "Preferences for Enhancement Pharmaceuticals: The Reluctance to Enhance Fundamental Traits," *Journal of Consumer Research*, 35 (2008): 495-508.
[79] Strohminger and Nichols, "The Essential Moral Self," 169.
[80] Strohminger and Nichols, "The Essential Moral Self," 169.

Human Dignity: The Fact-Value Relationship

Our analyses of the mind-body and nature-nurture relationships prefigured and illustrated the argument that facts and values are intertwined. We have seen that the beliefs and judgments of the mind are assembled through embodied experiences; and, we have seen that the facts of innate nature, such as our genetic and neural inheritances, influence and constrain but do not strictly determine our values and judgments. As subjects, we are (relatively) free to choose between beliefs and actions, depending on our informed evaluative judgment. Lastly, we saw that personhood and identity are primarily defined in terms of our character and the ethical roles we play in interpersonal narratives to which we belong.

We must now examine what all this means in terms of the best way to approach the relationship between facts and values. In what ways and to what extent should the facts of our embodied cognitive nature and moral selfhood guide our decision-making? How should we cultivate our character? How can we strike the balance between what *is* and what *ought* to be? This culminating question will finally allow us to delve into the foundational concept of human dignity and its vital function in ethics. Human dignity, we will see, characterizes the proper relationship between anthropological facts and normative values, resulting in a pragmatic and moderate form of naturalist ethics. It does this by building on the nuanced understanding of human nature and personhood described above, seeking harmony of the mind-body and nature-nurture relationships. However, human dignity is therefore a complex and nebulous concept of which many scholars are highly skeptical.

The first chapter of *Human Dignity and Bioethics: Essays Commissioned by President's Council on Bioethics* opens with a pointed question. Adam Schulman, editor of the volume, asks:

> Human dignity--is it a useful concept in bioethics, one that sheds important light on the whole range of bioethics issues, from embryo research and assisted reproduction, to biomedical enhancement, to care of the disabled and the dying? Or is it, on the contrary, a useless concept--at best a vague substitute for other, more precise notions, at worst a mere slogan that camouflages unconvincing arguments and unarticulated biases?[81]

Several contributors to the collection and many others elsewhere level crushing attacks on the ancient term, claiming that the concept of dignity is inextricably religious[82] or that it is entirely without content.[83] From all angles, the meaning of dignity and its purpose in bioethics is under careful scrutiny, with many downright suspicious of it.

As it is popularly used, the concept of dignity functions in two ways: a negative, minimalist function and a positive, aspirational function. Negative conceptions of dignity--like those featured in the *Charter of the United Nations* and the *Universal Declaration of Human Rights*--imply an inviolable aspect of humanity which all of us share. Dignity is used in this minimalist sense to grant basic respect to all persons thereby preventing the kinds of abuses perpetrated by Nazi Germany or Shōwa Japan. Leon Kass refers to this as "the

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[81] Adam Schulman, "Bioethics and the Question of Human Dignity," in *Human Dignity and Bioethics: Essays Commissioned by President's Council on Bioethics, (Washington D.C.: www.bioethics.gov, 2008),* 3.
[82] Pinker, "The Stupidity of Dignity"
[83] Macklin, "Dignity is a Useless Concept"

basic dignity of human *being*."[84] Positive conceptions of dignity, on the other hand, imply a quality that is demonstrated by certain behaviors. Dignity is thus meant to describe those excellences we should aspire to that contribute to human goodness and wellbeing. Kass calls this "the full dignity of being *human*."[85] These two ways of understanding dignity can be at odds "if emphasized single-mindedly," such as occurs among transhumanists and bioconservatives. In the end, though, they are deeply entangled, based on the same definition. Basic dignity is recognition of the potentiality to fulfill whatever it is that makes us human, while full dignity is the realization of that potential. Both functions of dignity are in service of our *being human*.

The phrase "being human" implies persons' shared inherited background of human nature as well as the performative, active manner in which they individually and subjectively instantiate it. Human dignity aims at being human well, at thriving humanly. It therefore must be established and defined in terms of human nature at its various operating levels: physiological, psychological, sociological, aesthetic, and so on. In this way, human dignity depends integrally on recognizing those human properties that objectively contribute to human flourishing when appropriately conserved, respected, and cultivated. It requires of others and oneself to respect and fulfill those things. In short, human dignity is defined as the property of human beings that gives weight to ethical demands. It is the bridging of the gap between the objectivity of our universal human background with our subjectivity as autonomous agents, assisting us in determining what we must work to conserve and what we must work to improve about the human condition. It is therefore the

[84] Leon Kass, "Defending Human Dignity," in *Human Dignity and Bioethics: Essays Commissioned by President's Council on Bioethics, (Washington D.C.: www.bioethics.gov, 2008),* 304.
[85] Kass, "Defending Human Dignity," 304.

crucial underlying link between the anthropology of human nature and the normative ethics that follow. Human dignity is the linchpin of a moderate and pragmatic naturalist bioethics.

Framing human dignity in this way is not epistemologically infallible. Such a definition will not fully satisfy those who desire absolute certainty or who wish to more strictly delineate facts and values. Asserting the truth of human dignity is not a statement of fact comparable to, "his shirt is red." Dignity is not a prototype that can be fully captured by a single mental image. It is instead an idea or concept that plays an active role in real people's judgments, evaluations, beliefs, and chosen actions. To discuss human dignity is not meaningless, because it is a word that is widely used in practice. We have seen that "happy" refers to a cognitively recognizable prototype with blurry boundaries that is constructed over time through lived experience. We have seen that one's personhood is not reducible to necessary and sufficient criteria but is realized through ethical participation in life. The same is true of dignity. It cannot be totalized in as simple an image as "red shirt," but it exists in as real a manner as concepts can, and its details are clarified through ever greater experience with it. This understanding best comports with what neuroscience tells us about the way our brains register and assimilate information and with our discussion of personhood, indicating yet again that we have no choice but to be relatively comfortable with provisionality.

What is the substance of human dignity? What does it mean to be human well? Clearly, reductionism, essentialism, and absolutism lead to misunderstandings of human nature and problematic ethical positions. The alternative is moderation, an approach to human nature and ethics that focuses on balance, harmony, and prudence. As has been the

theme throughout this thesis, human dignity is best achieved by seeking the golden mean between extremes. Aristotle, the father of naturalist ethics, provided a framework to accomplish just that. He referred to the harmony that results from such a moderate approach as *eudaimonia* or human flourishing (often translated as true happiness). *Eudaimonia* means the good life, which entails living well at all levels--as an individual, with others, and in society at large. To achieve *eudaimonia* is to be utterly dignified, to live in a dignified way. A *eudaimonic* conception of human dignity thus provides ethics, and all evaluative decision-making, with a motivating purpose or *telos*, a standard against which to measure all acts as good and dignified. This is extremely useful, because we have seen that value-neutral choice is a fiction. *Eudaimonic* human dignity must be the overarching goal that orients, even subconsciously, all judgments and decisions.

To understand what human dignity looks like in practice and how to enact it, one must begin by observing the facts of human nature, including the variety of behaviors, inclinations, dispositions, desires, and even customs, so as to discern patterns of basic universally applicable human goods. It will soon be clear that this naturalistic approach to ethics is a profoundly interdisciplinary exercise. Through the use of reason, intuition, and moral imagination, one can then cultivate virtuous habits and construct social systems for promoting these goods. Human dignity roughly corresponds to the fulfillment of what Aristotle called the *ergon* of man--our true function. Objectively recognizing that we are "contemplative," "appetitive," "vegetative," as well as "social" creatures, his view of what constituted our function was an active use of the rational part of the soul in accordance

with virtue.[86] What this means in detail has been debated since its composition, but in a word it means prudently harmonizing our various needs and desires through habit for the sake of achieving *eudaimonia*. To most comprehensively understand our *ergon* and its practical fulfillment requires a thorough analysis of the ethical implications of human nature, holistically understood as the balance of mind and body, nature and nurture.

Human nature, including all of our needs and desires, has evolutionary origins. Consequently, the preconditions of and the capacity for human flourishing are hard-wired in our biology. Indeed, biology is "the basis of all social behavior," according to E.O. Wilson. Darwinian evolution necessitated that tendencies and propensities that broadly contribute to human success be incorporated into our nature and intuition. Those humans who made prudent choices were more likely to survive and reproduce, passing on their advantageous traits to the next generations. It is through millennia of trial-and-error and fitness tests that we inherit the bodies and brains that we do. Our neural subsystems and their integrated function within our bodies have been fine-tuned to solve those problems most frequently encountered through detailed, yet flexible, prototypes. The development of our natural capacities, including navigation of social and ethical situations, must have functioned adaptively. That which is good for us became part of that which we naturally and intuitively desire. *Eudaimonic* dignity depends on capacities that are inherited and shaped by natural selection. Through evolution, our common human nature has come together featuring needs, desires, and capacities such as a moral sense, which when properly nurtured give rise to moral order.

[86] Aristotle, *Nicomachean Ethics*, 1097b22. Accessed April 20, 2015 at http://classics.mit.edu/Aristotle/nicomachaen.html.

Human nature also serves as a firm constraint on whatever normative systems we may wish to implement. The mind is constrained by the body, nurture is constrained by nature, and our values are constrained by the facts of our limitations. Whatever we ought to do, it must be something that we can do. An ethical system can only promote human dignity if it takes into account our inherited nature. A woman's body innately knows how to deliver a baby, and a woman's brain innately knows how to love the child. Indeed, whenever we encounter a woman's body or mind that does not know how to do either of these things, or which is unable to do them, we understand such an inability to be a deficiency of health in need of intervention. Societies that support life and family, by seeking to improve obstetric care and providing maternity leave for instance, will flourish to the extent that they maintain those parts of our nature that have helped us thrive until now. Threatening or disrupting those inherited basic human goods is done at a society's peril and should be regarded as undignified and immoral.

Our innate natures reflect a level of inherited genetic wisdom. We are broadly predisposed toward human flourishing. The elementary components of human dignity, therefore, are readily and intuitively pursued across cultures: life, sociability, reproduction, and so on. This begins to account for the patterns of "human universals" described above that all human beings practice. Yet, Darwin, like Aristotle before him, makes clear that these inborn traits, while necessary, are not entirely sufficient for moral order. Instruction and habit must cultivate and be informed by the natural moral sense. From the process of evolution emerges a *telos* of human success and thriving, but habit and custom are necessary for its realization. Human dignity is built on the proper relationship of nature and nurture.

We all have the same genetic "blueprint" that prepares us for moral instruction and customs. These customs have been developed and refined throughout history as methods promoting human good. Indeed, the shared customs themselves are a part of human good. Sociologist Emile Durkheim shows in his book *Suicide* that societies lacking this common moral tradition--those in a state of “anomie”--exhibit the opposite of human flourishing in the form of increased suicide rates and depression. Our cultural makeup reflects successful choices in the same way our genetic makeup reflects successful choices. Moral norms built on our natural moral sense have worked out over millennia common ways to make worthwhile decisions and to balance competing demands in pursuit of our basic goods and desires. Custom and tradition represent yet another form of inherited wisdom to which we must give great credence.

The natural moral sense and traditional moral customs are excellent guides for addressing most common situations. Together, they have given rise to a universal database of norms for common morality. Aristotle called these shared norms *endoxa*. They are the opinions accepted by either everyone or by nearly all experienced thinkers. For example, killing a fellow human being for no reason at all is regarded across cultures and epochs as immoral. Everyone of minimal maturity would agree with a person's choice not to murder his friend. *Endoxa* tend to make distinguishing good from evil fairly straightforward. Even infants have a rudimentary sense of right and wrong, fairness and unfairness, suggesting that our predisposition for a basic ethical orientation has a genetic component.[87]

Leon Kass points out that human dignity itself is quite *endoxic*. In its less controversial forms, dignity should be recognizable to all of us. Kass goes on to cite as an

[87] Gareth Cook, "The Moral Life of Babies," *Scientific American*, November 12, 2013, Accessed January 1, 2015, http://www.scientificamerican.com/article/the-moral-life-of-babies/.

example the "First Arkansas Marching Song," written for and sung by ex-slaves fighting for the Union in the Civil War. Their actions, as celebrated in the song, "affirm their own dignity" by putting their lives and actions in service of the basic human goods of life, liberty, and self-determination and in brave opposition to those seeking to subjugate and oppress them. He explains that despite the fact that the term is "abstract and highly ambiguous...we can in fact readily recognize dignity, both when we see it shining and when we see it extinguished."[88]

However, as guides, *endoxa* are not fully adequate to answer all specific or novel questions: while killing for no reason may be universally understood as immoral, how can we know what particular reasons do in fact override the prohibition? Sometimes basic goods conflict and demand prioritization suited to a specific context: how can we determine the circumstances in which it is moral to steal food in order to feed one's family? This is the reason why most challenging ethical conundrums are not choices between right and wrong, but better and poorer, sometimes tragically between bad and worse, responses. Beyond basic goods, and especially when faced with competing moral claims, human flourishing and dignity become notoriously less clear in their details. It should not come as a surprise, though, that notions describing the countless ways that humans can behave well should be many-sided. As has become very clear, humans themselves are exceedingly complex. This does not decrease the value of human dignity as a guiding concept. To the contrary, the indeterminacy of dignity's particulars makes possible a crucial pluralism. Diverse cultures and persons can equally viably promote dignity in their own ways.

[88] Kass, "Defending Human Dignity," 306.

What was fitting and adaptive in one era, culture, or setting might be ineffective or even damaging in another, so some diversity and progress must be possible. This is not moral relativism. Quite analogous to the nature-nurture relationship, an ethics of human dignity is broadly objective in its teleology, disallowing courses of action that threaten *eudaimonia*, but subjective in its detailed instantiation, permitting many (but certainly not all) paths to the same destination. These paths are not arbitrary or random, but must reflect an appreciation of human nature, custom, and widely-shared norms. These should be our established starting point in any ethical deliberation aimed at upholding human dignity. In complex and novel cases, though, we also need to subjectively and creatively reason through choices. This room for a diversity of ethical and dignified paths, emerging from a negative conception of nature's normative value, is what sets moderate naturalism apart from stricter forms of Natural Law, which are criticized as too quickly claiming that a particular practice is universal or should be generalized across cultures. Nature provides broad, universal constraints, but it cannot directly posit for us the correct response in every new concrete scenario. Dignified positive choice requires an embedded and contextual awareness available to us as subjective and rational creatures.

It is of utmost importance to note and bears repeating that moral reasoning must not neglect our inherited gifts. It would be arrogant and reckless to think that a single individual can appreciate the whole of human nature or even the whole of a single ethical dilemma. Rather, truly mature reason is prudent and developed through thoughtful engagement with our natural and cultural inheritances. Edmund Burke put it well: “We are afraid to put men to live and trade each on his own private stock of reason, because we suspect that this stock in each man is small, and that the individuals would do better to

avail themselves of the general bank and capital of nations and of ages."[89] Rational moral deliberation should be conducted humbly, drawing extensively from the inherited wisdom of tradition built over time on our evolved human nature.

Just as we must not ignore the facts of human nature when it comes to understanding and applying our values, we also must not fail to be sufficiently independent thinkers. Natural Law thinker John Finnis explains that to determine what is good and bad, virtue and vice, dignified and undignified, is not to ask simply "what is in accordance with human nature" but to ask "what is reasonable" given the constraints of human nature. He explains that basic human goods are self-evident insofar as someone of satisfactory maturity should be able to comprehend the relevant concepts and implications allowing them, through the use of reason, to grasp the truth.[90] This view of mature reason's cultivated abilities corresponds well with our above discussion of prototypes. Values and ethical insight, like factual knowledge and beliefs, are learned from the bottom-up through mounting experience, not algorithmically.

Initial ethical judgments should always be seen as humble hypotheses to be tested against our available evidence. In an almost federalist manner, successes and failures of individuals and cultures to promote human flourishing will contribute to the growth and reform of our ethical systems. Knowledge of what contributes to human dignity and what does not is discovered through a methodology of cautious ethical experimentation, informed and constrained by natural and cultural history. Meaningful ethical decisions and progress are made possible through gradual and measured reform as opposed to radical or

[89] Edmund Burke, "Reflections on the Revolution in France (1790)," in *Sources of the Western Tradition*, vol. II, ed. Marvin Perry, et al. (Boston: Houghton Mifflin, 1987), 73.
[90] John Finnis, *Natural Law and Natural Rights*, (New York: Oxford University Press, 2011).

sudden revolution. We justify and warrant our normative beliefs and knowledge in terms of and in the same evidentiary manner as our factual beliefs and knowledge. Confidence and reliability in making value judgments grows with increased exposure to comparable situations and their empirical outcomes.

Those wisest and experienced among us who appreciate the complexities of human nature can most clearly see what actions and habits contribute to human flourishing and human dignity. Resulting from a history of embodied experience with relevant conceptual prototypes, much of this insight is quite intuitive, reflecting true knowledge even if it evades articulation. Jacques Maritain referred to this trained, almost automatic form of understanding as "connatural."[91] Just as the little girl learns the value of sharing her toy, firsthand experience and the results of a lifetime of trial-and-error provide warrant and evidence for value claims about what contributes to our dignity. We are better prepared to make value judgments when we have witnessed and analyzed their impact in a variety of scenarios. Such a history allows us to anticipate the likely results of future similar decisions. Our subjective reasoning ever closer approximates objectivity, perhaps asymptotically approaching but never reaching it. Aristotle referred to this cultivated connatural discernment as *phronesis* or practical wisdom. It is through practical wisdom that we are able to find and test innovative, moderate, and realistic responses to new ethical problems.

If a *eudaimonic* conception of human dignity is our motivating *telos* or end, then *phronesis* is our sensible method or means of negotiating the fact-value relationship and making ethical choices. *Phronesis* enables us to understand human dignity and make

[91] Jacques Maritain, *Natural Law*, (South Bend: St. Augustine's Press, 2001).

practical normative decisions that respect it by taking into account and harmonizing the facts of nature, custom, and our past experiences. It is the result and reflection of a nuanced understanding of the mind-body and nature-nurture relationships. With fluency in what was and is, *phronesis* guides our pursuit of what can and ought to be. It is also how we determine the best route to get there. It is flexible enough to adapt and preserve our ancient dignity in new circumstances. Beyond experience and maturity, then, practical wisdom is characterized by thoughtfulness, creativity, imagination, openness, prudence, and humility.

What separates practical wisdom from rational wisdom is ethical and social participation. In addition to and beyond objective academic knowledge, the cultivation of *phronesis* involves active engagement with subjective persons in particular contexts. We can arrive at reliable, useful knowledge, especially about subjective personhood itself, through active and attentive participation in ethics. This amounts to sharing in others' various stories of self. Greater acuity with persons' narratives manifests as an enhanced moral imagination, capable of identifying and foreseeing the effects--both actual and perceived--of particular decisions on the variety of individuals involved. *Phronesis* is the context-sensitivity to appreciate the needs of others and the moral imagination to predict how their personal narratives will change in response to different courses of action. It is inherently forward-thinking and future-orienting, a perpetual disposition toward the ends of *eudaimonia* and human dignity.

Through this discussion of the origins and function of *phronesis*, it should have become even clearer that human dignity and practical wisdom are not fully describable in theoretical terms. *Phronesis* is not merely a body of knowledge to be memorized. It is also a

set of skills to be honed and internalized through habituation. As Aristotle informed us so long ago:

> For we learn a craft by producing the same product that we must produce when we have learned it; we become builders, for instance, by building, and we become harpists by playing the harp. Similarly, then, we become just by doing just actions, temperate by doing temperate actions, brave by doing brave actions…[92]

We become dignified persons by participating in dignified actions. We become our moral selves by doing ethics. Practical wisdom guides us in this endeavor. It is the overarching coordination and integration of our virtues, allowing us to appropriately prioritize and apply them in a given context. It is what results when we use our nature in service of our values and our values in molding our nature: "Virtues arise in us neither by nature nor against nature. Rather, we are by nature able to acquire them, and we are completed through habit."[93]

In other words, virtues are simply ethical prototypes. They are the qualities and dispositions which are morally praiseworthy and worthwhile to develop and maintain. Aristotle defines a virtue as "the state of character which makes a person good and makes that person perform his function (*ergon*) well."[94] Virtues are the traits we internalize that fulfill us and result in our flourishing by harmonizing the complexities of human nature. Characterized by harmony and balance, virtues are the golden mean between two extremes, the poles of excess and deficiency, each susceptible to overemphasis: "virtue is concerned with feelings and actions, in which excess and deficiency are in error and incur

[92] Aristotle, *Nichomachean Ethics*, 1103b
[93] Aristotle, *Nichomachean Ethics*, 1103a
[94] Aristotle, *Nichomachean Ethics*, 1106a22-24

blame, while the intermediate condition is correct and wins praise."[95] Courage is the mean between cowardice and recklessness, temperance is the mean between asceticism and overindulgence, and so on. The means described here do not equate to the absolute midpoint between extremes; they are not reducible, nor do they represent a dialectical synthesis. For instance, the absolute average between one thousand and three thousand calories would be to consume two thousand, but this might not be the appropriate mean for a professional athlete who exercises for a living. Rather, the golden mean is found relative to the individual in context. As we have seen, ethics requires a sensitive aesthetic sense. *Phronesis,* featuring a cultivated moral imagination, is our method for achieving that pragmatic moderation and being virtuous. Illustrative of the dynamic relationship between fact and value, nature and nurture, virtues are constitutive of our moral selves and, properly developed, lead us to human dignity. They are built on and constrained by our hard-wired capacities, needs, and desires, but they are under rational control, reflecting not a rigid reflex, but a consistent disposition to act ethically.[96] In actively assimilating these ethical prototypes, one's character is shaped in a way that prompts immediate, intuitive ethical responses when faced with novel scenarios. The virtuous and wise person not only knows and relates to the good but *is* good.[97]

In neuroscientific terms, *phronesis* is the motivated training of one's prototypes and their proper integration! This is all the more significant, given what cognitive scientists tell us about the role of moral reasoning in decision-making. As we have seen, the mind is both empowered and constrained by its embodiment, and those constraints place limitations on

[95] Aristotle, *Nichomachean Ethics*, 1106b
[96] Aristotle, *Nichomachean Ethics*, 1105a27-33
[97] Aristotle, *Nichomachean Ethics*, 1102b26

the freedom of our will. The mind does not operate in the abstract realm of pure reason. Both our knowledge and values are generated and justified in terms of accumulated empirical data carrying intellectual, behavioral, and affective valences. Not only are our basic abilities and reflexes learned as prototypes subconsciously, but even our more executive decisions are driven by what Neil Levy calls "subpersonal" processes: "decision-making is a response to weights which reasons have independently of the decision."[98] What this means is our decisions are predisposed, arguably even determined, by our synaptic weights--"a paradoxically passive phenomenon."[99] Many choices that we think are freely subjective are actually quite predetermined. This seems to accord with the findings of moral psychologist Jonathan Haidt, whose experiments indicate that moral judgment, ostensibly one of our most reflective capacities, is an automatic and intuitive process rather than an active, deliberative one; we largely engage in abstract reasoning only to justify our initial intuitions.[100] [101]

If automatic responses to ethical situations are determined by our synaptic weights, then our subjectivity and dignified personhood depend on the intentional shaping of these weights in preparation for split-second judgments. As long as our intuitive responses are made based on programmed weighted reasons that an individual would consciously and reflectively endorse, then it is amply subjective. Therefore, our responsibility as subjective agents is to willfully learn and inculcate virtue so as to shape our character, to become dignified persons. It largely defines who we are as moral selves. *Phronesis* treats morality

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[98] Neil Levy, *Neuroethics: Challenges for the 21st Century*, (Cambridge: Cambridge University Press, 2007), 241.
[99] Levy, *Neuroethics*, 239.
[100] Jonathan Haidt, "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment," *Psychological Review*, 108, No.4, (2003): 814-834.
[101] See also: Daniel Kahneman, *Thinking Fast and Slow*, (New York: Macmillan Press, 2011).

as trained muscle memory. Continuing the analogy, we study, prepare, and practice a sport in advance of a big game so that we might perform well on the field. Most of that performance is executed intuitively, as second-nature, drawing on our rehearsed game-plan and conditioned "muscle memory." We then review our performance, evaluate the effects of specific decisions, and analyze our successes and areas to improve. Practical wisdom reflects the applied ability to flourish, given the intentional taming of our cognitive biases toward virtue and the pursuit of human dignity. *Phronesis* roughly corresponds to what Edmund Burke called "prejudice": "Prejudice renders a man's virtue his habit, and not a series of unconnected acts. Through just prejudice, his duty becomes a part of his nature."[102]

Eudaimonic human dignity, being human well, is the result of successfully training our minds and bodies to be moral selves, exhibiting moderate virtue gracefully applied through practical wisdom to all scenarios and decisions. Human dignity is not only a useful and meaningful concept, it is crucial, representing the proper relationship of facts and values, human nature and ethics. Dignity is indeed "whatever it is about human beings that entitles them to basic human rights and freedoms."[103] This balance of facts and values depends on understanding the relationships of mind and body, nature and nurture. It is not a static state, however. This training process is an ongoing effort, as contexts change, new questions arise, and greater maturity is reached. This is a demanding approach to ethics, and there is always room to grow. This growth occurs the same way we learn to coordinate our fine motor skills, through quantifiable flourishing in diverse situations. Ethics can and must be conducted empirically, evaluating the effects of beliefs, judgments, and choices on

[102] Edmund Burke, *Reflections on the Revolution in France [1790]*, (New York: Penguin Classics, 1986), 183.
[103] Schulman, "Bioethics and the Question of Human Dignity," 13.

the fulfillment of our natural needs and desires at all levels. The normative realm is also built on humble experimentation, practical wisdom, provisionality, and prudence, all directed at human dignity in its moderate harmonizing of human nature.

As embodied, limited beings, our use of this *phronetic*, experimental approach to ethics is constrained by the abilities of a single individual to perceive a given situation or choice. We are limited not only by our "private stock of reason" but by our stations in life. At its best, therefore, ethics should be an interdisciplinary exercise. A naturalist "functional" methodology begins with, and is fundamentally grounded in, the facts of human nature, which operates and can be described at many levels. Determining and practicing the particulars of virtuous behavior in light of what each discipline tells us about our humanity is the primary task of naturalist ethics in general and bioethics specifically. As an individual comprehends a conceptual prototype through a variety of experiences with it, we collectively come to greater comprehension through dialogue and intercourse. We each have first-person trial-and-error exploration of particular concepts. Amassing our personal experiences reveals finer and finer resolution in its combined details. The richness of human dignity is made even clearer as the complexities of human nature are explored through humble collaboration between disciplines, occupations, and roles. In this shared exercise of prototype refinement, concepts such as human nature, personhood, and dignity become less subjective and more objective, even if never completely so. This is the theory of embodied cognition scaled up. Just as the conscious mind learns to recognize and understand things through interacting parallel, distributed modules, so too, human dignity is comprehensible in the various modes of human existence, each described by a particular discipline capable of explaining an aspect of how humans flourish.

This chapter has demonstrated that it is an obvious understatement to say that human nature is multifaceted. Promoting dignity require a naturalist ethics, giving attention to human nature at all levels, from the psychology, spirituality, and physiology of an individual to the dynamics of moral selves that arise at the level of relationships, families, communities, and societies. Man is not only a social animal, he is a cultural, political, technological, rational, emotional, spiritual animal as well, among other things. Embracing this complexity, bioethics has proven to be the enterprise best suited for this task. The maturation of bioethics as a new field over the last few decades is a welcome development for moderate naturalist ethics. Bioethics is the study of ethics with regard to human *bios* or human life and its myriad lived components, and it therefore exhibits a novel interdisciplinary character, unlike any other field. It is the field aimed at promoting human dignity and flourishing, by encouraging dialogue between various disciplines and voices and by drawing on a variety of skills, methodologies, and theories. Bioethics takes place in hospitals, research laboratories, conferences, classrooms, armchairs, and at bedsides. Such varied experience with theory and practice in different contexts we have seen is vital for the development of mature *phronesis* capable of intuitive virtuous decisions promoting human dignity.

By way of example, let us consider how the many voices of bioethics might assist us with process of ethical reasoning in general and with the next chapter's ethically fraught topic of cognitive enhancement in particular. Sociologists can demonstrate the manner in which our thought processes are influenced by our social roles; they can also evaluate the impact of technologies like cognitive enhancement on diverse cultures, demographics, and societies. Psychologists and neuroscientists help us understand how moral reasoning takes

place at all, with a balancing act of emotion, reason, and intuition; they can assess the impact on the mind and on self-understanding of cognitive enhancement technologies. Theologians can explain the value of spiritual health, stability, and guidance for individuals and communities; they can help determine the impact of biotechnologies on our senses of place and purpose in the universe. Legal scholars can share how ethical values and goals are reified and embodied in structured systems of law; they can help to analyze the governmental and policy implications of forms of biotechnology regulation. Physicians aid us in understanding the meaning and manifestations of health and disorder; they play an integral role in assessing the medical impact of novel technologies and interventions like cognitive enhancement. This list is by no means exhaustive, but it does serve to illustrate the value and potential of a collaborative, interdisciplinary approach such as bioethics.

This profoundly interdisciplinary ethical task sounds gargantuan, but we are currently seeing it done across the country and globe. Bioethics best represents the moderate naturalistic approach for pursuing and upholding *eudaimonic* human dignity. Just as subjectivity emerges from various trained and weighted brain modules in dialogue, and just as our moral selves emerge as narratives from the various integrated and weighted aspects of our human nature, so too understanding of human dignity emerges from various disciplines engaged in a deliberative community, from philosophers to physician assistants. Human dignity is not a concept capable of an essentialist, or absolutely objective, definition. It is realized through a continual process of prototype refinement--of cautious, measured trial-and-error utilizing provisional hypotheses informed by the facts of our nature, the inherited wisdom of our cultures and traditions, and rigorously cultivated practical wisdom. This ethical endeavor is unending, because the contexts in which we make

decisions are constantly evolving and never quite the same. Yet, we must train ourselves to respond in as objectively virtuous a manner as possible in novel scenarios and with novel technologies.

Through this dialectical exploration of human dignity and the moderate, pragmatic, methodology for upholding it, we are now better prepared to scrutinize those aspects of the human condition worth conserving and those in need of growth. Let us now turn to an applied example which will allow us to begin putting this approach to good use. The next chapter will discuss the types and uses of cognitive enhancements in an attempt to begin the *phronetic* process of humbly and cautiously evaluating their possible impact on human dignity.

Chapter 3:

Human Dignity and Cognitive Enhancements

"[B]y very virtue of human nature, an order or a disposition [exists] which human reason can discover and according to which the human will must act in order to attune itself to the necessary ends of the human being."[104] - Jacques Maritain

Phronesis: The Moderate Naturalist Methodology

This thesis began with the claim that humanity's greatest challenge in the twenty-first century is the rising power of biotechnology for "enhancing" human nature and that bioethics, as a pragmatic and moderate form of naturalism, is best suited to address this challenge moving forward. This chapter will synthesize the arguments made up to this point and illustrate the resulting bioethical methodology as it applies to the example case of cognitive enhancements. In Chapter 1 we saw the main categories of enhancement--physical, reproductive, and cognitive--as well as the prominent responses to biotechnology, most forcefully and radically conveyed by the rival groups called transhumanists and bioconservatives. Transhumanists tend to be very libertarian in their thinking about the development of and access to enhancements. They believe that nobody should interfere with an individual's freedom to modify his body and mind as he sees fit. As such, biotechnologies should be widely available in the marketplace, giving people the

[104] Jacques Maritain, *The Rights of Man and the Natural Law,* trans. Doris C. Anson (New York: Charles Scribner's Sons, 1943): 61.

opportunity to maximize their autonomy and direct their own life free of coercion.[105] They further believe that widespread unobstructed innovation will lead to improved healthcare, longevity, mental and physical capacities, and quality of life, and should be generally celebrated. Bioconservatives often argue against the enhancement project on the grounds that human nature is sacrosanct and fragile. They suggest erring on the side of caution when it comes to new technologies so as not to disrupt the delicate, precarious balance of human nature, which has either emerged from eons of evolution perfecting our form or from God's creative handiwork which is not to be superseded (or both). Extreme enthusiasm for enhancement or extreme wariness result from overly narrow or wholly erroneous interpretations of human dignity. Chapter 2 argued that such radical and stalwartly maintained misinterpretations are grounded in reductionist views of the complexity of human nature, specifically of the mind-body, nature-nurture, and fact-value dialectics. Misunderstanding human nature leads to misunderstanding and to potentially threatening human dignity.

In place of reductionism, we are better served by a *eudaimonic* conception of human dignity characterized by dynamic dialectical balance, humility, context-sensitivity, and prudent pragmatism. Human nature, rightly understood, serves as the foundation for a sound naturalist ethics, by granting insight into the roots of human flourishing and dignity. Transhumanists overemphasize what is lacking in human nature; bioconservatives overemphasize what is given. They may both be right in part. Overemphasis is the problem. In reality, human nature has both wonderful and atrocious elements. In place of dogmatism and absolutism, human dignity is best served by a moderate middle way, used to evaluate

[105] Bostrom, 'In Defense of Posthuman Dignity'

which aspects of human nature ought to be conserved and which aspects ought to be enhanced and how. This is true in general, but especially with regard to biotechnology which so readily empowers our augmentation. Through appreciation of the constraints of our inherited gifts of nature and custom as well as thoughtful participation in ethical life, we can cultivate practical wisdom about human nature and moral imagination for future decision-making, ultimately oriented towards human dignity as our *telos*.

The golden mean between transhumanist optimism and bioconservative pessimism, our moderate, *phronetic* approach is eminently realistic. As is the case in most ethical deliberations, the most reasonable position tends to require nuance and sensitivity to context, but it is also rather intuitive. By embracing the dialectics of human nature in irresolvable tension, moderate naturalist bioethics ultimately amounts to a rigorously trained and measured form of common sense. We should embrace (and not threaten) the relatively fixed moral core of our human nature but dynamically test what contributes to our flourishing at the margins and in the details as new circumstances arise. Natural systems, including human nature, are characterized by a balance of basic persistence and evolutionary change. To navigate the middle way between the Scylla and Charybdis of stasis and chaos, we should be neither overly absolutist or obstinate in denying innovation, nor overly optimistic to the point of innovating recklessly. The *phronetic* approach is a continuous, evolving process of testing hypotheses intended to contribute to human dignity, followed by confirmation, modification, and refining of hypotheses. With sufficient awareness of our nature, we can make a claim that is effectively (though not absolutely) objective, such as "it is wrong to murder for no reason." With sufficient experience, we can

also make more context-specific and precise claims when it comes to novel ethical dilemmas like biotechnology.

Unsurprisingly, neither wholesale disavowal nor blanket approval will suffice in evaluating enhancement technologies. Categorical analysis is very limited in its use. Chapter 1 showed us that enhancement technologies cannot be readily or meaningfully distinguished from those used as therapies or treatments. It also showed us that there are widely accepted enhancements of the physical, reproductive, and cognitive varieties (e.g. exercise and coffee). In place of dependence on categorical evaluation should be the careful application of practical reason (*phronesis*), constrained by the inherited wisdom of our evolved human nature and custom. Categories will still be useful in the limited ways they inform our holistic and interdisciplinary accounts of specific technologies in social contexts. For instance, as a result of the dual-use phenomenon, we are unable to say that anabolic steroids are a technology inherently threatening to human dignity. They are considered illicit performance enhancers in sporting competitions, because they disrupt the premise of fairness on which the competitions are designed. However, they are also used for therapeutic purposes to help restore the health of many people suffering from a variety of illnesses. To proscribe them categorically would be a hasty response. Instead, we must consider their impact on human dignity in specific contexts. To promote human dignity, we are justified in allowing steroids for therapeutic use and prohibiting them in the context of competitive athletics. In sum, enhancement technologies are ethically permissible if they are aimed at and contribute to human dignity in both their ends *and* their means.

Determining ethical acceptability requires evidence in context, judged by humble and experienced minds, ideally in interdisciplinary collaboration. Our moderate naturalist

methodology is capable of accommodating the input of exceedingly divergent premises on shared ground. It is secular with the ability to integrate religious positions, evidence-based without fully collapsing the fact-value dialectic, and eminently pragmatic. It will therefore enable us to negotiate the tensions between strict transhumanists and bioconservatives and find a realistic middle ground that appeals in significant ways to members of both camps. The *phronetic* methodology has great potential to persuade bioconservatives in particular, given the fact that they already privilege the normative value of the "natural" in their stricter form of naturalist ethics. They will also appreciate the great emphasis on nature and custom as inherited wisdom, both empowering and constraining. Additionally, it will appeal to transhumanists with its future-oriented openness to innovation. There is nothing inherently wrong with enhancement technologies. In fact, they are to be encouraged, as long as they properly comport with human nature broadly construed, including our embodied cognition and moral identities. We must recognize our innate majestic impulses to create and conquer, alongside our weaknesses, vulnerabilities, needs, and limitations. In its moderating effects, then, our pragmatic methodology will primarily delimit the means of arriving at idealistic goals, prudently minimizing the chance for unintended consequences that threaten our dignity. The critical advantage of moderate, naturalist bioethics is that it is anti-radical, allowing room for cautious but active use of emerging biotechnology. The most ardent adherents to essentialist philosophies will remain unconvinced. On the other hand, those who are open to dialogue, cooperation, and shared practical reason will find this methodology quite reasonable. Supporting progress within sensible bounds set by human nature, it is the best possible approach for promoting human dignity.

Cognitive Enhancements

In order to demonstrate the power and intuitive appeal of our naturalistic *phronetic* approach for evaluating biotechnologies, the best paradigm to analyze is one of the most controversial and ostensibly "unnatural": cognitive enhancement. Recall that cognitive enhancement is "the amplification or extension of core capacities of the mind through improvement or augmentation of internal or external information processing systems," in the words of leading transhumanist Nick Bostrom.[106] It is a useful paradigm, because it has implications for all of the previously discussed dialectics in human nature: mind-body, nature-nurture, and fact-value. Proposed technologies must take into account the complex relationship of the mind, brain and body, as well as their potential impact on that vital relationship. They also pose an increased risk to our subjective personhood and identities, given that we primarily define ourselves in terms of our moral psychology and character. Too rapid or vast a change to our emergent personal narratives could be dangerously disruptive. Harmony of mind and body, nature and nurture is key. Both the ends and means of particular cognitive enhancements will have to pass muster in terms of embodied cognition and moral selfhood in order to be deemed compatible with and upholding of *eudaimonic* human dignity.

The term cognitive enhancement covers a very wide range of interventions. Some forms of cognitive enhancements are rather ordinary and ubiquitous, from literacy to online search engines to green tea. Other proposed technologies have only recently been envisioned, such as transcranial magnetic stimulation (TMS), used to enhance the

[106]Bostrom, "Smart Policy: Cognitive Enhancement in the Public Interest"

performance of particular brain regions,[107] and brain-computer interfaces (BCIs), used to directly communicate with and control external devices.[108] Still others are quite radical, including neural prostheses and even mind uploading, with the "technological singularity," in which humans finally merge with technology, being a favorite futurist hypothesis of the transhumanist movement.[109] Some enhancements are modest in their intended effects, some utopian. All cognitive enhancement technologies provide previously unavailable degrees and modes of cognitive performance to their user. These changes must be evaluated in relation to the facts of human nature and custom and in terms of the potential impact on virtue and human dignity. To do this well, for the sake of future real-world ethical dilemmas and policy decisions for instance, one will have to consider specific enhancements on a case-by-case basis in context. This chapter seeks to begin that conversation and bring to light ethical issues that are likely to arise for a variety of particular types of cognitive enhancement technologies.

Pharmaceuticals

The use of psychotropic drugs for therapeutic purposes has been widely accepted in modern society. We do not have a problem restoring good health or correcting an impairment through medicine, and status below "good" or "normal" health is regarded universally as engendering medical obligations to treat. Chemical treatments have proven invaluable toward these ends. Methylphenidate (Ritalin) is prescribed to individuals with Attention-Deficit/Hyperactivity Disorder (ADHD), to allow them to focus in school and at

[107] Tom Feilden, "'Human enhancement' comes a step closer," *BBC*, January 26, 2012.
[108] SP Levine and JE Huggins, et al. "A direct brain interface based on event-related potentials," *IEEE Transactions on Rehabilitation Engineering* 8 (2) (2000): 180–5.
[109] Ray Kurzweil, *The Singularity Is Near.*

work. Modafinil (Provigil) is prescribed for narcolepsy and sleep-wake disorders to regulate sleep schedules and to promote wakefulness. Beta-blockers like propranolol (Inderal) are prescribed to treat heart conditions like hypertension and arrhythmia. However, each of these drugs has come to be popularly used for "off-label" enhancement purposes. Those without the relevant medical need are using Ritalin to improve their focus and cognitive performance, Provigil to remain alert on very little or no sleep, and Inderal to minimize acute anxiety before speaking or performing in front of a crowd. Given that all of our brain and body functions are modulated through chemical signals, pharmaceuticals have a wealth of potential for all sorts of cognitive enhancement targets.

Neurostimulation

Brain stimulation is another emerging therapeutic method with possible applications for cognitive enhancement. There are two main types of stimulation currently being used: transcranial magnetic stimulation (TMS) for shorter-term effects and deep brain stimulation (DBS) for longer-term. TMS involves the application of a magnetic pulse to the scalp directly above a specific region of the cortex. This is a non-invasive mode of exciting or inhibiting a target brain region, used successfully for treating depression and Parkinson's disease. DBS is a longer-term invasive procedure in which electrodes are inserted into a target region of the brain through the skull, receiving pulses of electrical current. This form of stimulation has also been used successfully to treat Parkinson's disease and anxiety disorders. Enhancement proponents hope to use TMS and DBS for the purpose of directly manipulating and augmenting a specific brain function, such as learning, mood, or memory.

Neuroprosthetics

Direct brain-computer interfaces (BCIs) are a more radical form of enhancement aimed at translating brain signals detected by implanted electrodes into instructions for an embedded or remotely connected computer. This type of technology could be used therapeutically to enable paralyzed patients to communicate or control prosthetic limbs. From an enhancement standpoint, BCIs are imagined to be useful for brain-to-brain non-verbal communication between people and for cognitively accessing computer software such as the internet or a virtual reality universe. Some futurists hope to use BCIs for directly uploading information and skills to the brain like a hard drive.

Mind Uploading

The final and most radical form of cognitive enhancement represents the eventual ideal of many transhumanists. The seemingly science-fiction technology of mind uploading aims to escape the human body entirely. Proponents envision that we will either upload our minds to more powerful hardware in a cybernetic body or eschew embodiment altogether, opting instead for a virtual existence. They see mind uploading as a way of achieving complete and absolute mastery over our existence, making possible a posthuman future in which we no longer suffer from aging, illness, misery, or death. As pure consciousness, we will survive as an information pattern, choosing to live however we see fit and unbound from any corporeal limitations.

Evaluating Ends

Moving from modest to radical, it will be much harder to defend those biotechnologies that aim to fundamentally alter the human experience or human nature (even for therapeutic purposes). They have greater potential to threaten human dignity by impairing our abilities to access basic goods and human flourishing. The goal of uploading of a human mind to a computer is so eccentric and foreign a notion that it will be all but impossible to argue in terms of practical wisdom that this somehow contributes to human dignity. While transhumanists care not for human nature in itself, most people, especially bioconservatives, would see this proposal as threatening our human dignity, literally dehumanizing, and therefore ethically unacceptable. Especially in light of its misguided view of mind separable from body and the possibility of completely objectifying human subjectivity, we must concur with the negative appraisal of its ends. Radical biotechnologies like mind uploading that ignore the facts of human nature may be intriguing for the purposes of speculation and science-fiction thought experiments, but they should absolutely not be pursued at this time.

Given the threats to human dignity of radical technologies, it would be infinitely more prudent to pursue more modest forms of enhancement that appreciate the value of human nature. We are better served, then, investigating the ethical implications of those cognitive enhancements that seek to build sensibly on human nature rather than deconstruct it. A useful way to isolate the ends of a particular technology for ethical evaluation is to consider whether its effects would be acceptable through conventional or customary means. For example, vision correction is acceptable through the wearing of glasses or contact lenses. Corrective laser eye surgery is therefore acceptable in its ends.

More intricate, we will see, is an ethical evaluation of a technology's means, but let us begin with a discussion of worthwhile and dignified goals of cognitive enhancement.

Many conventional, even historic, forms of cognitive enhancement do not even strike many of us as enhancement technologies per se. Traditional schooling develops a student's memory, knowledge, focus, critical-thinking skills, creativity, and executive function. It may seem strange to think about our education systems in such terms, but no other cognitive enhancement has such wide-ranging and comprehensive benefits. The trained use of language enhances our communication skills, capacity for understanding the world around us, and even the way we organize our thoughts and identities through narrative.[110] Such benefits are further cultivated and refined by traditional enhancements including mental training, meditation, yoga, and martial arts.[111] Incredibly, these enhancements do not only effect phenotypic modifications; they frequently induce permanent physiological and chemical augmentations of the brain.[112] They even have an alleged impact on one's epigenetics and regulated gene expression with neuropsychiatric effects.[113]

Myriad foods and vitamins also serve as cognitive enhancers acting at the level of direct chemical influence. The most widespread example is coffee. Hundreds of millions of people worldwide caffeinate every day with coffee, hoping to promote alertness and fight

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[110] Ramkrishnan Tenkasi, Richard Boland, Jr., "Locating Meaning Making in Organizational Learning: The Narrative Basis of Cognition," *Center for Effective Organizations Publications* G93-17 (1993): 237.
[111] Fadel Zeidan, et al., "Mindfulness meditation improves cognition: Evidence of brief mental training," *Consciousness and Cognition* 19 (2010): 597-605.
[112] Britta K. Hölzel, et al., "Mindfulness practice leads to increases in regional brain gray matter density," *Psychiatry Research: Neuroimaging* 191 (2011): 36–43.
[113] Jill Sakai, " Study reveals gene expression changes with meditation," *University of Wisconsin-Madison News* (2013). Accessed January 1, 2015: http://www.news.wisc.edu/22370

fatigue.[114] Energy drinks for focus and alertness and herbal extracts for enhanced memory represent a huge fraction of the sales in grocery stores.[115] Additionally, nutritionists widely recommend Omega-3 fatty acids, B vitamins, folic acid, and antioxidants all for improved cognitive function. Even glucose, the most basic fuel for our cellular metabolism, is consumed in calculated ways that optimize brain function, through sources such as whole-grain breads and fruits.[116]

This evidence would all seem to warrant the claim that not only are the ends of enhancement compatible with human nature and custom but the human experience largely depends on certain enhancements to our cognitive abilities. Goals such as improved alertness, focus, memory, understanding, communication, and creativity are themselves essential to human flourishing and dignity. This includes, in at least some acceptable circumstances, direct and irreversible changes to one's mind, body, and even genome. Furthermore, custom and culture have actually developed around many of these enhancements. Pedagogical methods are at the center of every culture. Yoga, meditation, and other forms of mindfulness training have been integral parts of diverse world religions for thousands of years. The culture of Judaism as "people of the book" would not exist without books, one of the most significant cognitive enhancement technologies developed in history.

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[114] Roberto A. Ferdman, "Here Are the Countries That Drink the Most Coffee," *The Atlantic*, January 15, 2014. Accessed April 20, 2015: http://www.theatlantic.com/business/archive/2014/01/here-are-the-countries-that-drink-the-most-coffee-the-us-isnt-in-the-top-10/283100/

[115] Roberto A. Ferdman, "The American energy drink craze," *Quartz online*, March 26, 2014. Accessed April 20, 2015: http://qz.com/192038

[116] Gangani Niyadurupola, "Better Brains," in *Reshaping the Human Condition: Exploring Human Enhancement* eds. Leo Zonneveld, Huub Dijstelbloem and Danielle Ringoir, (The Hague: Rathenau Institute, in collaboration with the British Embassy, Science and Innovation Network and the Parliamentary Office of Science & Technology, 2008): 77-88.

Each of these enhancements has been found to contribute to human flourishing and human dignity. They serve to directly promote natural human desires and basic goods (such as Aquinas's list of life, procreation, knowledge, and sociability), without threatening the ability to realize those goods in more substantial ways. For example, it has become self-evident and deeply integrated into traditions that sacrificing the greater prevalence of memorized volumes for the democratization of literature is much more fruitful than harmful. Though the art of reciting epic poems may have diminished greatly, we have more than made up for it by increasing the availability and variety of aesthetic pleasures and philosophical analysis through other forms of literature. The "people of the book" themselves opted, even reluctantly, to codify their no-longer aptly named Oral Law into the written Mishnah and Talmud.[117] Undeniably, cognitive enhancement has and will continue to feature prominently in the constitution of virtuous moral selves, human flourishing, and human dignity.

Evaluating Means

Cognitive enhancement technologies have historically benefitted us in our quest to adapt flexibly to new circumstances while preserving our human dignity. Their ends are integral to the balance of conservation and progression. Moving forward, our ethical challenge narrows to evaluating the means of novel, potentially more powerful techniques. The experimental and previously unseen biomedical techniques, with their improved precision, directness, and magnitude of effect, may carry morally significant features that distinguish them from the conventional techniques. For example, whereas the tremendous

[117] Gershom Scholem, "Tradition and Commentary as Religious Categories in Judaism," *Studies in Comparative Religion* Vol. 3, No. 3 (Summer, 1969).

enhancements achieved through traditional means occurred slowly enough that humans could sufficiently adapt, biomedical enhancements are much faster in their effect. Moreover, their effect is a greater degree of enhancement. If biotechnological enhancements are much more rapid and effective than traditional means, the changes they bring may simply be too drastic. For the sake of respecting human dignity, we must take steps to ensure that new enhancements are not only safe but also supportive of the process for cultivation of moral character in community. This task merits the input of every discipline for a truly nuanced and comprehensive assessment. However, we will at least begin to consider some of the more basic concerns most likely to arise with cognitive enhancements.

Safety

Enhancements will all carry some degree of medical risk, both unintended and resulting from the intended function of the technology. We have already seen some of the unintended side-effects common to pharmaceutical enhancers including insomnia, headaches, digestive problems, and cardiac palpitations. For the most part, these side-effects can be mitigated through responsible use, but they do present the real possibility of severe harm when overused or abused. There is also the risk of dependency. Some drugs are more likely than others to be habit-forming or addictive. If dependency develops, there is again the possibility of harm as doses increase or in cases of withdrawal. This is saying nothing of the impact on an individual's character and sense of autonomy when subject to the overwhelming pull of an addiction. Lastly, there is a distinct vulnerability that entails dependency on a technology. Were we to depend on a drug for everyday life, then the

provider of that drug has genuine control over our health and personhood. A sense of vulnerability is all the more potent in cases of technology being "hacked." If a wheelchair or automobile or brain-computer interface were susceptible to outside infiltration, then much of our self-determination disintegrates and our safety falls entirely into the hands of the hacker. Our rational and moral faculties are deeply compromised when they are being coerced by an uncontrollable force, whether side-effect, dependency, or external power. The measured likelihood of severe harm or dependency must be taken into account when evaluating a drug or technique.

Potential harms that result from the proper use of an enhancement must also be thoroughly considered. These are the inevitable trade-off effects on one faculty that will result from boosting another. For example, directly enhancing an individual's empathy will likely result in a decreased aptitude for self-defense and martial excellence. In times of peace, enhanced empathy may be very useful, but in times of war it can lead to extreme vulnerability and even destruction. We would not want an overly empathetic commander-in-chief when facing a threat like Nazi Germany. Enhanced memory might also be useful in some ways and painful in others. Increased retention of information can make test-taking easier, but it also will increase the likelihood of retaining traumatic memories should they occur. Similarly, enhanced attention can promote productivity while writing an essay, but it can also be debilitating though overstimulation or overwhelming sensitivity to stimuli. These trade-offs, often unanticipated, must be determined through careful and cautious experimentation. Once reasonably detected, they must play a major role in ethical evaluation of risks and benefits.

In the case of disease or deficiency, the potential benefits more easily outweigh risks of harm, but when it comes to enhancement the alternative to using a technology is remaining "normal." Risks might be harder in that case to offset with the benefits of proposed enhancements. Yet, all activities in life--from crossing the street to choosing a particular school for one's children--carry some risk, and every choice we make has a permanent effect on our future. Some level of risk must be acceptable. Even great risks are acceptable in certain contexts, where in extreme sports or in warfare. When it comes to cognitive enhancements, we should prohibit those with an unacceptably high probability of harm and allow those with a reasonable level of risk to be regulated. In some ways it can be modeled after the field of plastic surgery. The risk of an operation and follow-up is well established and assumed for the intended purpose of restoring one's appearance following an accident or improving upon it for self-esteem or cosmetic purposes. The specialty is highly regulated with medical training, licensing boards, and other precautions to prevent dangerous or reckless surgeries. In terms of modest cognitive enhancements, these regulatory structures can be built and self-regulation will develop as we learn the limits of safe and appropriate use.

Personhood

However, there is an important difference between cognitive enhancements and plastic surgery, resulting in even greater demands for vigilance and caution as we innovate. With modifications to our cognition, we are treading ever closer to disrupting the integrative center of our selves. Properly functioning cognition is a vital aspect of human nature, achieving virtue, and defining our moral identities. Changes to our cognitive

faculties will impact our individual personhood and our ability to relate to each other and shape our society, including how conducive it is to virtue and human dignity. Beyond and taking for granted medical safety, we must also closely analyze the implications of cognitive enhancements for our character, our roles in the world, and the ways in which we relate to each other.

Cognitive enhancements promise heightened powers and control over ourselves. Focusing excessively on abilities and mastery, though, also heightens the risk of developing superficial sensibilities. Manipulating aspects of our minds the way we would a computer program, we risk objectifying ourselves and being reductive of human nature. With such control, we might come to view ourselves as machines in need of materialistic optimization. We might also see future cognitive upgrades the way we currently see new smart-phones--as a competition for social status defined by having the newest and best device. While cognitive enhancement can conceivably be used to augment our virtuous aspects, it can also very easily be misused for petty, selfish, and shallow pursuits. Recalling the plastic surgery example, it is clear that many people use cosmetic interventions like Botox for superficial reasons. And yet society deems this acceptable. There are other forms of self-mechanization that are not only compatible with human dignity but quite healthy. For instance, any time we exercise, we are physically and cognitively enhancing ourselves.

Recognizing that our bodies and brains in many ways *are* machines is not inherently dangerous. But it also can be taken too far, such as when someone cares only for their physique and spends all day in the gym. Treating ourselves as nothing but a machine is the true problem, but we certainly would not ban athletic facilities as a result. Nor should we ban cognitive enhancement, simply because someone might abuse it by enhancing their

mind in a superficial manner. Taking this tension into account, we should instead promote a culture of healthy use of such biotechnology, comparable to how we promote responsible gym use or responsible vaccination use.[118] This also demands stricter regulation of more easily abused or misused substances and technologies. As enhancement technologies develop, therefore, we must actively work, at the levels of family, community, civil society, and state against materialism and excessive mechanization of the self.

Intimately connected with the threat of materialism is the threat of hubris. As Michael Sandel argues, wielding too much control over our fates can lead to self-perpetuating arrogance and recklessness.[119] Sandel sees the desire to enhance and shape human beings as the inappropriate pursuit of perfection, causing us to lose sight of our contingency and to become ever more lustful for control. He recognizes our vulnerability to the corrupting influence of power and cautions against its temptations, promoting in its place a mindset of gratitude and humility for the nature "gifted" to us. We are better off, he believes, being grateful for what we have than worrying about what we do not. Sandel is right to emphasize the great value of our inherited nature, yet part of that nature itself is the drive to progress, to grow, and to adapt to changing circumstances. Stagnation is not only unnatural, it is potentially dangerous in the face of new challenges. There are many circumstances in which "giftedness" is outweighed by competing human goods. We have always and should continue to better our circumstances to best thrive as humans. Innovation and technological progress, especially for enhancement purposes, have given us vaccines, computers, and surplus food, directly contributing to human dignity on a tremendous scale.

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[118] These are not without their controversies, but overall society has endorsed these enhancements for the better.
[119] Sandel," The Case against Perfection" 99-100.

Because any given technology can be either used or abused, Sandel's inclinations prove only partly correct. He is right that each of these developments brings complicating powers and requires adaptation, as our brains and bodies continue even now to adjust to ever available media and calories, for instance. He is also right that our nature provides a necessary, constraining repository of inherited wisdom. Yet, his preference for gratitude and humility must not be taken too far. Excess power is dangerous, and any sudden or drastic changes can be disruptive to human nature and thereby to human dignity. Granting this, we should not strive for limitless cognitive enhancements or anything close to absolute perfection. Through the prudent use of *phronesis* and interdisciplinary collaboration, we can and should constrain our efforts toward developing more practical enhancement innovations. These will build cautiously on our inherited nature toward the end of *eudaimonic* human dignity, neither settling for the status quo nor recklessly or arrogantly diving forward.

Another possible risk of cognitive enhancements for personhood is the threat to how we understand achievement. We hold in high esteem those individuals who work hard to achieve excellence, from athletes to performers to Nobel prize winners. Their purpose, resolve, and effort are to be admired. If cognitive enhancement allows us to bypass the difficulty in realizing excellence, can we really describe such an achievement as great? Such a restructuring of what it means to achieve and the consequent implications for cultivation of virtue could be unacceptably disruptive to the human experience. In reality, excellence is not defined only by effort. Like all normative concepts, it is highly context dependent. Achievement is the opportune combination of effort with a set of resources. These resources can include time, genetically inherited talent, upbringing, mentors, trainers, and

even luck. For example, the 1967 Florida Gators football team credited their Orange Bowl win over Georgia Tech to their newly formulated Gatorade, designed by professors from their school of medicine to rehydrate and replenish electrolytes lost from exertion.[120] The access to Gatorade did not suddenly develop the team's football skills, but it did allow them to better represent those skills on the field. Similarly, Provigil does not write a student's paper for her; it allows her more time in which to complete it, an extremely useful resource, and one almost equally accessible through coffee or energy drinks (it currently appears that Provigil may even be safer than caffeine). This additional time, properly utilized, also allows for cultivation of other aspects of human dignity, like family, community, and leisure. Enhancements compatible with human dignity do not replace hard work and effort. They empower their users to practice or apply their skills more. If, like the character Neo in the Matrix, we could directly upload the mastery of kung-fu, then we will have disordered our understanding of excellence. However, modest enhancements that still require cultivation of character through effort can contribute to human flourishing and dignity in a way that it not outweighed by the risks.

In the context of athletics and other competitive settings, uneven access to resources can undermine the purpose and meaning of the competition. Doping regulations in sports are entirely justified to preserve the fairness necessary for the sport to reflect its purpose. Outside of competition, though, modest cognitive enhancements are no more redefining of excellence than access to personal tutors or better schools. Interestingly, most recent studies, in fact, indicate a "fairness pattern" that pharmacological cognitive enhancers, including Ritalin and Provigil, have a greater enhancing impact on those with

[120] Darren Rovell, *First in Thirst: How Gatorade Turned the Science of Sweat Into a Cultural Phenomenon*, (New York: AMACOM, 2005): 28-34.

lower cognitive starting points.[121] There are, for the time being, built-in limitations on the disparities possible from these technologies. Walter Glannon explains that with our more modest cognitive enhancers, there seem to be two limiting features. Firstly, they exhibit "an inverted dose-response curve." Lower doses improve cognitive performance while higher doses either have no effect or actually impair performance. Secondly, cognitive enhancing technologies have a dependency on working memory. As the aforementioned studies indicated, "those with a lower baseline tend to benefit more, while those with a higher baseline tend to benefit less."[122] The degree of impact cognitive enhancements can have is currently limited by the brain itself, a welcome outcome for those seeking to prevent radical changes to human nature.

Justice and Access

Despite the "fairness pattern" currently inherent to many cognitive enhancements, there will inevitably arise ethical difficulties with regard to fairness of resource distribution. Even if a certain enhancement is deemed sufficiently safe and friendly to personhood, it will still be a scarce resource more available to those of higher socioeconomic status. For example, stimulant use for enhancement purposes is a phenomenon found mostly at universities, a setting populated primarily by the middle-class and wealthy. This uneven access could exacerbate social gaps as the wealthy enhance their abilities to achieve more through chemical and technological means. On the other hand, inequity already characterizes most of how society handles resources. We have not

[121] DC Randall, et al. "Cognitive Effects of Modafinil in Student Volunteers May Depends on IQ," *Pharmacology, Biochemistry, and Behavior* 82 (2005): 133-139.
[122] Walter Glannon, *Brain, Body, and Mind: Neuroethics with a Human Face* (Oxford: Oxford University Press, 2011): 121.

denied the development of other technologies, biomedical or otherwise, on the grounds that they will be utilized primarily by those of higher socioeconomic status. Indeed, many of these developments, such as the internet, have served to democratize access to opportunity. With resources such as Youtube, Khan Academy, and iTunesU, one can receive an education all the way through the university level for the cost of internet access (or of sitting in a cafe with free wireless internet). Other forms of cognitive enhancement may act in similar ways and prove surprisingly easy to distribute, making the virtuous, dignified life increasingly available. The task of determining the economic and social implications of particular cognitive enhancement technologies is vast and will require thoughtful and attentive accumulation of evidence. It is of great importance that responsive regulatory mechanisms be in place to ensure that biotechnologies do not violate human dignity at the social level as well.

We have found that the ends of cognitive enhancement are not only ethically acceptable but can help us achieve virtue and uphold human dignity. We have also seen that the means of modest forms of cognitive enhancement are no more threatening to human dignity than currently existing and widely accepted technologies. Where they do reach uncharted territory, we have the pragmatic methodology described above for safely and ethically constraining changes to human nature. Aimed at the *telos* of human dignity and through the investigational means of *phronesis* and collaboration, we can ensure that the rate and degree of change are not disruptive to the human experience and we can best resist materialism, hubris, and injustice in implementation.

Our anti-radical methodology should hopefully appeal in major ways to both bioconservatives and transhumanists by taking the best of what each camp has to offer and using it toward a reasonable middle path. The bioconservatives provide us with an emphasis on the value of what we inherit and the complex impact of change on not just individuals but community, society, and morality. They caution us against hastiness that could bring irreversible unanticipated consequences. The transhumanists have a complementary emphasis on respect for individual freedom and autonomy as well as the inevitable human drive to innovate. They point out the countless opportunities to improve the world around us. We cannot afford to stagnate. Our universe is dynamic and ever in flux. If we were to artificially impose an inflexible conception of human nature, we would quickly find ourselves unable to adapt to novel challenges, whether technological in nature or not.

Human dignity is not a static phenomenon; thriving as humans requires prudent responses to new circumstances in light of the old. We are responsible for carefully, communally assessing the impact and implications of our decisions at every step, not only to ensure that radical changes do not violate our dignity but that gradual changes do not also less obviously lead us down the wrong path away from human flourishing. Cautiously experimenting will allow us to discover those responses best suited for progress that promote human dignity. This introductory exploration of cognitive enhancements points us in the direction of certain guiding heuristics for practically implementing biotechnologies and for future policy concerns. Extrapolating from this chapter's findings, these will be offered in the concluding final chapter.

Conclusion:

Heuristics for Implementing Biotechnology

Enhancement biotechnology is not so much a matter of *if* it will be implemented but *when*. These innovations will enable us to more easily and effectively fulfill our natural, everyday desires and many will become widespread more quickly than we might anticipate. As a result, we must be prepared in advance as individuals and as a society to meet the challenge of augmentation and ensure a sensible and wise path forward toward a good, dignified life for ourselves and our peers. A fully dignified life is the life of virtue. It is the most rewarding, fulfilling, and satisfying life available to human beings, given our embodied cognition and our moral conception of self. As such, we should seek to promote virtue among as many people as possible. In the end, enhancement technologies may actually make the virtuous life more accessible to a greater number of people, as long as we manage our innovative impulses prudently.

The concept of human dignity should be at the forefront of interdisciplinary enhancement discussions, with the goal of human flourishing underlying all decisions. Firm ethical guidelines should be made clear, emphasizing the unacceptability of impulsive, reckless, and dangerous innovations. Policy debates should focus the best ways to evaluate emerging technologies, to promote innovation in the realm of technologies that facilitate the cultivation and practice of virtue, and to strictly regulate those technologies more likely to radically disrupt human nature. Through wise development and implementation, enhancement technologies can serve us well in promoting human dignity.

To summarize the overall push of our approach, the following heuristics will be helpful for those seeking to implement practical policies to ensure respect for human dignity:

1. Prudence and Precaution

Especially when it comes to technologies like cognitive enhancements that more directly augment defining features of who we are, we should be satisfied in most cases with slow and cautious progress. This allows us to build on the inherited wisdom of nature and custom and to constantly and consistently assess the impact of changes on human nature at all levels and through all disciplines. Through meticulous sensitivity to context, we can best achieve our goals as well as prevent and respond to unanticipated consequences and side-effects. This is the most important guiding principle for moderate naturalist ethics.

2. Nothing Superhuman, Yet

Until we are more confident and capable with regard to the science and technology itself and the evaluation thereof, we should err on the side of enhancing no more than normal species functioning. Rather than creating radical new capabilities, we should first enhance the ones we have to the level of our most capable peers. This will help us measure the effects of large-scale enhancement at all before we have to start measuring the impact of entirely new abilities. It will also allow for less stark and drastic a transition, minimizing the likelihood of disrupting core human experiences.

3. Reversible Where Possible

Technology permitting, we should seek to implement enhancements that wear off or can be reversed if necessary. For example, if we find that a genetic modification makes us immune to one disease but unexpectedly increases vulnerability to another worse condition, then we should have the ability to undo our mistake. Luckily, this is quite practicable at the genetic level, through the mechanism of genetic switches.[123] Most pharmaceutical effects also wear off over time on their own. We will have to work to develop similar mechanisms for other enhancements as well, especially those technologies that depend on hardware.

4. Innovate and Regulate

Although the practice of medicine has traditionally served a therapeutic role, seeking to heal and treat, we must begin to incorporate preventive and enhancement measures into the medical field, including active research. This has already begun with vaccinations, cosmetic surgery, and reproductive medicine, and we must build on that precedent. Those biotechnologies deemed worthwhile should be readily implemented, yet closely managed by the medical community with its regulatory bodies. This will increase the likelihood that sensitive technologies are developed safely and practiced by experts.

Through these four heuristics, we can most practically achieve the overall balance between progress and persistence, transhumanist idealism and bioconservative wariness. As this thesis has shown, a moderate naturalist approach to bioethics allows us to stake out a sensible position balancing the competing inclinations of dystopian bioconservatism and

[123] B Alberts, A Johnson, J Lewis, et al. "How Genetic Switches Work," in *Molecular Biology of the Cell*, *4th edition*, (New York: Garland Science, 2002). Also available at: http://www.ncbi.nlm.nih.gov/books/NBK26872/

utopian transhumanism. We intuitively opt for biotechnologies that strike that balance. Those that we perceive as dehumanizing will not be adopted on a large scale, especially if we continuously, carefully assess their impact in context as they are tested and implemented by some. It is highly unlikely that anyone will select a man-made technology in which they are ultimately replaced. That would require an absurd leap of faith that cannot be justified in terms of natural desires. It is also highly unlikely that people will turn down a proven safe and effective technology that enhances a basic good. The benefits will accrue and speak for themselves.

Consider again the example of vaccines. Nearly all Americans have come to recognize that particular enhancement technology as striking the appropriate balance. The objective contributions of vaccinations to human flourishing through life and health are vast. Even while there are those on the margins who advocate extreme caution, few would regard vaccinations as an affront to human dignity or as undermining human nature. The natural desires of human nature are such that we can trust them for the most part in defense of our dignity, especially in the face of radical biotechnology. Those enhancements that measurably and safely contribute to our flourishing will be adopted.

This golden mean is achieved through resisting the temptation to overstate or overemphasize one pole of the various dichotomies encountered in these discussions: fact-value, nature-nurture, mind-body. Each pole is profoundly intertwined with and defined by the other. A teleology of dignity through *eudaimonia* pursued with a pragmatic ethics of moderate naturalism depends on this fact and helps us all the more so to avoid dangerous, extreme philosophical positions. Through our interdisciplinary, evidence-based, humble, and prudent methodology, even such fundamentally opposed camps as bioconservatives

and transhumanists can cooperate and forge a reasonable path forward, simultaneously conserving and enhancing human dignity. In place of the radical positions of excessive pessimism or excessive optimism, we have begun to see the value of practical realism for evaluating biotechnologies in particular and for bioethics in general.

A moderate naturalistic bioethics is effectively objective at its core and subjective or pluralistic at the margins. We have a history of refining our prototype of human dignity to the point where we can state with sufficient objectivity that many particular things are virtuous and others vicious. Yet, debate persists when it comes to novel scenarios and technologies, such as cognitive enhancements. That is not a problem. With educated, reasonable, and properly motivated hypotheses attempted in response to these dilemmas, we will sometimes succeed and sometimes fail in our efforts to promote *eudaimonia*. With prudence and practical wisdom, we will succeed much more often that we fail. Nonetheless, our experience with failures will allow us to better address the next dilemma. With an eye to inherited wisdom and greater subjective experience over time and in different contexts, our deliberative community can continue to learn ever more about those behaviors and decisions that contribute to or detract from human flourishing. Bioethics, as a profoundly interdisciplinary and daily applied field studying human nature as it is lived objectively and subjectively, is uniquely situated to guide the critical endeavor of advancing human dignity in theory and practice.

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