

Enhancing 'Human Nature':  
The Human Enhancement Debate in U.S. Bioethics

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Submitted in partial fulfillment of the  
requirements for the degree of  
Doctor of Philosophy  
under the Executive Committee  
of the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY

2021

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## **Abstract**

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It is often remarked that we are entering into a biotech age that will afford us with the unprecedented means to remake human biology. The question is: should we use our imminent techno-scientific powers to 'enhance' and even 'transcend' our 'natural' limitations or remain human 'as we have always been'? But is this the right question? This dissertation critically examines the human enhancement debate in bioethics and bioethics-adjacent literature. More specifically, it mobilizes a wide range of disciplinary tools to reflexively explore the discursive resonances, effects, and shortcomings of human enhancement as a conceptual framework. Through this exploration, I demonstrate that the well-established therapy/enhancement distinction depends upon deeply humanist ontologies that are insufficient for understanding and addressing the biotechnological 'crisis'. In turn, I provide a posthumanist approach to thinking human nature, which highlights the relational, embodied, and differential character of subjectivity. Such an approach implies that we have *always* been cyborgs and, therefore, *never* been human as such. In doing so, I take a small step towards constructing post-enhancement frameworks for doing bioethics in our posthuman moment.

# Table of Contents

Introduction: Debating the Enhancement Debate.....	1
0.1 Introduction to the Introduction.....	1
0.2 Critical Posthumanism(s).....	6
0.3 Religious Studies.....	18
0.4 Discourse Analysis and Its Limits.....	22
0.5 Interdisciplinarity.....	31
0.6 Chapter Outline.....	35
Chapter 1: Towards an Intellectual History of Bioethics.....	43
1.1 A History of What?.....	43
1.2 Prefiguring Bioethics.....	43
1.3 The Birth of a Discipline.....	58
1.4 From Normalization to Customization.....	75
1.5 The Enhancement Debate.....	90
1.6 Looking Backwards, Looking Forwards.....	100
Chapter 2: Mapping the Enhancement Debate.....	103
2.1 The Thin Line: Therapy and Enhancement.....	103
2.2. Bioconservatism and the Sanctity of Human Nature.....	107
2.3 The Human Dignity Critique.....	108
2.4 The Moral Status Critique.....	114
2.5 Metaphysical Biology: A Virtuous Nature.....	118
2.6 Bioliberalism: Arguments from and against Nature.....	120
2.7 The Virtues of Enhancement.....	124
2.8 Philosophical Ethics and/as Evolutionary Biology.....	130
2.9 Bio-humanism and Beyond.....	133

Chapter 3: Theologizing Public Bioethics.....	150
3.1 A Substantive Turn.....	150
3.2 New Council, New Bioethics.....	154
3.3 Dolly: A Wolf in Sheep’s Clothing.....	158
3.4 The (Ontological) Politics of Human Dignity.....	164
3.5 Ideology and Secularity in Value Diversity.....	172
3.6 A ‘Richer Bioethics’ or a ‘Return to the Norm’? .....	181
 Chapter 4: From Disenchantment to (Moral) Bioenhancement.....	 186
4.1 The Desirability of Enhancement.....	186
4.2 Behavioral Enhancement.....	189
4.3 Virtuous Enhancement.....	194
4.4 Rational Enhancement.....	199
4.5 Secularization and/as Disenchantment.....	201
4.6 Disenchanted Behavior.....	205
4.7 Disenchantment Virtue.....	209
4.8 Disenchanted Rationality.....	215
4.9 The Same Old Secularization Thesis? .....	215
4.10 From Disenchantment to Danger?.....	219
 Chapter 5: From Posthumanism to Post-enhancement.....	 226
5.1 Postmodern Pessimism or Posthuman Optimism? .....	226
5.2 Cybernetics and the Informatic Self.....	233
5.3 From Symbolic AI to Neural Networks.....	248
5.4 Extending Boundaries.....	254
5.5 Co-evolving Complexity.....	259
5.6 Posthumanist Parallels.....	267
5.7 Methodological Posthumanism.....	268
5.8 Radical Posthumanisms.....	274
5.9 Human Enhancement: A Category Mistake.....	282

Conclusion: Enhancing the Debate? .....	287
6.1 Human(ist) Enhancement: A Review of Reasons.....	287
6.2 The Limitations of Humanist Bioethics.....	291
6.3 From Theory to Praxis? Noise and Emergence.....	303
 Bibliography.....	 314

# Introduction: Debating the Human Enhancement Debate

## 0.1 Introduction to the Introduction

In an August 2012 edition of *Science*, geneticist Jennifer Doudna, microbiologist Emmanuelle Charpentier, and four of their colleagues at the University of California, Berkeley proposed a groundbreaking technique for gene-editing: CRISPR-Cas9.<sup>1</sup> In the months and years that followed, CRISPR was heralded as a “molecular biology revolution” that would usher in an unprecedented age of biotechnological intervention.<sup>2</sup> For scientists, bioethicists, legalists, theologians, and journalists, the prospect of this revolution prompted a host of ‘big-picture’ questions about what it does and ought to mean to be human. Will ‘re-naturing’ ourselves through genetic manipulation make us less, in-, or post- human? Where, if at all, should we draw the line

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1 CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) refers to a family of DNA sequences found in the genomes of prokaryotic organisms that play a vital role in the organism’s antiviral defense system. These sequences function as small copies of viruses that enable bacteria to identify the presence of the original viruses in the body. Cas9, on the other hand, is an enzyme (protein) that uses single-guide RNAs to identify and cut specific strands of DNA related to the CRISPR sequences. Bacteria, in essence, fight off viruses by sending the Cas9 enzyme to cleave foreign genetic elements. The groundbreaking nature of the 2012 CRISPR-Cas9 study, however, did not lie in the mere detailing of this process (indeed, much of the basic knowledge concerning CRISPR-Cas9 was well-established at the time of the article’s publication). Rather, it lay in the experimentally supported conclusion that this structural, immunological process could be harnessed to edit genomes rather than just kill viruses. If one used synthesized RNA-guides to intentionally introduce double-stranded breaks in the genome, one could trigger the repair process and alter the genetic code at a particular DNA sequence of one’s choosing. Martin Jinek et al., “A Programmable Dual-RNA-Guided DNA Endonuclease in Adaptive Bacterial Immunity,” *Science* 337, no. 6096 (2012): 816-821.

2 The description of CRISPR as a “molecular biology revolution” comes from Jeffrey Perkel, “CRISPR/Cas Faces the Bioethics Spotlight,” *BioTechniques* 58, no.5 (2015): 223-227. Similar academic articles on CRISPR are too multitudinous to cite exhaustively here. Some other pertinent examples and summaries thereof, however, include: Elizabeth Pennisi, “The CRISPR Craze,” *Science* 341, no. 6148 (2013): 833-836. Heidi Ledford, “CRISPR, The Disruptor,” *Nature* 522, no. 7554 (2015): 20-24. Mazhar Adli, “The CRISPR Tool Kit for Genome Editing and Beyond,” *Nature Communications* 9, no. 1 (2018): 1-13.

For an overview of how CRISPR was represented in U.S. popular press, see: Alessandro Marcon et al., “CRISPR in the North American Popular Press,” *Genetics in Medicine* 21, no. 10 (2019): 2184-2189. While the authors are most concerned with the misrepresentation of the science behind CRISPR, their article notes an abundance of popular interest – including 228 relevant articles published between January 1, 2012 and July 12, 2015 – and a consistent attitude of skepticism among media outlets and the public toward CRISPR research.

between ethical and unethical uses of biotechnologies on human beings, and on what normative grounds? When will our Promethean aspirations have ‘gone too far’ and how will we know?<sup>3</sup>

Recognizing these widespread anxieties, a leading group of developers, scientists, and bioethicists met in Napa Valley in January of 2015 to discuss the biomedical, legal, and ethical aspects of CRISPR systems. These discussions initiated a more robust discourse, which soon resulted in the National Academies of Science, Engineering, and Medicine (NAEM) organizing the First International Summit on Human Genome Editing in 2015 and publishing a comprehensive report, *Human Genome Editing: Science, Ethics, and Governance*, in 2017.<sup>4</sup> If their proactive response tacitly acknowledged that CRISPR’s potential to rewrite genetic code posed novel ethical problems, these experts nevertheless turned to a well-established framework from the field of bioethics to reconcile them: human enhancement.

Since the late-1980s, bioethicists and bioethics-adjacent theorists have classified and debated a wide range of speculative biotechnological interventions according to their presumed ends so that bioethical debate takes the shape of two mutually constitutive ethical ideals: therapy

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3 For representative articles that raised likeminded ethical questions about the possibilities of “eugenics,” “superpeople,” “designer babies” “changing human evolution,” and “lines that shouldn’t be crossed,” including interviews with highly involved scientists and bioethicists, see: John J. Miller, “The CRISPR Conundrum,” *Human Life Review* 42, no. 3 (2016): 90-94. Antonio Regaldo, “Engineering the Perfect Baby,” *MIT Technology Review* 118, no. 3 (2015): 26-33.

These ethical concerns regarding CRISPR, however, did not reach a fever pitch until November of 2018 when, to the surprise of the audience at the Second International Summit on Human Genome Editing in Hong Kong, Chinese scientist Dr. He Jiankui announced that he had used CRISPR-Cas9 on two female embryos that were brought to term through an in vitro fertilization (IVF) pregnancy. For examples of the reactions to this experimental success, including government bodies, scientists, bioethicists, and theologians, see: Anonymous, “Scientist Claims First Gene-Editing of Human Embryos, Igniting Storm of Controversy,” *Issues in Science and Technology* 35, no.2 (2019): 20. Neal Bear, “Commentary: Code Dread,” *Perspectives in Biology and Medicine* 63, no. 1 (2020): 14-27. Arvin M. Guow, “The CRISPR Apple on the Tree of Knowledge Conference Highlights: CRISPR in Science, Ethics, and Religion,” *Zygon* 55, no. 2 (2020): 409-420.

4 George Q. Daley, “Introduction the Special Issue on CRISPR,” *Perspectives in Biology and Medicine*, 63, no. 1 (2020): 1-13. J. Benjamin Hurlbut, “Imperatives of Governance: Human Genome Editing and the Problem of Progress,” *Perspectives in Biology and Medicine* 63, no. 1 (2020): 177-194. National Academies of Science, Engineering, and Medicine, *Human Genome Editing: Science, Ethics, and Governance* (Washington D.C.: National Academies Press, 2017).

and enhancement.<sup>5</sup> Whereas therapies are medical practices that return individuals to ‘normal’, ‘healthy’, or ‘species-typical’ functioning, enhancements are biotechnological interventions that increase one’s capacities, performances, or dispositions to greater than ‘normal functioning’, i.e., that make one “better than well.”<sup>6</sup> Taken to its logical extreme, human enhancement is directed toward the end of creating “posthumans,” i.e., beings so “improved” that they are no longer recognizable by today’s standards of human life.<sup>7</sup> To speak of human enhancement is thus to imagine imminent futures in which biotechnologies are used to make people healthier, smarter, happier, longer-lived and even more moral than their current biological makeup affords; and, in the process, to potentially lose the exceptional qualities that make them human in the first place.

Taking up this instrumentalist framework, NASEM and their cohort contended that while using CRISPR for the purpose of medical treatment was a consensus, ethical end for scientific research, developing it for the purpose of substantively transforming human nature, regardless of benefit, was not.<sup>8</sup> As its appearance in the CRISPR discourse testifies, the therapy/enhancement

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5 As I detail in Chapter One, the first use of the therapy/enhancement distinction I could identify in this context was in William French Anderson, “Human Gene Therapy: Scientific and Ethical Considerations,” *Journal of Medicine and Philosophy* 10, no. 3 (1985): 275-292. As Erik Parens notes though, it was already part of the regular bioethical lexicon by the mid-1990s. Erik Parens, ed., *Enhancing Human Traits: Ethical and Social Implications* (Washington, D.C.: Georgetown University Press, 1998).

6 The phrase “better than well” comes from: Carl Elliott, *Better than Well: American Medicine Meets the American Dream* (New York: W.W. Norton & Company, 2004). For definitional work on the therapy/enhancement distinction, see: Alberto Giubilini and Sagar Sanyal, “The Ethics of Human Enhancement,” *Philosophy Compass* 10, no. 4 (2015): 233-43. Norm Daniels, “Normal Functioning and the Treatment-Enhancement Distinction,” *Quarterly of Healthcare Ethics* 9 (2000): 309-322.

7 This end is most often associated with the transhumanist ideal of becoming “posthuman.” See, for example, Nick Bostrom, “The Transhumanist FAQ: A General Introduction,” World Transhumanist Association, last modified 2003, [http://www.the-astrolabe.net/transhumanist\\_faq.htm](http://www.the-astrolabe.net/transhumanist_faq.htm). Gregory R. Hansel and William Grassie, ed., *H±: Transhumanism and Its Critics* (Philadelphia: Metanexus Institute, 2011).

It is also, however, often used by critics to make ‘slippery slope’ arguments against human enhancement. See, for example, Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (New York: Picador - Farrar, Straus and Giroux, 2007). George J. Annas, Lori Andrews, and Rosario Isasi, “Protecting the Endangered Human: Toward an International Treaty Prohibiting Cloning and Inheritable Alterations,” *American Journal of Law and Medicine* 28, no. 2 (2002): 152-3.

8 While the 2017 report defended the current science of CRISPR – detailing how current research in the United States conformed to existing biomedical oversight frameworks and claiming that gene-editing research was “necessary for medical and scientific purposes” – it also called for a moratorium on applications directed at altering the genomes of

distinction has become a *de facto* fault line for making sense of the moral potential of biotechnologies. In this regard, CRISPR, despite its apparent radicalness, did not prompt new or different perspectives on biotechnology and the future of human nature. Rather, bioethicists and other concerned actors operationalized concepts and language from a genre of bioethical literature, the human enhancement debate, that has been operative for decades.

How did human enhancement become a ‘commonsense’ language with which to debate the ethics of biotechnologies? How has the framework of human enhancement shaped the field of bioethics – academic, professional and public – since its inception? What historical, philosophical, and scientific means do bioethicists and adjacent theorists use to argue for and against human enhancement? What normative accounts of ‘human nature’ does the framework of enhancement both depend upon and validate? How can imaginings of the future of science and technology help us understand how ‘the human’ is being reconstituted in the present? And what alternative imaginings of human nature can help us make sense of the ethics of researching and developing biotechnologies moving forward? At stake in these questions is what and who will define authoritative notions of normative and desirable humanity in the twenty-first century.

This project is a critical examination of the discourse of human enhancement in bioethics and bioethics-adjacent literature. It helps us understand how techno-scientific speculation and bioethical deliberation are remaking human nature in the present, i.e., how the prospect of human enhancement is informing how ‘we’ understand what it means to be human in the first place. The particular goals of my analysis, however, can be understood as threefold. First, it complicates the standard account of the history of bioethics as one of secularization and rationalization that

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babies through germ-line (inheritable) or embryonic interventions. Even the ethical use of CRISPR for somatic (non-inheritable) interventions, however, was defined within strict limits. National Academies of Science, *Human Genome Editing*, 81. For a summary of the report’s principles and recommendations, see pages 181-194.

depended on the erasure of ‘substantive’ inquiries about human nature and purpose. While the *de facto* framework of common moral principlism has all-too-often concealed conceptually prior questions about the values and ends that ought to guide biotechnological innovation, these foundational questions are returning to the bioethical mainstream through the topic of human enhancement.<sup>9</sup> Second, it deconstructs the models of subjectivity being forwarded in the human enhancement debate, which, despite the radical nature of enhancement technologies, tend to be remarkably traditional in their recapitulation of Western, humanist beliefs such as Cartesian dualism, moral universalism, and cultural evolutionism. Third, I use biotechnologies as a discursive occasion to challenge the ontological fault lines of human/technology, nature/artifice, and mind/body upon which the framing of enhancement itself depends. In concert with emerging posthumanist critical theory, I elaborate a view of human nature in which cognition is an extended and embodied phenomenon and the self is a relational and distributed process. While I situate this model as a social and historical construct, I contend that it can nevertheless provide an important counter-weight to the dualistic and anthropocentric treatments of human nature that predominate in the enhancement debate.

By the end of this dissertation, the reader should walk away with an understanding that the ethics of biotechnology is necessarily an ontological problem and, furthermore, that the predominant framework of human enhancement is insufficient for addressing this crisis; not simply because it is a vague or contingent category, but also because it depends upon highly traditional notions of human nature that are both normatively and ontologically incoherent.

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<sup>9</sup> As I will detail in Chapter One, common moral principlism, which presumes that all members of moral communities are predisposed to four predominant principles – autonomy, beneficence, nonmaleficence, and justice – has been the *de facto* framework for professional bioethics since the field’s inception in the late-1970s. See: Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics* (New York: Oxford University Press, 1979).

## 0.2 Critical Posthumanism(s)

This project contributes to the emergent and interdisciplinary field of critical posthumanism. “Posthumanism” is a multifarious term in academic literature. It is often conflated with transhumanism, the intellectual and cultural movement that advocates using techno-scientific means to bring into being “posthumans,” i.e., future persons who possess capacities beyond what is now recognizable as human.<sup>10</sup> The term *posthumanism*, however, can be traced to literary theorist Ihab Hassan’s 1977 journal article, “Prometheus as Performer: Toward a Posthumanist Culture.”<sup>11</sup> In this foundational article, the author claimed that the growing power of techno-science was changing the matrix of human cultural performances as human consciousness co-evolved with new sciences and technologies and extended itself further and further into the “natural” universe. We must, therefore, recognize that anthropocentric models of human culture – including the then-status-quo belief in the “two cultures” of the sciences and the humanities – are becoming obsolete.

Hassan’s critical stance toward the inherited ontological boundaries between nature and culture has since become a defining feature of posthumanist thought. Posthumanist physicist Karen Barad, for example, defines posthumanism as “the practice of accounting for the boundary-making practices by which the ‘human’ and its other are differentially delineated and defined.”<sup>12</sup> Likewise, posthumanist theologian Elaine Graham explains that critical posthumanism argues that “digital, cybernetic and genetic technologies have not only a material but existential impact, in their ability

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10 Robert Ranisch and Stefan Lorenz Sorgner, ed., *Beyond Humanism: Trans- and Posthumanism* (Frankfurt: Peter Lang, 2014).

11 Ihab Hassan, “Prometheus as Performer: Toward a Posthumanist Culture,” *The Georgia Review* 31, no. 4 (Winter 1977): 830-850.

12 Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007), 136.

to question the boundaries and categories by which we have always delineated ‘human nature.’”<sup>13</sup> The critical task of posthumanism, then, is “to gain some analytical grasp” on the “*discursive* technologies which demarcate humans from nature, non-human animals, [and] machines.”<sup>14</sup> This desire to treat emergent technologies as a discursive occasion to question how the boundaries between humans and their others are being symbolically and materially (re)constituted represents one of the principle goals of this dissertation.

In the past two decades, however, critical posthumanism has also begun to emerge as a distinctive intellectual field with self-identified scholarship, disciplinary cartographies, and common theoretical and methodological interests.<sup>15</sup> Two genealogical threads are most often traced for this brand of scholarship. First, posthumanist theorists understand themselves as building on the critical tradition of the various “Studies” – Women’s, Gender, Queer, Feminist, Race, Disabilities, and Postcolonial, among others – that, beginning in the 1970s and 1980s, challenged the empirical and normative premises of a *homo universalis* from within the

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13 Elaine Graham, “Post/human conditions,” *Theology and Sexuality* 10, no. 2 (2004): 18.

14 Graham, “Post/human conditions,” 18.

15 It is important to note that there is a deep diversity of posthumanist literature, and that there are sometimes internal distinctions drawn between different schools of posthumanist thought, including: cultural posthumanism, critical posthumanism, philosophical posthumanism, methodological posthumanism, and radical posthumanism. While I believe that there is merit to these distinctions, I choose to treat works from across these subgenres as part of a larger discourse of “critical posthumanism,” or just “posthumanism” for short. This is due in part to, as I suggest in Chapter Five, the presence of overlapping theoretical commitments, and in part to the explanatory and interpretive functionality it affords. I want to be clear though that there are multiple *posthumanisms* rather than just one *posthumanism*.

For examples of taxonomic and cartographic efforts to distinguish posthumanism as an intellectual genre, see: Neil Badmington, ed., *Posthumanism* (New York: Palgrave, 2000). Cary Wolfe, *What is Posthumanism?* (Minneapolis: University of Minnesota Press, 2010). Stefan Herbrachte, *Posthumanism: A Critical Analysis* (New York: Bloomsbury Academic, 2013). Rosi Braidotti and Maria Hlavajova, ed., *Posthuman Glossary* (London, UK: Bloomsbury Academic, 2018). Christopher Peterson, “The Posthumanism to Come,” *Angelaki: Journal of Theoretical Humanities* 16, no. 2 (2011): 127-141. Nicholas Gane, “Posthuman,” *Theory, Culture and Society* 23, no. 2-3 (2005): 431-434. Francesca Ferrando, “Posthumanism, Transhumanism, Antihumanism, Metahumanism, and New Materialisms: Differences and Relations,” *Existenz* 8, no. 2 (2013): 26-32. Tamar Sharon, “A Cartography of the Posthumanist, Non-Humanist and Mediated Perspectives on Emerging Biotechnologies,” *Krisis: Journal for Contemporary Philosophy* 2 (2012): 4-19.

humanities.<sup>16</sup> The common theme across these different disciplines was a recognition that ‘the human’ of classical humanism was defined through hierarchical opposition to non-normative persons, which, in spite of claims to universal inclusion, justified the exclusion and marginalization of a wide range of sexualized, racialized, and naturalized ‘others’. In other words, the in-built Euro- and Anglo-centrism and “methodological nationalism” of the humanist tradition resulted in a failure to recognize human beings as multiple and contextual and, in doing so, generated its own unethical hierarchies.<sup>17</sup>

The second genealogical thread can be traced to the modes of non-humanistic scholarship that emerged closer to the turn of the millennium – e.g., Science and Technology Studies, Media Studies, Animal Studies, Environmental Studies – and a host of disciplinary subfields based around different objects of inquiry such as affect, memory, migration, and extinction. While building on earlier critiques of humanist thinking, this growing list of academic projects differs in that it de-centers the human as its object of analysis to a radical a degree and instead focuses on its various (ostensible) others – e.g., machines, plants, animals – which have so often been instrumentalized or altogether excluded in academic analyses. It is also important to note that this shift co-emerged with the ‘digital revolution’ of late-1990s and early-2000s in which widespread technological mediation made it increasingly difficult to think the human in non-mediated and non-technological terms.<sup>18</sup>

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16 In addition to the aforementioned sources, this particular genealogical framing of posthumanism owes much to Rosi Braidotti and Francesca Ferrando. See: Rosi Braidotti, *The Posthuman* (Cambridge, MA.: Polity Press, 2013), 13-54. Francesca Ferrando, *Philosophical Posthumanism* (London: Bloomsbury Academic, 2019), 22-59.

17 Sociologist Ulrich Beck offers a particular framing of this point in arguing that the quintessentially modern sociological framing of the nation-state as both autonomous agent and political context struggles to account for our current global interdependence and the presence of transnational actor-networks. Ulrich Beck, “The Cosmopolitan Condition: Why Methodological Nationalism Fails,” *Theory, Culture & Society* 24, no. 7-8 (2007): 286-290.

18 Here I have in mind philosopher Jean Baudrillard’s foretelling assertion that we are entering into a state of “hyperreality” according to which “the immanent surface of operations unfolding, the smooth and functional surface of communication...the surrounding universe and our very bodies are becoming monitoring screens.” For Baudrillard, this entails a ‘satellization of the real itself according to which individuals gain personhood through the functional

Most important for our purposes, this second wave of Studies challenged anthropocentrism not just through underlining the constructed and unethical nature of humanist thought, but also through recognizing and seeking to make sense of the *relational* character of human being – i.e., that human life is embedded within media-nature-culture continuums and that non-humans are no less important than their counterparts in constituting the world(s) in which humans dwell. As feminist and posthumanist philosopher Rosi Braidotti explains, these first- and second-generations of Studies share a “commitment to voice the experiences, insights, and understandings produced by the excluded and marginalized.”<sup>19</sup> Herein lies one of the fundamental ends of critical posthumanism: to not just describe the historical and philosophical inadequacies of humanism, but also to re-think the human through the lenses of, and in relation to, its others.

While a comprehensive survey of the textual field of critical posthumanism is beyond the scope of this introduction, we can nevertheless understand this diverse literature in terms of a common theoretical and practical aim. In the words of Braidotti, critical posthumanism

focuses, through critical and creative cartographies, on the margins of expression of yet unrealized possibilities for overcoming both Humanism and anthropocentrism by concentrating on the issue: who is this ‘we’ whose humanity is now at stake? What ‘we’ could become as a species and a set of technologically interlinked material culture? The challenge consists in tracking the multiple, grounded and hence specific and diversified ways in which we are becoming knowing subjects.<sup>20</sup>

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control of telematic technologies. Since such technologies remain invariably connected to multiple networks, the individual functions as something like a node or terminal within those networks. This connectivity contributes to the homogenization of the social whole into a single process of miniaturization in which all components are reduced to code and played out on screens. Jean Baudrillard, *The Ecstasy of Communication*, trans. Bernard Schutze and Caroline Schutze (South Pasadena, CA: Semiotext(e), 2012), 22. For more Baudrillard, see: Jean Baudrillard, *Simulations*, trans. Pual Foss, Paul Patton, and Philip Beitchman (South Pasadena, CA: Semiotext(e), 1983). Jean Baudrillard, *Symbolic Exchange and Death*, trans. Hamilton Grant (London: Sage, 1993).

19 Braidotti, *The Posthuman*, 112.

20 Braidotti, *The Posthuman*, 86.

On one hand, critical posthumanism seeks to make sense of what ‘we’ – those ontological entities or ‘assemblages’ heretofore recognizable as ‘humans’ – *are* becoming under the interrelated and common conditions of late-stage capitalism, info- and bio-technological convergence, and the Anthropocene. It asks us to self-critically examine what kinds of knowledge are being produced in our ‘posthuman’ moment and how we can best understand the subjects producing that knowledge. On the other hand, it seeks to imagine what we *can* become under those conditions – to move beyond just critique, and to symbolically and materially re-invent subjectivities through multiple, creative, and affirmative means; to use our alienating and uncanny condition of bio- and info-technological mediation as a discursive occasion to challenge and reimagine the self-contained, self-determining ‘Man of reason’ that the neologism of ‘human’ has historically represented.

While these ends might seem quite abstract or impractical on the surface, I want to suggest that it is just the opposite. We must understand what we are becoming and what we can become in order to act effectively and ethically within the context of our emergent conditions. This speaks to a longstanding premise of the ‘traditional’ humanities and its grounding rational humanism: knowledge ought to precede action.<sup>21</sup> But both critical posthumanism and this project take this premise a step further in two related senses. First, *ontological* knowledge in particular ought to precede ethical knowledge insofar as the questions of ‘What am I?’ and ‘What can I do?’ are

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21 Here I have in mind the Kantian conception of autonomy, which presupposes that authentic and ethical expressions of autonomy are grounded in prior, rationally derived principles or “maxims.” Immanuel Kant, *Groundwork of the Metaphysics of Morals*, ed. and trans. Mary J. Gregor (Cambridge, UK: Cambridge University Press, 1998). But we can also imagine this in the much broader terms of methodological assumptions about “rational actors,” i.e., the premise that individual choices are the result of prior, internal modes of reasoning that prioritize self-interest. If this is most often the basis of economic analysis, it is nevertheless present and contested within a wide range of social theories. Gianluca Manzo, “Is Rational Choice Theory *Still* a Rational Choice? A Response to Opp,” *Social Science Information* 52, no.3 (2013): 361-382.

conceptually prior to the question of ‘What should I do?’.<sup>22</sup> In this sense, my project is informed by what philosopher Ian Hacking describes as a framework of “dynamic nominalism,” which claims that “numerous kinds of human beings and human acts come into being hand in hand with our invention of the categories labeling them.”<sup>23</sup> The important implication of this claim is that “making up people changes the space of possibilities for personhood.”<sup>24</sup> If “all intentional acts are acts under a description,” then as “new modes of descriptions come into being, new possibilities for action come into being in consequence.”<sup>25</sup> Thus, in order ask how we ought to act – to evaluate the horizon of possibilities for ethics – we must first ask what we *are* (or are in the process of becoming) and what we *can* become.

In this regard, I am also influenced by Continental philosopher Martin Heidegger’s foundational, mid-twentieth century critique of “techno-science.” To understand how power operates under conditions of radical technologization, Heidegger argued that we must go beyond a simple “instrumentalist” view of technology in which technologies are mere neutral objects subject to the irrational and unethical ends of individual actors. Instead, we must seek the “essence

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22 In the most general sense, my use of “ontology” and “ontological” in this project refers to discourse about what the human *is* or what constitutes the state of human *being*. Following the Platonic and Aristotelian traditions, such discourse tends to be essentialist and oppositional, defining a unique, fixed human nature in (hierarchical) contrast to its others. I, however, presuppose neither the existence of an unconditional, *noumenal* real nor access to it. Rather, following Foucault’s call for a “critical ontology of ourselves,” I am speaking about operative philosophies of the self (i.e., ontologies, plural) that are taken up as if self-evidently true – what he calls “historical *a priori*” – which are both products and determinants of particular discourses, institutional apparatuses, and other ‘games of truth’. These ontologies are ‘real’ or ‘true’ in the sense of being operative and powerful, but there is no completely independent, empirical reality outside of discourse to which we can refer in evaluating them. While this, in some sense, folds all ontologies into the domain of social, historical, and material determination, it does not *a priori* equalize them. Rather, it affords the possibility of calling them into question, identifying internal incoherencies, and imagining potential alternatives. The term “ontology of ourselves” is taken from Michel Foucault, “What is Enlightenment?” in *The Foucault Reader*, ed. Paul Rainbow (New York: Pantheon Books, 1984), 32-50. The term “historical *a priori*” is taken from Michel Foucault, *The Archeology of Knowledge: And the Discourse on Language*, trans. A.M. Sheridan Smith (New York: Vintage Books, 2010), 126-131.

23 Ian Hacking, *Historical Ontology* (Cambridge, MA: Harvard University, 2002), 170.

24 Hacking, *Historical Ontology*, 166.

25 Hacking, *Historical Ontology*, 166.

of technology” in ontological terms, i.e., the conception of Being and beings structured into the modern scientific and technological worldview – our operative “metaphysics of calculation” or condition of “Enframing” in which all beings, including the knowing human itself, are always already encountered as subject to objectification and instrumentalization. When this phenomenological lens of encounter is operationalized, Heidegger claimed, humans structurally relate to all beings – not just natural resources and material technologies, but also other human subjects – as “standing-reserves,” i.e., in terms of their potential for human use and domination.<sup>26</sup> While both Heidegger’s belief in the operation of a single dominant ontology and his overwhelmingly negative view of techno-science merit complication, his larger theoretical point – that how we understand both ‘the human’ and ‘the technological’ is determinative of certain modes of ethical thinking and action – is instructive for this inquiry into biotechnology and the future of human nature.

If Heidegger’s genealogical influence on critical posthumanism is contested and his intellectual presence is (rightly) contentious in the discourse, it nevertheless points us to a second sense in which critical posthumanism goes beyond the ends of the classical humanities.<sup>27</sup> Critical posthumanists contend that the humanistic model of subjectivity – the self-contained and self-determining ‘Man of reason’ – is no longer adequate for knowledge-production under the posthuman conditions of late-stage capitalism, info- and bio-technological convergence, and the

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26 See: Martin Heidegger, “The Age of the World Picture,” in *Off the Beaten Track*, ed. and trans. Julian Young and Kenneth Haynes (Cambridge: Cambridge University, 2002), 57-85. Martin Heidegger, *The Question Concerning Technology and Other Essays*, ed. and trans. William Lovitt (New York: Harper & Row, 1977). Martin Heidegger, “Letter on Humanism,” in *Basic Writings*, ed. David Farrell Krell (New York: Harper and Row, 1977), 190-242.

27 Heidegger’s presence in the discourse is most controversial due to his affiliations with the Nazi regime during and after the Second World War. While I believe it is essential to acknowledge his deeply problematic biography, it would be intellectually dishonest to ignore his genealogical influence on philosophy of technology and modern posthumanism. In this regard, I am in accord with Ferrando, who answers the question of “why Heidegger?” by explaining that when it comes to “bringing the conversation on technology to the realm of ontology,” Heidegger was “the first philosopher to radically and convincingly move in this direction.” Ferrando, *Philosophical Posthumanism*, 40.

Anthropocene. An individualist view of the self that makes structural distinctions between nature, culture, and technology accounts for neither the material realities of our networked, global interdependence nor the biological realities of cognition as an embodied and extended process. In other words, classical humanist models of selfhood fail to recognize the various modes through which subjects are increasingly (and have always been) assembled through discursive and technological processes ‘external’ to the walls of the individual human skull. Thus we arrive at the overarching project of critical posthumanism: recognizing the structural limitations of our inherited humanist ontologies and reimagining subjectivities for the sustainable grounding of social recognition and relational ethics in our posthuman moment. And while this goal holds true for normative ethics in the more general sense, I will suggest that it hold a special weight for the discipline of bioethics, which is uniquely authorized to produce knowledge about and to govern the ongoing material and symbolic convergence of biology and technology.

The notion of undertaking a critique of humanism might seem odd to many readers. Given the multifarious potential threats to our familiar ideals of human nature, human rights, and human dignity – from biotechnological modification to deep automation to governmental totalitarianism – should we not be seeking to reaffirm the inherent and unalienable value of human life? Is humanism, even in spite of its historical failures to live up to its promises, so problematic as to demand abandonment? The point I mean to make here is that this question cannot be reduced to ‘mere ethics’; it also ontological in nature. Even if one were to admit that the ethical ends of the conceptual frameworks of human nature, human rights, and human dignity are admirable, humanism cannot just be approached as a normative framework; it depends on prior structural beliefs about what the human is – most often traits such as rationality and autonomy that are assumed to be given ‘by nature’ and which are, therefore, static, universal, and ideal.

More than just flattening and normalizing human capacities though, humanism depends upon what social theorist Bruno Latour names the “Modern Constitution.” For Latour, ‘modernity’ is best understood as a historical project of theoretical “purification” that aims to separate the ontological zones of the nonhuman sphere of nature (including the technological) from the human sphere of culture. Scientific rationalism itself, the argument goes, depends upon a view of scientific products – from theories to instruments – as existing not just ‘external’ to human life but also as being self-sufficient and self-contained; science is objective *because* it is, in its epistemological foundations, politically neutral.<sup>28</sup> As Latour demonstrates at length, however, techno-scientific controversies are settled as much through “social” means as intellectual or practical ones. To understand how and why certain theories or instruments become normative (or, for that matter, come into being at all), we must foremost approach them as “assemblages” or “machines” that result from networks of actors, ideas, and objects being enrolled and controlled, i.e., as “hybrids” that transgress our inherited distinctions between the natural, cultural, and technological.<sup>29</sup>

The point here runs deeper than just understanding science as a phenomenon ‘in action’. Rather, the point is that material technologies are both the condition of social life and embedded within it; the natural, the cultural, and the technological are *co-constituted* and *mutually dependent*.<sup>30</sup> We need not, however, take up Latour’s theoretical or methodological framework wholesale to see this. Whether it is object-oriented analyses from the social sciences, postmodern critiques from the humanities, information-based theories from the ‘hard’ sciences, or empirical observations about the mediated state of modern life, it has become increasingly apparent that the

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28 See: Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993).

29 See: Bruno Latour, *Science in Action* (Cambridge, MA: Harvard University Press, 1987).

30 See: Bruno Latour, “On Technical Mediation: Philosophy, Sociology, Genealogy,” *Common Knowledge* 3, no. 2 (1994): 29-64.

self-contained, self-determining humanist model of selfhood does not adequately map onto the phenomenon of subjectivity in our posthuman moment.

While I do not subscribe to the naturalistic fallacy insofar as I do not presume that ought *necessarily* follows from is, I am suggesting that ought and is are internally related. How we understand what we are and how we understand what we can do (and more often than not what we *should* do) go hand-in-hand. In turn, the normative humanist beliefs that operate in the field of bioethics, which depend on flattening, anthropocentric ontologies, lose their intellectual force and coherence when their grounding conceptions of human subjectivity come under fire. Bioethics *de facto* framework of common moral principlism, for example, is only compelling insofar as one assumes not just A) that there are common, universal ends toward which all persons in moral communities are predisposed, but also B) that all persons within that community are self-legislating rational actors who possess an ontological coherence prior to and outside of the techno-scientific projects that their common principles are intended to govern. This project's call for a posthumanist bioethics, then, is as much about approaching biotechnologies through a lens that can account for human subjectivities and futures as *relational* and *differential* phenomena as it is about imagining a 'more ethical' bioethics.

To use the language of "we" – as I have already done on numerous occasions in this introduction – runs the risk of reifying the very notion of *homo universalis* that I am criticizing in this project. Critical theorists have rightly been skeptical of such inclusive, normalizing language as it seems to run counter to the tenets of multiplicity and difference at the heart of the posthumanist turn.<sup>31</sup> In this regard, I choose to follow Braidotti, who suggests that, "the crucial question is: who

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31 Literary theorist N. Katherine Hayles, for example, ironically named her seminal work *How We Became Posthuman* in order to position herself in opposition to techno-enthusiasts who assume that the posthuman is a universal condition "when in fact it affects only a small fraction of the world's population." If "people [only] become posthuman because they think they are posthuman," it follows that 'the posthuman' is the "successor" to 'the human' in only the most

and how many are ‘we’?”<sup>32</sup> In turn, she encourages us to resist the political appeal of *the* people – a people assumed to always already share a community based in their common nature – and instead begin with “assembling just *a* people, a community constructed around a shared understanding their condition.”<sup>33</sup> The presence of “we” in this project, then, is performative, functioning as an invitation to readers to join the emergent intellectual and political communities of posthumanist thought, to become a part of a “we” that might otherwise be ‘other’ to their familiar modes of thinking human nature.

But rather than a collective self-understanding grounded in individual faculties or teleological histories – as has so often been the case with humanism – solidarity is imagined here in terms of common *conditions*. The concurrent emergence of late-stage capitalism, info- and biotechnological convergence, and the Anthropocene present conditions with global consequences and the inclusive “we” is therefore intended to prompt readers to recognize their interest as both *mutual* and *vested*. Rather than recomposing a familiar ideal of pan-humanity, however, posthumanist approaches challenge us to address our common conditions through grounded, complex, and differential visions of the future. We might all be in this together, but we are not all the same, and the latter point must inform how we approach the former one.

The bioethical debate concerning human enhancement demonstrates an ontological impulse – i.e., an impulse to crack open the black box of the pre-given neologism of ‘human nature’

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superficial sense of the former emerging after the latter. Hayles, however, also uses “we” to connote a “performative dimension” of posthumanist thinking: a self-understanding based in collectivity, “an ‘I’ transformed in the ‘we’ of autonomous agents operating together to make a self.” In other words, it is intended to speak to the relational and multiple character of individuals who, rather than being self-contained entities, are made up of different biological, technological, and cultural systems intra-acting both inside and outside of individual bodies. N. Katherine Hayles, *How We Became Posthuman Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago : University of Chicago Press, 1999), 6.

32 Braidotti, *The Posthuman*, 36.

33 Braidotti, *The Posthuman*, 36.

– that would seem to fit with the intellectual project of critical posthumanism. Yet, recognizing that familiar modes of thinking human nature are under theoretical and material pressure is not the same as recognizing that those understandings demand substantive revision. As literary theorist Neil Badmington explains, the reactions to our posthuman conditions are more often than not all-too-human, affording humanist thought a haunting power.<sup>34</sup> In the case of the human enhancement debate, we will see that this manifests in dualistic framings of biotechnology as a harbinger of liberation or oppression, transcendence or apocalypse, authenticity or monstrosity.

These dualisms map onto what I identify as “bioliberal” and “bioconservative” positions. Whereas the former contends that to use biotechnologies to enhance our capacities would fulfill our true human purpose as rational, progressive beings, the latter contends that to do so would transgress our sacrosanct, pre-given nature. In both cases, however, the ethics of enhancement depend on demonstrating whether or not enhancement is ‘truly human’ and, therefore, both positions fail to go beyond a classical notions of ‘human nature’ as a normative determinant. We are, in turn, presented with a simple and polarized view of biotechnological futures: intervening at the biological level will either liberate us from the constraints of an oppressive natural world or transform us into something altogether inhuman. What, however, happens when these grounding ideals of human nature are challenged and reimagined? This is the critical task of posthumanism and the one this project brings to bear on the textual field of human enhancement – to map humanism in action and to begin the process of reimagining the bioethical subject *as* a posthuman subject.

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34 Neil Badmington, “Theorizing Posthumanism,” *Cultural Critique* 53 (2003): 10-27

### 0.3 Religious Studies

Readers might be surprised to encounter a religious studies dissertation that focuses on the topics of bioethics and human enhancement.<sup>35</sup> Techno-scientific projects such as germ-line genetic engineering, brain-machine interfaces, and engineered senescence are, after all, not the usual domain in which scholars of religion operate. In the past two decades, however, the discipline of religious studies has experienced multiple intellectual shifts that point to this domain as an exigent space for examination within our discipline. Foremost, the field has experienced a “media turn,” according to which scholars have become increasingly concerned with how actors invest their technologies with meaning so that material objects become sites for negotiating identity, morality, and epistemology.<sup>36</sup> Put in discipline-specific terms: all religious activity requires some form of material mediation as a condition of its possibility. The underlying theoretical premise here, however, can be stated in even more capacious terms. Technologies, sacred and otherwise, are not mere instruments; they are the prior condition of all communication and, most important for our purposes, situated always amongst competing meanings and explanations.

This is no less true of the speculative technologies that populate the human enhancement debate where biotechnologies act as a discursive means to forward beliefs about the nature and future of ‘the human’. And while literature on religion and media has done important labor in

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35 For readers familiar with the emergent subfield of Science, Technology, Religion (STR), this topic might not seem so odd. It is worth noting, however, that there are still minimal intersections between religion and bioethics in this subfield, and even fewer that also broach posthumanism. Rather, most texts at the intersection of religion and bioethics come from *theology* as opposed to religious studies. For examples of theological accounts, see: Ronald Cole-Turner, *Transhumanism and Transcendence: Christian Hope in an Age of Technological Enhancement* (Washington, D.C.: Georgetown University Press, 2011). Calvin R. Mercer and Tracy J. Trothen, ed., *Religion and Transhumanism: The Unknown Future of Human Enhancement* (Santa Barbara, CA: Praeger, 2015). Christopher C. Knight and Nancey Murphy, *Human Identity at the Intersection of Science, Technology, and Religion* (Burlington, V.T.: Ashgate, 2010).

36 For an overview on the “media turn” in religious studies, see: Jeremy Stolow, “Religion and/as Media,” *Theory, Culture & Society* 22 (2005): 119-145. Matthew Engelke, “Religion and the Media Turn: A Review Essay,” *American Ethnologist* 37, no. 2 (2010): 371-379. David Morgan, ed., *Key Words in Religion, Media, and Culture* (London: Routledge, 2008). Hent de Vries ed., *Religion: Beyond a Concept* (New York: Fordham Press, 2008).

transitioning the field from a classical focus on linguistic communication and symbolic structures to the material and affective aspects of religious life, it has given little attention to *speculative technologies*, which have little or no material component to speak of. One central claim of this project, then, is that technologies do not need to be materially present to mediate subject-formation. Present as pure horizon, future human enhancement technologies are still able to function as what Michel Foucault calls “technologies of the self,” i.e., as discursive sites through which actors form and reform ontological and ethical self-understandings.<sup>37</sup> Though the possibility of a substantive material transformation of human biology is pressing to consider, my main interest here is in understanding how imaginings of human enhancement influence our present knowledge – generating spaces, demands, and tools for forwarding beliefs about what it does and ought to mean to be human.

It is here that some observers start to see the ‘religious’ character of the discourse. After all, these ‘big-picture’ questions regarding what is does and should mean to be human have long been foundational for the “onto-theological” tradition.<sup>38</sup> Furthermore, terms that explicitly evoke

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37 Foucault identified four “major types” of “technologies”: 1) technologies of production, 2) technologies of sign systems, 3) technologies of power, and 4) technologies of the self. Technologies of the self, he explained, “permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality.” Particular technologies of the self depend upon historical context, and Foucault’s interest in medieval Christianity led him to cite examples such as abstinence, fasting, and meditation. These “technologies,” then, do not refer to (just) material instrumentals or appliances so much as existential means of “knowing oneself” Michel Foucault, “Technologies of the Self” in *Technologies of the Self: A seminar with Michel Foucault*, ed. Martin H. Luther, Huck Gutman, and Patrick H. Hutton (Amherst, M.A.: University of Massachusetts Press, 1988), 18-20.

The concept of “technologies of the self” has seen renewed interest from scholars working on new media as a heuristic for thinking about self-design and social identity in the digital age. See, for example: Steven Dorrestijn, “Technical Mediation and Subjectivation: Tracing and Extending Foucault’s Philosophy of Technology,” *Philosophy & Technology* 25, no. 2 (2012): 221–241. Rodrigo Hernández-Ramírez, “Technology and Self-Modification: Understanding Technologies of the Self After Foucault,” *Journal of Science and Technology of the Arts* 9, no. 3 (2017): 45-57.

38 The term “onto-theology” is taken from Heidegger, who, anticipating the deconstructive turn, brought ontology and theology together under the umbrella of a “metaphysics of presence.” More than just identifying how philosophy and theology are both driven by ‘faith’, the term onto-theology signals the reduction of theological mysteries to the

a sense of religiosity such as ‘transcendence’, ‘immortality’, and ‘playing God’ appear frequently in the human enhancement lexicon. Given the now-common scholarly understanding of religion as a heuristic, rather than a thing-in-itself,<sup>39</sup> there is a temptation to map religion, or at least some idea of religiousness, onto this discursive territory.<sup>40</sup> I want to suggest, however, that we should push back against such a temptation.

While self-identified religious actors and texts do appear in the enhancement debate, the most prolific and influential actors understand their contributions as secular. Indeed, we will see that appeals to authentic secularism act as argumentative levers that are entangled with the question of how the ethics of human enhancement should be decided. Claiming the mantle of authentic secularism acts as a rhetorical means to also claim the mantles of historical progress, objective truth, legitimate reasoning, and democratic representation. While scholars of religion know all too well that secularism, like religion, is an unstable, contingent, and normative concept, the point I meant to highlight here is that it is also an *operative* concept that theorists of enhancement pick up and negotiate in order to reach some kind of ethical reconciliation.<sup>41</sup> The key question for this project, then, is not: is this person, text, community, etc., ‘religious’ or ‘secular’? Rather, it is: how

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immanent order of beings. Martin Heidegger, “What is Metaphysics?” in *Martin Heidegger: Basic Writings*, trans. and ed., David Farrell Krell (London: Routledge, 1993), 93–110.

39 If this is now a common approach in Religious Studies, it is worth noting that Jonathan Z. Smith was one of the first to cogently argue that “‘Religion’ is not a native term; it is a term created by scholars for their intellectual purposes and therefore is theirs to define.” Jonathan Z. Smith, “Religion, Religions, Religious,” in *Critical Terms for Religious Studies*, ed. Mark C. Taylor (Chicago: University of Chicago Press, 1998), 281.

40 While this turn has led to a great deal of reflexive, anti-essentialist work on the category of “religion,” I am also suggesting that it has coincided with some quite straightforward mapping of non-traditional territories as ‘religious’ in character. While this is not problematic in and of itself, it can paradoxically lead to the idea that certain secular formations are ‘really’ religious. I believe this has been the (implicit) initial tendency for scholars of religion trying to make sense of transhumanism and likeminded movements. See, for example: Robert Geraci, *Apocalyptic AI: Visions of Heaven in Robotics, Artificial Intelligence, and Virtual Reality* (New York: Oxford University Press, 2010). Hava Tirosh-Samuelson, “Transhumanism as a Secularist Faith,” *Zygon* 47, no. 4 (December 2012): 710-734.

41 While I will return to this notion of secularism as an unstable formation in Chapter Three and Chapter Four, two texts that have been particularly influential for my thinking are: Talal Asad, *Formations of the Secular: Christianity, Islam, Modernity* (Stanford, CA: Stanford University Press, 2003). Janet R. Jakobsen and Ann Pellegrini, *Secularisms* (Durham: Duke University Press, 2008).

are specific ideas of religion and secularism operationalized in the discourse of human enhancement, and, likewise, how is the prospect of human enhancement reshaping those ostensibly ‘commonsense’ imaginings?

In this regard, I believe that to ask ‘how is this a religion project?’ is to approach disciplinary thinking backwards. The more important and useful question is: how can theories and methods from the field of religious studies help us to make sense of this issue?<sup>42</sup> There is currently a regrettable absence of intersections between the fields of religious studies, bioethics, and critical posthumanism. Religious studies, however, offers a unique and useful vantage point through which we can make sense of the discursive mechanisms by which humanism is being reinscribed in the human enhancement debate and the larger field of bioethics. While not often named as such, scholars of religion have long been attuned to the conceptual and institutional nexuses that buttress and instantiate humanist thought – namely, structural distinctions between private and public, religious and secular, sacred and profane, immanent and transcendent. As we will see, it is so often these same ideas that theorists of human enhancement operationalize in order to account for the ethics of ‘going beyond’ the human. This project, then, is not a religious studies project in the sense that it identifies religion in unexpected places, as is so often the case in extending our

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42 In approaching religious studies as an interpretive toolbox rather than a pre-determined subject, my thinking is strongly influenced by Mark C. Taylor, Kathryn Lofton, and John Lardas Modern, who use insights from religious studies to make sense of non-traditional sites of examination – from consumer culture to the logic of networks to historical literature – without just reducing them to ‘identifiable’ religion. While my method shares little with Lofton’s quasi-Durkheimian analysis of consumer culture or Modern’s close reading of canonical literature, it takes seriously what Modern describes as a demand “to confront the incoherence of using the religious or the secular as stable analytic categories.” While this insight has most often been met with a (productive) reflexive turn by religionists, I also see it as an invitation to expand the subject of religious studies to include topics that the category of ‘religion’ has traditionally been assumed to touch upon; in this case, (biotechnological) discourses concerning the nature and future of human being. Just as important, I treat it as an invitation to approach religious studies *pragmatically*; that is to say, I draw on what I see as the field’s most instructive features, its interdisciplinarity and reflexivity, as an especially useful means to analyze sites independent of their ostensible religiousness. John Modern, “Commentary: How to Read Literature, Win Friends, Influence People, and Write about American Religion,” *American Literary History* 26, no. 1 (2014): 195.

disciplinary gaze.<sup>43</sup> Rather, it is a religious studies project in the sense that it draws on the discipline's attunement to and tools for making sense of the discursive mechanisms by which subjects are formed and reformed.

#### **0.4 Discourse Analysis and Its Limits**

My methodological practices might seem somewhat 'traditional' when compared to my theoretical commitments to critical posthumanism. That is, while I stress the entangled nature of the discursive and the material at a theoretical level, this project still mostly takes the form of discourse analysis, i.e., a critical reading of a textual field. While "discourse" is a term with multifarious meanings, I use it to designate "an interrelated set of texts, and the practices of their production, dissemination, and reception, that brings an object into being."<sup>44</sup> Within the framework of discourse analysis, texts are not treated as representations of an independent social world but as linguistic media that construct, enact, circulate, and reveal the possible or legitimate modes of understanding phenomena and making statements about what is 'true'. To borrow from Michel Foucault's definition, discourses are linguistic (though never *just* linguistic) "practices that systematically form the objects of which they speak."<sup>45</sup> Discourse analysis, then, "tries to explore how the socially produced ideas and objects that populate the world were created in the first place and how they are maintained and held in place over time."<sup>46</sup>

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43 Here I am observing a widespread trend within religious studies according to which theorists attempt to show – genealogically, empirically, or otherwise – that religion is in some sense present even when it is not apparent. While I think these insights are invaluable, I am also suggesting that this need not be the exclusive means through which extend our disciplinary gaze toward (ostensibly) non-religious formations.

44 Nelson Phillips and Cynthia Hardy, *Discourse Analysis: Investigating Processes of Social Construction* (Thousand Oaks, CA: Sage Publications, 2002), 3.

45 Foucault, *The Archeology of Knowledge*, 49.

46 Phillips and Hardy, *Discourse Analysis*, 6.

In this sense, I approach the textual field of human enhancement as a site of ‘coproduction,’ in which knowledge and norms are being produced ‘symmetrically,’ rather than either of them being given in advance or the former being the straightforward cause of the latter. More than just approaching bioethical knowledge and norms as historically situated, this means attending to how social actors are engaged in boundary-making – asserting, reinforcing, challenging, or adopting ideals of human nature in order to reconcile the moral potential of biotechnologies. I am, however, less concerned with ‘how we got here’ than I am with which particular epistemological, ontological, and normative claims are being (re)produced in the human enhancement discourse, how that (re)production is being effected, and what it might portend for the future development and application of biotechnologies.

What, however, demarcates the boundaries of a discourse? Since discourses are embodied and enacted through multiple texts and textual forms, we can best approach individual texts as part of larger “discursive units,” i.e., inter-textual *classes* of texts.<sup>47</sup> While determining the content of such a unit is a precarious process, there are nevertheless helpful methods for choosing appropriate source materials. I follow Foucault’s position that we can delineate the material ‘internal’ to a given discourse based on statements that share ‘modalities of existence’, i.e. the same ‘objects’, ‘modalities of enunciation’, ‘concepts’, and ‘strategies’.<sup>48</sup> While the more general focus of this project is the ethics of human enhancement, the language of “human nature” functions as featured part of the enhancement lexicon. Bioethicists concerned with enhancement operationalize concepts of human nature – philosophical, scientific, legal, and historical – to ground their claims regarding whether enhancement is ethical and to persuade their audiences of their respective positions. These

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47 Jean K. Chalaby, “Beyond the Prison-House of Language: Discourse as a Sociological Concept,” *The British Journal of Sociology* 47, no. 4 (1996): 688.

48 Foucault, *The Archeology of Knowledge*, 31-70.

statements both represent and enact ontological and normative assumptions about what it does and should mean to be human. Given this common thematic focus, I contend that making sense of the ethics of human enhancement requires us to analyze how bioethicists pick up and make use of the language of human nature, rather than just focusing on traditional bioethical categories such as risk, access, and justice. The aim of this form of discourse analysis, then, is “to go beyond [just] content to see how [that content] is used flexibly to achieve particular functions and effects.”<sup>49</sup> How does this shared anthropological language function in the human enhancement debate and what kinds of interpretive lenses does it provide for the competing meanings and explanations being assigned to (speculative) biotechnologies?

The idea of persuasion is especially important here as bioethical texts are intended to appeal to imagined communities or publics that are purported to be united by a common ethical concern for biotechnologies and the future of ‘the human’.<sup>50</sup> Whether their imagined audiences are non-specialists, bioethicists, scientists, politicians, or lay citizens, texts on enhancement are rhetorical in style. While I mean this in the traditional sense of rhetoric as language and logic that function with the purpose of persuasion, we can also understand these appeals as forms of “constitutive rhetoric,” i.e., rhetoric that “(1) provide[s] a collective identity for an addressed

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49 Linda A. Wood and Rolf O. Kroger, *Doing Discourse Analysis: Methods for Studying Action in Talk and Text* (Thousand Oaks, CA: Sage Publications, 2000), 6.

50 When I speak of “imagined” communities or publics, I am drawing on Benedict Anderson’s work in which he argues that national publics are not given empirical realities so much as imaginative models (of readerships) constructed through shared material-linguistic practices of time and consumption such as the circulation of newspapers and novels. Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (New York: Verso, 1983).

We can see another excellent example of this in Michael Warner’s work on the invention of the American public sphere in the eighteenth century, which, he argues, owes much to the reciprocal production of printed political materials and particular visions of democratic republicanism. Michael Warner, *The Letters of the Republic: Publication and the Public Sphere in Eighteenth-Century America* (Cambridge, MA: Harvard University Press, 1990).

While the texts I reference in this project are not always appealing to a national audience – indeed, there is often a tacit ideal of globalism that transcends national identities – we must nevertheless approach them as necessarily writing for an imagined readership or public. Inversely, I am also suggesting that an imagined community of enhancement theorists, many of whom are not traditional bioethicists, emerges through the production of such topical texts.

audience; (2) construct[s] the audience as a subject in history; and (3) demand[s] that subjects act in accordance with their identity as enacted in history.”<sup>51</sup> Prior to the act of persuasion, there must be a narrative that presumes the existence and identity of the subject, an identity which the rhetoric both depends upon and validates.<sup>52</sup> The focus of this discourse analysis, then, is: how do theorists of enhancement persuade their audiences to take up ethical obligations through rhetorical appeals to human nature? And what normative and ideal accounts of ‘the human’ do these appeals both depend upon and validate?

But I also want to suggest that even a somewhat ‘traditional’ discursive analysis can substantively challenge existing methodological practices. First, I do not presume that texts are free-floating, abstract containers of knowledge. Not only are texts, like all information patterns, materially embodied, but they also circulate and resonate in networks of information exchange after their production. While much of the recent critical theory in science and technology studies (STS) has shifted to rethinking the prior social and material conditions of knowledge-production, I am – Chapter One notwithstanding – most concerned with how ideas operate and resonate within existing textual fields and what this might portend moving forward.<sup>53</sup>

Using the auditory framework of “resonance” as an analogue, literary theorist Wai Chee Dimock explains that, like frequencies of sound, texts are activated and constituted (at least as

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51 Raymie E. McKerrow, “Constitutive Rhetorics,” in *Encyclopedia of Rhetoric*, ed. Thomas O. Sloane (Oxford: Oxford University Press, 2001), 618.

52 See, for example: Maurice Charland, “Constitutive Rhetoric: ‘The Case of the Peuple Québécois,’” *Quarterly Journal of Speech* 73, no.2 (1987): 133–150.

53 The ‘material turn’ in STS can be seen as a response to the overwhelming presence of social constructivist analyses within the field. To be clear, many such materialist analyses constructively approach their objects in terms of relationality and natural-social intersections. For overviews on this turn, see: John Law, “The Materials of STS,” in *The Oxford Handbook of Material Culture Studies*, ed., Dan Hicks and Mary C. Beaudry (Oxford: Oxford University Press, 2010), 173-190. Hannah Star Rogers, “STS by Material Means,” in *Dialogues Between Artistic Research and Science and Technology Studies*, ed., Henk Borgdorff, Peter Peters, and Trevor Pinch (New York: Routledge, 2019): 76-87.

“objects” of study) by their “continual transit through new semantic networks, modifying their tonality as they proceed.”<sup>54</sup> The important implication is that to discern and analyze patterns within a body of texts is not merely to identify *representations* of stable ideas, i.e., to simply map how things are (or are being) understood. Rather, it also to consider how these ideas are, or might be contributing to, the production and reproduction of different subjectivities – in this case, through the explicit conceptual nexus of human enhancement. In the mold of the earlier mentioned framework of dynamic nominalism, we can think of texts as nodes in complex feedback loops that both represent and influence the interrelated possibilities for knowing, being, and acting – of bringing particular kinds of entities and actions into being through their discursive inscriptions and performances. As N. Katherine Hayles explains, “Literary texts are not...merely passive conduits. They actively shape what the technologies means and what scientific theories signify in cultural contexts.”<sup>55</sup> Texts thus provide us with critical levers for making sense of how meaning is being assigned to sciences and technologies in particular cultural contexts and the understandings of human nature that are being (re)constituted in and through them.

Second, and for similar reasons, I did not begin this project with the ambition to engage bioethics as a discrete discipline. Even within highly rationalized academic or governmental apparatuses, it would be naive to assume that there are ready-made, stable boundaries that can tell us exactly where a discourse begins and ends. Rather, I began with a capacious topic, the ethics of future biotechnological interventions, and traced citations in and between academic, governmental, and other relevant texts in order to delineate shared forms of enunciation, concepts, and strategies. Again and again, however, I found myself dwelling with texts that self-identified as doing, or that

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54 Wai Chee Dimock, “A Theory of Resonance,” *Publications of the Modern Language Association of America* 112, no. 5 (1997): 1061.

55 Hayles, *How We Became Posthuman*, 21.

appealed to audiences within, bioethics and which operationalized the discipline-specific language of human enhancement. Furthermore, bioethical literature on enhancement demonstrated a distinctive polemical and rhetorical style in which the authors placed themselves on a particular side within a common intellectual debate, cited similar scholars as allies or opponents, and referred to similar forms of philosophical and empirical evidence. Through close reading of content and citations, then, I have attempted to map the enhancement discourse as the participants have understood and enacted it, and, based on disproportionate references, to determine the most ‘influential’ or ‘representative’ actors.<sup>56</sup> I do not assume that this method is exhaustive. Rather, it is one useful means to identify the common ethical fault lines, rhetorical methods, and anthropological understandings in texts on a particular topic in which the authors understand themselves to be in conversation and competition with one another.

The notion of competition is important here as it brings to the fore not only the rhetorical style of enhancement texts but also the issue of disciplinary authority. Within sociology of knowledge this topic has received a great deal of attention under the category of “jurisdiction.”<sup>57</sup> Sociologist John Evans brings this framework to the context of bioethics in his study of human genetic engineering (HGE). Evans defines a jurisdiction as “the link between a profession and its work,” which can be forged through methods such as state licensing, institutional affiliations, and

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<sup>56</sup> To be clear, I am not referring to a sociological sense of “social influence” here. Rather, I have attempted to choose texts from actors who are especially prolific on the topic of human enhancement and who appear in a disproportionate number of textual citations. I do not presume that this method is empirically or quantitatively comprehensive, nor that the actors and texts in question possess a special social or material influence.

<sup>57</sup> I do not take up a wholesale theory of jurisdiction in this project. I am merely noting here that classical ‘division of labor’ models can struggle to account for the complex composition of certain bioethical discourses. Likewise, to the extent that I use terms like “discipline” or “profession,” I use them as interpretive and explanatory devices, rather than presuming that they map neatly onto empirical realities. For more on the sociology of jurisdiction and profession, see: Andrew Abbott, *The System of Professions: An Essay on the Division of Expert Labor* (Chicago: Chicago University Press, 1988). Andrew Abbott, *Chaos of Disciplines* (Chicago: Chicago University Press, 2000). Graham Crow and Jaimie Ellis, ed., *Revisiting Divisions of Labour: The Impacts and Legacies of a Modern Sociological Classic* (Manchester, Manchester University Press, 2017).

public opinion.<sup>58</sup> For Evans, the contest for jurisdiction in bioethics is between distinct professions (e.g. theologians and scientists) who seek to translate or reduce bioethical issues into particular forms of argumentation so that those issues fall under their “home” jurisdiction. Those professionals are, in turn, legitimized as agents of social change with the right to institutionalize their own abstract frameworks and ethical ends. In Evans’ historical account, scientists ‘win’ jurisdiction over bioethics by reducing the field to ‘formally rational modes of argumentation’, effectively erasing the ‘substantive’ concerns of theologians.<sup>59</sup>

Through this account, however, Evans draws strong social and intellectual distinctions between professions – defining a profession by the abstract knowledge that it uses to work rather than its political/organizational form – and, in doing so, diminishes the complex composition of jurisdictional contests in bioethics. While bioethics has become an increasingly credentialed and discrete discipline since the 1970s, bioethical literature and institutions nevertheless include scholars from a diverse number of intellectual and technical fields including: philosophy, law, psychology, sociology, environmental studies, evolutionary biology, and medicine. This not only demonstrates a growing interest in bioethical issues across academic disciplines, but also reflects the original goal of the field as an interdisciplinary project based on self-authorizing participation.<sup>60</sup> This interdisciplinary predisposition is even more pronounced within the enhancement debate where scientists, technologists, legalists, theologians, philosophers, and popular writers weigh in on biotechnological ethics using similar forms of rhetoric and, in doing

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58 John H. Evans, *Playing God?: Human Genetic Engineering and the Rationalization of Public Bioethical Debate* (Chicago, IL: University of Chicago Press, 2002), 28.

59 See also: John H. Evans, “Science, Bioethics, and Religion,” in *The Cambridge Companion to Science and Religion*, ed. Peter Harrison (Oxford, UK: University of Oxford, 2010), 207-226.

60 While I will return to this idea in greater detail in Chapter One, one of the biggest proponents of this original vision was Daniel Callahan, founder of the *Hastings Center*. See: *Daniel Callahan, The Roots of Bioethics: Health, Progress, Technology, Death* (Oxford University Press, 2012).

so, enter the same web of citations as credentialed bioethicists. Furthermore, when it comes to the topic of enhancement, credentialed bioethicists use multiple textual media in order to participate in (ostensibly) different discursive spheres (popular, professional, and public).<sup>61</sup> The use of a wide range of disciplinary tools and textual media to pursue intellectual correctness, institutional influence, and public support confirms that the contest for jurisdiction over bioethics remains ongoing and, furthermore, that it exceeds straightforward demarcations of professional jurisdiction.

Given the unstable boundaries of the enhancement debate, I use a more inclusive understanding of “bioethics” than most bioethicists would recognize. I choose to treat bioethics as a genre or class of texts – united by inter-textual references and common ethical concerns and fault lines – rather than (just) as a formal discipline. In doing so, I include texts from popular writers, cultural critics, academics, theologians, and members of industry who see themselves as participating in the human enhancement debate and who contribute to the larger textual field of biotechnological ethics. Rather than collapsing all sense of defined disciplinarity, however, we will see that approaching bioethics as a distinctive professional field is still quite exigent. In spite of the interdisciplinary nature of the enhancement debate, its grounding linguistic and conceptual frameworks – including human enhancement – both build upon and extend premises that have shaped the field of bioethics since its inception in the 1970s. While not every text featured in this project comes from a credentialed bioethicist then, each one inhabits a common, if unstable, discursive space – what I call the human enhancement debate – that both revolves around and exceeds the fulcrum of disciplinary bioethics.

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61 For example, it is not unusual for a prominent bioethicist like Leon Kass to write for popular periodicals, academic journals, and government commissions.

Given the scope of this examination, this dissertation necessarily omits a great deal of information about the topic it examines. There is no material means to fit all of the relevant information on bioethics and human enhancement within these pages, and part of the task of interpretation is therefore making difficult choices about what does and does not merit inclusion in such an analysis. This is especially true when, as in my case, one is engaging in a macro- or meta-analysis of a field of knowledge and, furthermore, the knowledge in question is still very much in the process of being produced. For example, in mapping the enhancement debate, I choose to privilege the viewpoints of far-left and far-right perspectives under the respective monikers of “bioliberal” and “bioconservative.” As a result – Chapter One notwithstanding - I give somewhat minimal attention to the left-leaning or “moderate” cohort of bioethicists that are typically identified as constituting the ‘mainstream’ of the discipline.

I have made this hermeneutic choice for three reasons. First, given that the discourse of human enhancement concerns abstract, future interventions, it tends to attract theorists less invested in the pragmatic conventions of traditional bioethical work. The positions I describe as bioliberal and bioconservative might be ‘extreme’ in the intensity of their normative commitments, but they are not minority or marginal positions in the context of the human enhancement debate. Second, these positions represent a more explicit engagement with the language of human nature than most other bioethical works. Given my interest in the ontological aspects of bioethics, these actors and texts represent an especially useful means to think about how subject-formation is becoming a site of bioethical discourse and the limitations therein. Third, one of the crucial contentions of this project is that these positions are far less divorced from the bioethical mainstream than one might expect. As I show in Chapter One, these supposed extremes are extensions of the biopolitical culture wars that has restructured much of the field since the early

1990s. And as I show in Chapters Two, Three, and Four, both bioconservatives and bioliberals share many of the original humanist commitments of the bioethical discipline, including a problematic, and sometimes ironic, emphasis on ‘consensus’ or ‘commonsense’ morality. This is why, no matter how far afield the enhancement debate is becoming, I believe it is still essential to frame it within the historical and intellectual context of bioethics as an academic, professional, and public discipline.

### **0.5 Interdisciplinarity**

It should be apparent by now that my method of analysis is deeply interdisciplinary. Such an approach builds on the conventions of each of the intellectual fields – bioethics, religious studies, and critical posthumanism – in which this project intervenes. Unlike say history or anthropology, these three fields cohere based on their respective objects of study rather than a discipline-specific set of methods. Indeed, one of the defining methodological features of critical posthumanism is its “supra-disciplinarity.” As Braidotti explains, “the driving force for their knowledge production is not the policing of disciplinary purity, but rather the modes of relation and cross-hybridization these discourses are able and willing to engage in.”<sup>62</sup>

This mode of supra-disciplinary analysis is, foremost, intended to generate reflexivity. We can understand reflexivity as “critical scholarly practices that aim to reflect on, and systematically take account of, the investigator’s role as an instrument in the constitution of evidence. Reflexivity aims to acknowledge the tripartite arrangement between objects, representations, and knowers that produce knowledge, as opposed to less-reflexive modes of investigation that leave the knower out of the equation.”<sup>63</sup> Religious studies has been in the process of a reflexive turn for decades, opening

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62 Braidotti, *The Posthuman*, 102.

63 Barad, *Meeting the Universe Halfway*, 86.

its own disciplinary black box in order to question *who* is producing knowledge about religion, *how* such knowledge is and should be produced, and to *what* that knowledge actually corresponds.<sup>64</sup> Indeed, it is a common refrain among scholars of religion that – in spite of purportedly being united by our object of study – we do not (or cannot) actually know what ‘religion’ *is*.

While bioethicists have long expressed a similar desire for interdisciplinarity, the field’s cross-disciplinary work demonstrates pronounced limitations; not just in that it occludes non- and post-humanist critical theory but also in that it demonstrates insufficient reflexivity. Even as theorists of enhancement think through what does and should constitute human nature, there is a failure to question how the (normative) knowledge being produced contributes to remaking human nature in the present. The human enhancement debate thus demands greater reflexivity in order to account for its own role in emergent processes of subject-formation. Interdisciplinarity is, in turn, one tool with which to achieve that reflexivity. Holding and taking seriously multiple, concurrent perspectives toward the same object of knowledge affords one with capacities for questioning traditional objectivist or realist approaches. I do not mean this in the sense of generating a straightforward relativism but rather in the sense of recognizing ‘truth’ – at least as something that operates in the world – as multiple and contingent. One can, in turn, de-center their own epistemological approach and question not just the role of ‘the knower’ – as Barard’s definition of reflexivity intimates – but also their entire mode of knowledge-production and the warrants that underpin it.

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64 We can find a prime example of this reflexivity in Tomoko Masuzawa’s work, which provides a (critical) genealogical examination of the invention of ‘World Religions’ as the predominant framework for understanding religious life in the Euro-American (intellectual) context. Tomoko Masuzawa, *The Invention of World Religion, or, How European Universalism Was Preserved in the Language of Pluralism* (Chicago: University of Chicago Press, 2005).

This project thus mobilizes and reconciles interpretive tools from a wide range of disciplines – including but not limited to religious studies, Continental philosophy, sociology of science, feminist studies, and information theory – in order to prompt a more reflexive approach to the ethics of human enhancement. As Barad reminds us, however, we must be careful not to settle for straightforward reflexive practices, which all-too-often presuppose structural distinctions between inside and outside, word and thing, representation and reality, i.e., frameworks that achieve an inward turn through reifying or extending ontological distinctions between objects, representations, and knowers. While I will return to Barad’s quantum physics-inspired work in the concluding chapter, I should state now that I am not quite as dismissive of reflexivity as she is. But I am very much in agreement that, for reflexive approaches to achieve their potential, they must make sense of the entangled nature of matter and meaning rather than merely lapsing into representationalism.

Though interdisciplinary in nature, scholarship from religious studies tends to take an agnostic approach to its object of study, seeking to make sense of – rather than critique or reform – temporally and spatially specific religious beliefs, practices, communities, and so forth. This is, at least in principle, what separates this kind of scholarship from the very thing it most often examines, theology. This is not to say that religious studies scholarship is uncritical or unconstructive; rather, it is to say that scholars from the field go to great lengths to critique one another rather than their object of study and, in so doing, to maintain a kind of classical ‘critical distance’. In other words, we talk *to* each other and *about* religion. I have by and large eschewed the idea of an agnostic approach in this project. To attempt to speak ‘from a distance’ on this issue makes little sense when we are all increasingly becoming ‘bio-subjects’, our social identities grounded in the naturalizing language of genes and neurons and our bodies, therefore, always

already encountered as possessing the potential for techno-scientific intervention. The human enhancement debate is, in turn, one discourse among others that is in the process of forming and reforming operative bio-ontologies in intersecting social, intellectual, economic, and political worlds – justifying biotechnological research, determining health care policies, and shaping biomedical norms.<sup>65</sup> Whether or not the issue of human enhancement is an explicit concern for the reader then, it is one that implicates almost all of us as a structural feature of our posthuman moment. The point here, however, is not just that this topic should be seen as exigent; rather it is that there is no true ‘outside’ that the critical theorist can claim as a vantage point in this context. Insofar as it concerns what ‘we’ are becoming and what ‘we’ ought to become, to speak on the ethics of human enhancement is necessarily to speak with a *vested interest*. If we are not already “all bioethics experts now,” then it is important that we become so.<sup>66</sup>

But it is not enough, as is so often the case in academic literature, to just settle for critique – to discern and criticize discursive patterns without attempting to imagine their possible alternatives. And while this project expends much of its energy on the interrelated tasks of cartography and critique, it is done so with the hope that it can lead the reader to an understanding of both *why* rethinking human enhancement is necessary and *what* such a rethinking might entail. In acknowledging that, with this inscription, I am entering into the same bioethical discourse as

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65 As I detail at various points in the project, both funding and policy decisions concerning biotechnological research have long depended on representing that research in terms of ‘therapeutic’ ends, often over and against the potential ‘slippery slope’ of enhancement to which it could lead. We are also, however, beginning to see some of the inverse in the private sector with biotechnological companies like AgeX Therapeutics (engineered senescence), Neuralink (brain-machine interfaces), and the Alcor Life Extension Foundation (cryonics and reanimation) aiming towards human enhancement as developmental ends. Indeed, Silicon Valley entrepreneurs’ interest in human enhancement is, at this point, a well-worn observation. To these private projects, we might also add governmental ones like DARPA’s collaboration with the BRAIN Initiative to explore neuro-stimulation of soldiers. Nicolas Le Dévédec, “The Biopolitical Embodiments of Work in the Era of Human Enhancement,” *Body & Society* 26, no. 1 (2020): 55-81.

66 This quote is taken from Joanna Zylińska, who argues that, in spite of bioethics’ self-proclaimed need for professional “expertise,” bioethical topics have become such a matter of public concern in the ‘age of new media’ that we are all, in some sense, “experts now.” Joanna Zylińska, *Bioethics in the Age of New Media* (Boston, MA: MIT Press, 2009), 3-34.

the texts I examine, I must also acknowledge that it is necessary to do more than add by subtraction. In this case, this does not necessarily mean providing ready-made, practical tools for ‘doing bioethics’ so much as different interpretive tools for making sense of the ethics of biotechnology, i.e., for rethinking ‘commonsense’ understandings of ‘human’ and ‘technology’ from the ground up.

## **0.6 Chapter Outline**

To make sense of the human enhancement discourse, we must first understand the state of U.S. bioethics prior to the nomenclature’s emergence – the initial topics that shaped bioethics’ intellectual formation and the theories and methods that constituted it as a discipline. Chapter One thus provides an intellectual history of the field of bioethics in the United States (1960-2010), giving particular attention to the formative historical debates (e.g., embryo research and human experimentation) and ethical approaches (e.g., common moral principlism) that afforded the emergence of bioethical expertise as a recognizable mode of knowledge-production. In the first half of the chapter, we will see that, in spite of the grand philosophical ambitions of its forebears, the field’s formation was co-substantial with a process of intellectual ‘thinning’ that represented an attempt to secularize and rationalize bioethical knowledge, i.e., to produce ethical knowledge that was both abstract enough to be universal and practical enough to be applicable within specific scientific and medical contexts. As a result of this process, ontology was increasingly restricted in bioethical discourse; the very structure of the discipline’s knowledge-production depended on taking up a normative theory of subjectivity as if it were pre-given.

How, then, do we end up with the human enhancement debate, which hinges on the question of what it does and should mean to be human? The second half of the chapter demonstrates how transformations in intellectual, professional, and techno-scientific conditions

afforded the inscription of biological ethics in terms of human enhancement. In particular, I underline three important trends: 1) the predominance of a “molecular” way of thinking; 2) the popularization of biotechnological concerns in the American public sphere; and 3) the reconstitution of bioethics in terms of a disciplinary “culture wars.” In tandem, these transformations revealed a conceptual gap in bioethical knowledge and challenged bioethicists to make sense of the profound potential of the biological sciences to remake human nature. In response to this challenge, bioethicists invented a convenient but limited interpretive tool: the therapy/enhancement distinction. On one hand, we will see that the framework of human enhancement ‘thickened’ the state of bioethical discourse; both in that ontological and existential inquiry began to return to the textual field and in that the circle of bioethical expertise was expanded. On the other hand, and as much of this project aims to demonstrate, the very framework of human enhancement reinscribed humanist premises long characteristic of the bioethical discipline.

Chapter Two maps the textual field of the human enhancement debate as it has taken shape over the past three decades. I demonstrate that, rather than producing ethical knowledge for immediate, practical application within scientific and medical contexts, the future-oriented human enhancement debate has been organized around the ontological relationship between human nature and biotechnologies. In turn, the question becomes: what theories of human nature are operative in this discourse and how do these theories inform particular ethical approaches to biotechnologies? Extending the polarization of the culture wars, we find that bioethicists and bioethics-adjacent scholars who write on human enhancement tend to fall into one of two intellectual camps: bioconservative or bioliberal. Bioconservatives pick up a quasi-Aristotelian account of virtue ethics in which enhancement is framed as a transgression of the natural, sanctified ground of

human dignity and moral status. Biotechnological modification, the argument goes, would destabilize an otherwise fixed and stable human nature and, as a result, undermine the fundamental conditions for individual flourishing and social and political inclusion. Bioliberals, on the other hand, pick up an Enlightenment, capacities-based framework to position enhancement as the realization of our natural, ‘higher’ faculties of rationality, autonomy, and self-creation. To ‘improve’ our biologies through technological intervention, the argument goes, would not just provide clear utilitarian benefits, but also affirm what is ‘humanly best’ about ourselves.

In spite of taking up oppositional stances on enhancement, I contend that these positions nevertheless have far more in common than scholars have been able or willing to recognize. Bioconservatives and bioliberals both reduce the ethics of biotechnologies to the question: is enhancement ‘natural’ and, in even more fundamental terms, would it make us *more* or *less* human? For theorists from both camps, justifying whether or not enhancement is permissible, desirable, or even obligatory depends on showing how it is or is not in accord with an essentialist human nature. In turn, I contend that the current discourse of enhancement recapitulates a traditional ‘humanist’ approach to ethics that takes up ‘the human’ as an ontological given and, furthermore, that such an approach narrows the possibilities for critiquing humanism and its dualistic and anthropocentric values. If we are to take ontological inquiry seriously as a structural feature of bioethics, then we must seek to think human nature in ways that complicate (what are assumed to be) ‘consensus’ or ‘commonsense’ accounts.

Chapter three turns our focus to the most formative and public-facing instantiation of the human enhancement debate: the work of The President’s Council on Bioethics (2001-2008) under President George W. Bush. We can understand this federal body as constructing a new normative, ontological ground for the therapy/enhancement distinction based in the conceptually prior

distinction of nature/artifice and expressed, in part, in Judeo-Christian theological terms. Based upon this grounding “dignitarian politics,” the Council sought to educate the American public about the *a priori* unethical nature of biotechnologies and regulate related scientific research. Given their use of theological language and conservative stance towards biotechnologies, the Council has often been represented as an anti-scientific cohort that sought to bring ideological and theological modes of governance into an otherwise public, secular, and neutral domain: governmental bioethics.

Closer analysis of the Council’s language, however, troubles this reading. In spite of its members sometimes using theological language and reasoning, the Council still understood itself as engaging in secular, democratic deliberation. To make sense of this tension, I contend that we must resist the temptation to view the Council – and the bioconservative discourse it helped generate – as doing mere ‘religious’ work over and against secular science and politics. Instead, we can best understand the Council’s work as a discursive project of reconstituting the secularity of public bioethics through replacing “ideological neutrality” with “value diversity,” which, in turn, afforded an Aristotelian project of reclaiming naturalism from an imagined value-negligent epistemic domain (techno-science). While it will become apparent that the Council’s dignitarian politics are conceptually problematic, I suggest that we should be wary of a return to the bioethical norm and that the Council’s desire for “richer bioethics” can be instructive for the human enhancement debate moving forward.

Chapter four turns to one of the most recent and controversial subjects of bioethical debate, moral bioenhancement, in order to provide a closer analysis of the bioliberal position and the current landscape of the enhancement field. In the most straightforward terms, moral bioenhancement refers to the use of bio- and neuro-technologies such as psycho-pharmaceuticals,

neural implants, and genetic engineering for the deliberate improvement of an individual's moral character, motives, or behavior. While such a project might seem far-fetched to outsiders, theorists of enhancement – speculating on recent findings in genetics, evolutionary biology, psychology, and neuroscience – see moral bioenhancement as a plausible future scenario. The guiding question of the discourse, then, is not necessarily whether moral enhancement is *feasible*, but rather whether it is *desirable*. The issue of desirability, however, depends upon a more fundamental meta-ethical question: what moral frameworks are legitimate for evaluating the transformation of morality itself?

More than just giving us a clearer sense of the ethical frameworks that constitute bioliberalism, analyzing this particular site of the enhancement debate reveals an important structural feature of far-left bioethical discourse: historical narration. We will see that advocates of moral bio-enhancement uncritically adopt, transform, and mobilize a classical narrative of secularization – a “subtraction story” (or, more accurately, a replacement story) – as a means to justify the permissibility, desirability, and even necessity of their imagined projects. According to this common narrative, the human species is on a historical trajectory of technologically-driven progress and bio- and neuro-technological interventions represent the next logical and necessary step – following not just magic and religion but also secular education and politics – in our individual and collective moral development. On one hand, this mobilization of ‘secularism-talk’ represents an unexpected inversion in which ideal bioethics is reconstituted in terms of science governing ethics rather than vice versa. On the other hand, it exacerbates the philosophical thinning long characteristic of the discipline through its reduction of ethics to not just ‘commonsense’ principles but also biological determinants. While emergent scientific thinking offers important theoretical resources for bioethics, such thinking must be approached in ways that highlight, rather than erase, complexity.

Chapter five thus introduces a different conceptual framework for thinking the relationship between biotechnologies and subject-formation: posthumanism. Drawing on information-based theories of autopoiesis, extended cognition, and complex co-evolution, I contend that human subjects should best be understood as *relational*, *differential*, and *embodied* beings who have never been human in the classical sense of the self-contained, self-determining Man of Reason. Instead, we are always already “cyborgs” and “assemblages” who co-evolve with our technologies as a condition of being (or rather becoming) itself. Instead of one more essentialist figuration of ‘the human’, I recognize this model of subjectivity as a social and historical construct that is contingent upon its cultural and intellectual conditions of production. Nevertheless, I contend that it can help us think biotechnologies outside of the polarized frames of salvation and monstrosity and act as a ‘counter-weight’ to the dualistic and anthropocentric views of human nature that predominate in the enhancement debate.

While this conceptual framework aligns more closely with the bioliberal view of human nature, it should not be understood as a *necessary* justification for the uncritical and unfettered development of bio- and neuro-technologies. Rather, such a framework is open to multiple normative interpretations and the techno-enthusiastic attitude that treats biotechnologies as a means to human – most often individual human – power can be contested from within. The contrasting bioconservative position of remaining human ‘as we have always been’, however, is even less viable, as it separates self from technology at an ontological level and is thus incoherent at its foundations. But I want to stress that the implications of a posthumanist model of subjectivity run deeper than a dissatisfaction with these two particular bioethical positions. It implies that appeals to an age-old human nature – whether that is biological or philosophical – cannot alone answer the question of how to handle the *particular* conditions of our emergent posthuman

moment; not because of the discursive presence of the naturalistic fallacy, but because human nature is both symbolically and materially unstable. In turn, I suggest that the fundamental problem lies with the framework of human enhancement itself, which is structurally dependent on all-too-traditional humanist imaginings of normal species-functioning and individual wellbeing. Human enhancement is, in short, a category mistake.

In the conclusion, I consider the uses and limits of a posthumanist approach in bioethical thinking; in other words, what I hope to accomplish through this project. Both the call to abandon the language of human enhancement and the ambition to introduce posthumanist thinking into this discursive space of bioethics might seem grandiose and impractical to some readers. After all, a non-humanist interpretation of human nature seems to offer little to the institutional and legalistic domains of bioethics that have played disproportionately large roles in raising the field to social and political prominence in the United States. While I acknowledge that I am not providing ready-made institutional language, we must remember that normative ethics cannot be divorced from ontology. Defining and naming a thing is consequential for how that thing is understood and acted upon. As a discursive site uniquely authorized to govern emerging relationships between biology and technology, the field of bioethics demands richer – more ontological and more diverse – forms of thinking ‘the human’, i.e., it demands *different* more so than just ‘better’ philosophy. This project is intended to be a step, rather than the final word, in expanding that interdisciplinary conversation.

Above all though, I am encouraging bioethicists and bioethics-adjacent theorists to move beyond the language of human enhancement, which might be a convenient heuristic for speaking about biotechnologies but is also a dangerous one. As I try to show throughout this project, the language of human enhancement has contributed to a polarized and simplistic ‘for or against’

approach to techno-science, a flattened view of both human subjects and biotechnological interventions, and a deeply anthropocentric matrix for imagining biotechnological futures. The primary bioethical task moving forward, then, is to continue to develop conceptual frameworks that account for the relational and contingent quality of human nature, i.e., to develop post-enhancement languages for our posthuman moment. In short, there remains plenty of room at the bottom for bioethicists to further excavate the grounds of human nature.<sup>67</sup>

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<sup>67</sup> This wording is a play on physicist Richard Feynman's lecture, "There's Plenty of Room at the Bottom," originally given to the annual American Physical Society on December 29, 1959. In this lecture, Feynman considered the possibility of using "infinitesimal machinery" to directly manipulate individual atoms as a more powerful form of synthetic chemistry. While Feynman's speech received little acclaim at the time, by the mid-1980s, it was inspiring foundational work in the field of nanotechnology. Richard P. Feynman, "There's Plenty of Room at the Bottom," *Journal of Microelectrochemical Systems* 1, no. 1 (1992): 60-66.

# **Chapter One: Towards an Intellectual History of Bioethics**

## **1.1 A History of What?**

In this chapter, I provide an intellectual history of the human enhancement debate. In doing so, I approach the human enhancement debate as an outgrowth of the ‘formal’ or ‘authorized’ discipline of bioethics in the United States. Much of the chapter, therefore, acts as a pre-history, highlighting the pertinent social, intellectual, and techno-scientific trends – e.g., the ‘molecularization’ and ‘geneticization’ of the human, the institutionalization of common moral principlism, and the emergence of the bioethical ‘culture wars’ – that shaped the development of bioethics as an academic, public, and professional field. Ultimately, I argue that, while the framework of human enhancement has constructively brought ontological inquiry into bioethics’ purview, it is still deeply informed by the field’s original commitments to autonomy and consensus as principal ethical ends.

## **1.2 Prefiguring Bioethics (1945-1970)**

The history of bioethics as a discipline begins in the United States in the 1970s with the establishment of bioethics’ institutions, journals, committees, programs, and principles, which, in tandem, created the conditions for new forms of biomedical professionalization and expertise. To understand the formation of this field, however, we must first understand how biomedical expertise functioned prior to the invention of “bioethics” and what contextual factors created the demand for new forms of specialized knowledge-production.

Historians McGehee Harvey and James Bordley describe the three decades from 1946 to 1976 as a “Period of Explosive Growth” in American medicine. In the first half of this period alone we can see the development of almost countless transformative medical technologies and techniques: streptomycin to treat tuberculosis, penicillin to treat bacterial infections, methotrexate

to treat acute leukemia, chlorpromazine to treat schizophrenia, anti-hypertensive drugs to treat malignant hypertension, vaccines to prevent polio, open-heart surgeries for valve replacement, electric defibrillators for full cardiopulmonary resuscitation, cardiac pacemakers and catheterization for visualization of heart defects, and chronic hemodialysis for kidney failure.<sup>68</sup>

Bioethicist Albert R. Jonsen apprehends the importance of this period: “these dramatic clinical changes were at the surface of a boiling sea of research in which the secrets of metabolism, the endocrine system, the mechanisms of immunity and wound healing, the biology of reproduction and, most exciting of all, the secrets of the genetic code were revealed.”<sup>69</sup>

The most exciting (if not yet practical) scientific advancement during this period was James Watson and Francis Crick’s 1953 discovery of the double helix, the twisted-ladder structure of deoxyribonucleic acid (DNA). As sociologist Nikolas Rose explains, the discovery of the structure of DNA opened up a “molecular style of thought” in which life would henceforth be

understood, and acted upon, at the molecular level, in terms of the functional properties of coding sequences of nucleotide bases and their variations, the molecular mechanisms that regulate expression and transcription, the link between the function properties of proteins and their molecular topography, the formation of particular intracellular elements...with their particular mechanical and biological properties.<sup>70</sup>

Mid-twentieth century molecular genomics not only laid the groundwork for rapid theoretical and practical advances in the biological and medical sciences, but also, through the introduction of the apparent means for reading and re-writing the code of life, created new demands for ethical expertise.

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68 A. McGehee Harvey and James Bordley, *Two Centuries of American Medicine* (Philadelphia: Saunders, 1976), 385-771.

69 Albert R. Jonsen, *The Birth of Bioethics* (New York: Oxford University Press, 1998), 12.

70 Nikolas S. Rose, *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton, N.J.: Princeton University Press, 2007), 24.

During this period of explosive growth, the hitherto taken-for-granted ethical expertise of medical professionals came under fire. Since at least the postbellum period, the individual physician, esteemed as a public moral paragon, had been wholly entrusted with pastoral care of patients' wellbeing. Under what Michel Foucault terms the "clinical gaze," the expertise of the clinician extended beyond the diagnosis and treatment of diseases to the normative management of lifestyle. Through the 1950s, the tranquil medical ethic of absolute respect for the sanctity of life, formalized in literature such as *Principles of Medical Ethics* and the *American Medical Association Code*, was assumed to be sufficient for guiding medical conduct, needing mere exhortation rather than explanation.<sup>71</sup>

With the explosive growth of medical sciences and technologies, however, new topics and questions began to be featured in intellectual and public debates concerning medical ethics. Euthanasia, abortion, genetic engineering, test tube babies, human experimentation, population control, and socialized healthcare became pressing topics of public concern. Questions of a different ethical scope structured these discussions: what is benefit and what is harm? Who shall live and who shall die? How should societal healthcare resources be distributed? Who should decide? Medical professionals – with their de facto pro-life coda – were not equipped with sufficient ethical expertise to address these questions of life, death, and justice; at least not alone. It was in the course of these debates that scientists, theologians, and humanists were invited – or just as often invited themselves – into the field medical ethics.

The demand for more precise clarification of ethical problems and more persuasive explanations of ethical solutions manifested in numerous interdisciplinary academic conferences

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<sup>71</sup> Rose, *Politics of Life Itself*, 9-11. Michel Foucault, *The Birth of the Clinic: An Archeology of Medical Perception*, trans. A.M. Sheridan Smith (New York: Pantheon Books, 1973).

in the United States and England during the 1960s. Some of the most prominent meetings during this “decade of conferences” included: “Great Issues of Conscience in Modern Medicine” (Dartmouth University, 1960), “Man and His Future” (Ciba Foundation, 1962), the Nobel Conferences, “Genetics and the Future of Man” and “The Human Mind” (Gustavus Adolphus College, 1965, 1967), and “The Sanctity of Life” (Reed College, 1966). These conferences assembled a cast of public figures from different disciplines – including population geneticists James Crow and Hermann Muller, biologist Julian Huxley, author Aldous Huxley, Methodist professor Paul Ramsey, Episcopal minister Joseph Fletcher, Jesuit theologian Richard McCormick, and anesthesiologist Henry Beecher – who proved highly influential in communicating what would become the predominant concerns of bioethics in the 1970s.<sup>72</sup>

While some speakers addressed specific, practical issues such as the effects of ionizing radiation, the pollution of water and air, and the statistical results of overpopulation, the tenor of these conferences tended to be much more theoretical and speculative in nature. For example, in his opening to the “Great Issues of Conscience in Modern Medicine” conference, Dr. S. Marsh Tenney, Dean of Dartmouth Medical School, explained that the conference was intended “to examine the issue of conscience in medical and science progress...not simply the question of the survival or the extinction of man, but *what kind* of survival? A future of what *nature?*”<sup>73</sup> Modeling the big-picture questions that would become characteristic of the human enhancement debate, these intellectuals set the stakes at no less than the future of human nature and flourishing.

Though the linear rate of scientific advancement was never in doubt, participants at these proto-bioethical conferences presented an ambivalent view of the benefits and harms of that

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72 Albert R. Jonsen, *The Birth of Bioethics*, 13-20.

73 S. Marsh Tenney, "Opening Assembly," (paper presented at Dartmouth Convocation on Great Issues of Conscience in Modern Medicine), Hanover, NH, September 8-10, 1960, 2.

advancement – a stark difference from medical ethics even a decade prior. For example, the “Man and His Future” conference opened with a comparison to the advent of nuclear power:

The world was unprepared socially, politically and ethically for the advent of nuclear power. Now, biological research is in a ferment, creating and promising methods of interference with ‘natural processes’ which could destroy or could transform nearly every aspect of human life which we value. It is necessary for...every intelligent individual of our one world to consider the present and imminent possibilities.<sup>74</sup>

Statements such as these speak to one of the chief purposes of the conferences: bringing together and reconciling a diversity of opinions towards the end of consensus. If the medical possibilities on the horizon were unprecedented, so were the forms of ethical expertise needed to make sense of them. The decade of conferences thus not only brought into focus a number of concerns that would inform the invention of bioethics – such as the morality of abortion, the feasibility of eugenics, and medical research involving human subjects – but also the function of the bioethicist itself: the conceptual clarification of ethical dilemmas in biomedical sciences and the critical reformulation of (consensus) biomedical ethical codes.

If the decade of conferences established the concerns that would guide the field of bioethics for the next five decades, sociologist John H. Evans explains that the character of its debates was nevertheless historically distinctive. Drawing on German sociologist Max Weber, Evans describes the historical development of bioethics in terms of a contest for “jurisdiction” between scientists and theologians.<sup>75</sup> This contest for jurisdiction is characterized as a gradual process of “thinning”

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74 Gordon Wolstenholme, preface to *Man and His Future: A Ciba Foundation Volume*, ed. Gordon Wolstenholme (Boston: Little, Brown, and Co., 1963), v.

75 Jurisdiction here is “the link between a profession and its work,” which can be forged through methods such as state licensing, institutional affiliations, and public opinion. For Evans, the contest for jurisdiction in bioethics is between distinct professions (e.g., theologians and scientists) who seek to translate or reduce bioethical issues into particular forms of argumentation so that those issues fall under their “home” jurisdiction. Those professionals are, in turn, legitimized as agents of social change with the right to institutionalize their own abstract frameworks and ethical ends. John H. Evans, *Playing God?: Human Genetic Engineering and the Rationalization of Public Bioethical Debate* (Chicago: University of Chicago Press, 2002), 28-32.

in which public debate became more “formally rational” and less “substantively rational.” Whereas formally rational modes of argumentation privilege certain pre-determined, procedural ends, substantively rational modes of argumentation question whether a given means is consistent with ultimate ends or values. As Evans explains, and as I will elaborate below, the eventual formalization of common morality principlism in the 1970s allowed scientists to delegitimize substantive theological concerns and claim *de facto* jurisdiction of the field of public bioethics. The formation of bioethics as a distinct discipline and profession can thus be understood as a Weberian process of formal rationalization.<sup>76</sup>

While I will further complicate this account of bioethics’ gradual thinning, the proto-bioethical debates Evans identifies as preceding and informing the invention of the field demand a closer reading. His analysis of Human Genetic Engineering (HGE) from 1959 to 1974 acts as an ideal case study insofar as it represents the oldest and most popular iteration of what we would now call the enhancement debate and is illustrative of the substantive forms of debate Evans sees as being delegitimized in bioethics – and which I contend are returning to the mainstream of the field in and through the discourse of human enhancement.

From 1959 to 1974, the HGE debate was premised on the substantive question: what ends should we seek? Scientists such as Hermann Muller, Julian Huxley, and Theodosius Dobzhansky advocated a ‘reform eugenics’, which insisted that genetic engineering could reduce the ‘genetic load’ and provide meaning and purpose to life. Similar to the position of ‘liberal eugenics’ that we find in the current enhancement debate, these scientists posited a less explicitly racialized version of eugenics in which ‘valuable’ characteristics were to be found across all class and racial groups

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<sup>76</sup> Evans, *Playing God?*, 11-44.

and believed that eugenic goals should be accomplished through popular support and liberal political action rather than mandatory social programs.<sup>77</sup>

Population geneticist Hermann Muller (1890-1967), for example, introduced the concept of “genetic load” in a 1949 paper given to the American Society of Human Genetics, where he insisted that modern society was headed toward genetic apocalypse. Due to progress in medicine and agriculture, among other forms of cultural advancement, Muller argued that genetic selection of the “fittest” was no longer occurring at a high enough rate to breed out undesirable traits. Conditions such as diabetes were being propagated in the human gene pool because diabetics were surviving to a reproductive age in unprecedented numbers. The sum of these undesirable mutations was classified as the “genetic load,” a term that would come to define the field of population genetics for several subsequent decades.<sup>78</sup> Most important, Muller understood the genetic load as an existential threat with the propagation of undesirable germ cells producing less and less fit human beings and the care of citizens requiring greater and greater societal resources. In apocalyptic terms, he concluded: “refashioning of these [future] pitiful relics into human form would be a far more difficult task than the synthesis of human beings out of raw materials.”<sup>79</sup> He thus named reduction of the genetic load, through direct (biotechnological) or indirect (socio-political) engineering, as a principal end of biomedicine and characterized it as a specification of the more general (and soon to be formalized) end of “beneficence.”

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<sup>77</sup> For current examples of “liberal eugenics,” see: Nicholas Agar, *Liberal Eugenics: in Defence of Human Enhancement* (Oxford: Blackwell, 2008). Philip Kitcher, *The Lives to Come: The Genetic Revolution and Human Possibilities* (New York: Touchstone, 1997).

<sup>78</sup> Bruce Wallace, *Fifty Years of Genetic Load: An Odyssey* (Ithaca, N.Y.: Cornell University Press, 1991).

<sup>79</sup> Hermann J. Muller, “Genetic Progress by Voluntarily Conducted Germinal Choice” in *Man and His Future*, ed. Gordon Wolstenholme (Boston: Little, Brown, and Co., 1963), 11.

Taking a more optimistic tone, British-born biologist and president of the British Humanist Association, Sir Julian Huxley (1887-1975), advocated an “evolutionary humanism” that would replace traditional religion with science and rationalism. Believing that the natural sciences had made the concept of divine authority unintelligible, Huxley insisted that biology could restore meaning to a world in which theology had lost its coherence. “Biology,” he explained, “reinstates man in a position analogous to that conferred on him as the Lord of Creation by Theology,” providing “hope and meaning to human existence.”<sup>80</sup> Anticipating the bioliberal position, Huxley – who coined the term “transhumanism” – contended that the meaning of human existence was reflected in ‘man’ exercising ‘his’ autonomous and rational capacities to control and perfect evolution.<sup>81</sup> We find an almost mirror image of current bioliberal rhetoric in the claim that man ought to use imminent biotechnologies to take control of his “destiny” and increase his “desirable genetic capacities for intelligence and imagination, empathy and co-operation, and a sense of discipline and duty.”<sup>82</sup>

Competing for public opinion and intellectual recognition with these scientists were (at the time, liberal) theologians such as Joseph Fletcher, Paul Ramsey, and Richard McCormick. While these theologians shared a desire to insert their expertise into emerging biomedical debates, there was no consensus theological position on HGE. Paul Ramsey (1913-1988), a Methodist theologian

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80 Marc Swetlitz, “Julian Huxley and the End of Evolution,” *Journal of the History of Biology* 28, no. 2 (1995): 198. William B. Provine, “Progress in Evolution and the Meaning in Life,” in *Julian Huxley, Biologist and Statesman of Science: Proceedings of Conference held at Rice University, 25-27 September 1987*, ed. C. Kenneth Waters and Albert Van Helden (Houston, Rice University Press, 1992), 166.

81 Huxley first used the term transhumanism in a 1951 lecture, which he later elaborated on in his 1957 text, *New Bottles for New Wine*. “We need a name for this new belief. Perhaps *transhumanism* will serve; man remaining man, but transcending himself, by realizing the new possibilities of and for his human nature.” Julian Huxley, *New Bottles for New Wine* (London: Chatto and Windus, 1957), 17. There is some debate about whether Huxley was indeed the first to use this term and, if so, where his first mention of it appears. Joseph Wolyniak et. al, “The History of ‘Transhumanism’,” *Notes and Queries* 62, no. 3 (2015): 465-467.

82 Julian Huxley, “Eugenics in Evolutionary Perspective,” *Perspectives in Biology and Medicine* 6, no. 2 (1963): 173.

and professor of religion at Princeton University, argued that contemporary eugenicists such as Hermann Muller and Julian Huxley were establishing a “surrogate theology” of the “cult” of “messianic positivism,” which aimed at “Playing God” rather than being men on earth. In contrast, Ramsey proposed a “love deontology” or “covenant-fidelity” that underscored *agape* (i.e. love of neighbor/respect for persons) as *the* principal ethical tenet and placed the ends of genetic engineering under theological jurisdiction.<sup>83</sup> Thus, he exclaimed, “Men ought not to play God before they learn to be men, and after they have learned to be men they will not play God.”<sup>84</sup> In his reputed *Patient as Person* (1970), an ethical treatise on the medical care of patients, Ramsey contended that, “covenant-fidelity is the inner meaning and purpose of our creation as human beings.”<sup>85</sup> In language that anticipates current bioconservative rhetoric on human dignity, he explained that, “just as man is a sacredness in the social and political order, so he is a sacredness in the natural, biological order.”<sup>86</sup> While his covenant theology placed him firmly against positive eugenics, it still, unlike his more conservative contemporaries, allowed him to take a more permissive stance toward therapeutic means such as euthanasia and transplant surgery.

On the other hand, Episcopal minister Joseph Fletcher (1905-1991), a career opponent of Ramsey, was seen as an apologist for scientists’ ends. Refusing the position that scientific means were ‘unnatural,’ Fletcher contended that, “laboratory reproduction is radically human compared to conception by ordinary heterosexual intercourse” since “man is a maker and a selector and a

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83 Paul Ramsey, *Fabricated Man: The Ethics of Genetic Control* (New Haven, CT: Yale University Press, 1970), 138-145.

84 Ramsey, *Fabricated Man*, 138.

85 Paul Ramsey, *Patient as Person: Explorations in Medical Ethics* (New Haven, CT: Yale University Press, 1970), xii-xiii.

86 Ramsey, *Patient as Person*, xii-xiii.

designer, and the more rationally contrived and deliberate anything is, the more human it is.”<sup>87</sup> Like Ramsey, Fletcher was interested in forwarding the Christian end of *agape*; but, unlike Ramsey, he did not believe there were any means that were *a priori* impermissible. Translating his position into secular utilitarian terms, he argued that, “if the greatest good of the greatest number (i.e., the social good) were served by it, it would be justifiable not only to specialize the capacities of people by cloning or by constructive genetic engineering, but also to bio-engineer or bio-design para-humans or ‘modified men.’”<sup>88</sup> While both Ramsey and Fletcher were attempting to reach beyond theological audiences, we will see that it was Fletcher’s implication that *agape* could be translated into secular utilitarianism that had the more enduring impact on which forms of theological thought were deemed appropriate for mainstream bioethics.

The HGE debate between scientists and theologians is most important not for the battle lines it marks between distinct professions; after all, the sociological lines Evans draws between professions are far more map than territory. Rather, the debate is important because it demonstrates three important trends that have been reprised in the current enhancement debate in bioethics. First, the HGE debate is substantively rational; at stake is what ultimate ends or values should be pursued through science and, furthermore, what means are permissible to achieve those ends. Second, the HGE debate is thoroughly futuristic; while abortion and euthanasia debates concerned the present state of medicine, the HGE debate concerned technologies that existed as mere abstractions, present only as imminent absences. Third, the HGE debate brings to the fore the principal end of consensus in bioethics. From the outset, Evans notes that the goal of both scientists and theologians was to appeal to an imagined democratic audience. He thus characterizes the debate as a form of

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87 Joseph Fletcher, “Ethical Aspects of Genetic Controls,” *New England Journal of Medicine* 285, no. 14 (1971): 780-781.

88 Fletcher, “Ethical Aspects of Genetic Controls,” 779.

“public” bioethics, “where social elites – in this case, professionals – debate...to influence the beliefs and values of the public, to come to some modicum of consensus, or in some cases to represent public opinion to policy makers.”<sup>89</sup> Even as bioethicists regularly appeal to values such as diversity and inclusion, we will see that the goal of creating consensus – of systematizing universal ethical ends – remains a predominant theme in the field and, in the context of the enhancement debate, maps onto the contested language of human nature.

If theologians play an important role in Evans’ historical account, philosophers are notably absent. This absence gives us good reason to scrutinize the frequent claim that bioethics mutated from a “sub-branch of philosophy,” i.e., normative ethics.<sup>90</sup> On one hand, this claim appears to be true insofar as bioethicists represent themselves as engaging in practical or applied ethics, credentialed philosophers now make frequent contributions to the field’s corpus, and we can find regular references to the tradition of political liberalism (e.g., John Stuart Mill’s utilitarianism and John Rawls’ “justice as fairness”) in the mainstream literature.<sup>91</sup> Indeed, it is not uncommon for historians to narrate the field as a complement to the ‘Rawlsian turn’ in American political philosophy, though Rawls had no direct involvement.<sup>92</sup> On the other hand, we find little engagement from academic philosophers with biomedicine prior to the 1970s. Even Jonsen, who accords moral philosophy a privileged place in the history of bioethics, admits that American moral philosophers, who were already considered out of fashion, were far more interested in meta-ethics

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89 Evans, *Playing God?*, 34.

90 Rose, *Politics of Life Itself*, 30.

91 Some of the earliest examples, include: Ronald M. Green, "Health care and justice in contract theory perspective," in Robert H. Veatch, ed., *Ethics and Health Policy* (Cambridge, M.A.: Ballinger, 1976), 111-126. Norman Daniels, *Just Health Care* (New York: Cambridge University Press, 1985). Peter Singer, *Practical Ethics* (Cambridge, M.A.: Cambridge University Press, 1980).

92 Daniel Callahan, *The Roots of Bioethics: Health, Progress, Technology, Death* (Oxford University Press, 2012). Heikki Saxén, *A Cultural Giant: An Interpretation of Bioethics in Light of Its Intellectual and Cultural History* (Finland: Tampere University Press, 2017).

than normative ethics during the 1960s. The philosophers who ended up playing a central role in the formation of the field – e.g., Stephen Toulmin, Samuel Gorovitz, Daniel Callahan, Tom Beauchamp, and Danner Clouser – remained at the periphery of public biomedical debates until the establishment of institutions such as the Hasting Center (1970) and publications such as *Philosophy and Public Affairs* (1971).

One of the few prominent philosophers to enter the biomedical debates during the 1960s was the German-born Hans Jonas, who studied under the German masters Edmund Husserl, Martin Heidegger, and Rudolph Bultmann in the 1920s. Jonas was interested in the metaphysical connections between mind and organism, which, he contended, had been distorted in the dualism of Western philosophy and the materialism of Western science. In his *The Phenomenon of Life* (1966), Jonas explicated a monistic “philosophy of the organism,” which, following his teacher Heidegger, sought to answer no less than the question: what is human being?<sup>93</sup> Jonas, however, argued that Heidegger’s phenomenological approach had ‘forgotten’ to account for *the* fundamental fact about human beings: they are living beings whose mode of existence is corporeal. Using the biological concept of metabolism, Jonas developed an ontological account of life based around freedom as both an objective trait and an ethical end. During this period, he was just beginning to formulate the bioethical position he later explicated in *The Imperative of Responsibility* (1984), where he reframed the Kantian categorical imperative as “act so that the effects of your action are compatible with the permanence of genuine human life,” or “act so that the effects of your action are not destructive of the future possibility of such life.”<sup>94</sup>

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93 Hans Jonas, *The Phenomenon of Life: Toward a Philosophical Biology* (New York: Harper & Row, 1966).

94 Hans Jonas, *The Imperative of Responsibility: In Search of an Ethics for the Technological Age* (Chicago: University of Chicago Press, 1984), 11.

Jonas, however, represents an exception in terms of the philosophical traditions that have influenced bioethics. Indeed, one might be surprised to see Jonas' name in the annals of American bioethics given how little his ontological concern with the nature of being itself resembles the analytic tendencies toward principlism and casuistry that have become predominant in the field. Jonas is just as useful, then, for bringing our attention bioethicists' lack of textual engagement, even now, with the Post-World War II Continental tradition of critical techno-scientific philosophy.

From the early 1940s to the late 1960s, European philosophers coalesced around what historian Leo Marx has described as a form of “postmodern pessimism” in which technocracy and rationalization became associated with cultural domination (rather than moral progress) and modernization became a metanarrative or myth (rather than an historical inevitability).<sup>95</sup> This postmodern pessimism is evident in the corpuses of influential philosophers such as Hannah Arendt, Martin Heidegger, Jacques Ellul, and Theodor Adorno. While the works of these authors are far more diverse and complex than this space allows for, there was nevertheless a common thread among them: science and technology increasingly corresponded to a morally dangerous, systemic mode of apprehending self and world, which privileges efficiency above all other normative criteria. For each thinker, “techno-science,” to use Heidegger's term, represented a metaphysics of calculation that was antithetical to those arenas of experience, knowledge, and action that constitute ‘authentic’ human being. For each then, the goal was to find – or mourn the loss of – some purchase outside of ‘the’ scientific worldview.<sup>96</sup>

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95 Leo Marx, “The Idea of ‘Technology’ and Postmodern Pessimism” in *Does Technology Drive History? The Dilemma of Technological Determinism*, ed. Merritt Roe Smith and Leo Marx (Cambridge, MA: M.I.T. Press, 1994), 237-258.

96 Martin Heidegger, *The Question Concerning Technology and Other Essays*, ed. and trans. William Lovitt (New York: Harper & Row, 1977). Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1958). Jacques Ellul, *The Technological Society*, trans. John Wilkinson (New York: Vintage Books, 1964). Paul Tillich, *The Spiritual Situation in Our Technical Society*, ed. Thomas, J. Mark (Macon, GA: Mercer University Press, 1988). Max

This tradition, which we will return to in Chapter Five, is important for thinking about the history of the enhancement debate not so much for its direct influence, which is negligible, but because, as an antecedent, it helps us understand the latent expansion of bioethical expertise to include ontological inquiry. We will see that, in shifting the focus of critical investigation from therapies to enhancements, bioethicists also shifted their focus from practical questions of patient wellbeing to ‘big-picture’ questions concerning what it does and should mean to be human. This shift, however, is far from a complete or radical rupture; both because it is contained to the topic of enhancement and because the newfound interest in human nature fails to demonstrate a meaningful departure from established bioethical theories and methods. The goal of this project, then, is not just to call attention to this ongoing shift in bioethical content; it is also to suggest that it is not radical enough.

This intense philosophical skepticism was counterbalanced by a no less intense enthusiasm among mid-century scientists and technologists. Not listed in Jonsen’s decade of conferences were the annual Macy Conferences on Cybernetics (1946-1953) held in New York City. This might be for good reason; the Macy Conferences were technical in nature, focused on developing a new scientific language – information theory – rather than on biomedicine or ethics. As we have seen though, the development of descriptive scientific paradigms opens discursive possibilities for prescriptive bioethical debate. In particular, James Watson and Francis Crick’s discovery of the double helix in 1953 produced both widespread hope and fear about the possibilities for reading and re-writing the ‘code of life’. The term “code” is especially telling here. Molecular genomics – underwritten with the metaphors of messages and codes, translation and transcription, programs

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Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment: Philosophical Fragments*, translated Jephcott Edmund (Stanford: Stanford University, 2002).

and commands – would not have been possible without the conceptual framework of information first developed in cybernetics.

In the immediate aftermath of the Second World War, scientists and technologists such as Norbert Wiener, Warren McCulloch, John von Neumann, Claude Shannon, and Ross Ashby developed a trans-ontological model of information that reduced the behavior of all entities – organisms and machines alike – to the circulation of probabilistic, numerical patterns.<sup>97</sup> Based on the scientific principles of entropy and feedback, cyberneticists contended that, just like digital machines, “any organism is held together...by the possession of means for the acquisition, use, retention, and transmission of information.”<sup>98</sup> Insofar as all systems are communications systems, what matters most for cybernetic analysis is pattern rather than substance, information rather than substrate. To quote Wiener, “Information is information, not matter or energy.”<sup>99</sup> It is a surprisingly small leap from this dualistic distinction to imagining a world of information parallel to and determinative of the heretofore ‘real’ material world of quotidian experience.

While I will return to cybernetics in greater detail in Chapter Five, the most important point for now is that this scientific paradigm produced a new model of subjectivity: the informatic self, i.e., “a self understood, managed, preserved and improved via the notion of information.”<sup>100</sup> In cybernetics, then, we see the beginnings of what Rose describes as the current biopolitical

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97 Some of the most influential texts of these theorists include: Norbert Wiener, *Cybernetics, or Control and Communication in the Animal and the Machine* (Cambridge: MIT Press, 1948). Wiener, Norbert. *The Human Use of Human Beings: Cybernetics and Society*. Boston: Houghton Mifflin, 1950). John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior* (Princeton: Princeton University, 1944). Claude Shannon, “A Mathematical Theory of Communication,” *Bell System Technical Journal* 27 (1948): 379-423. Claude Shannon and Warren Weaver, *The Mathematical Theory of Communication* (Urbana, IL: University of Illinois Press, 1949). Ross Ashby, *Introduction to Cybernetics* (London: Chapman & Hall, 1956). Ross Ashby, *Design for a Brain: The Origin of Adaptive Behavior* (London: Chapman & Hall, 1960). For an overview of cybernetics, see: Ronald Kline, *The Cybernetics Moments: Or Why We Call Our Age the Information Age* (Baltimore: Johns Hopkins University, 2015).

98 Wiener, *Cybernetics*, 161.

99 Wiener, *Cybernetics*, 132.

100 Abou Farman, “Secular Immortal” PhD Diss., (The City University of New York, 2012), 69.

paradigm of “molecularization,” which “strips tissues, proteins, molecules, and drugs of their specific affinities – to a disease, to an organ, to an individual, to a species – and enables them to be regarded, in many respects, as manipulable and transferable elements or units, which can be delocalized – moved from place to place, from organism to organism, from disease to disease, from person to person.”<sup>101</sup> Foremost, this ‘way of knowing’ has entailed an ontological discourse of medical surveillance that epidemiologist Abby Lippman calls “geneticization” “in which differences between individuals are reduced to their DNA codes.”<sup>102</sup> But more than just reducing selfhood to genetic code, molecularization implies that the self is structurally open to (biotechnological) modification. If I am most fundamentally a code – genetic or otherwise – then I am no less ‘optimizable’ than a digital computer program. The informatic self thus provides both a knowable genetic destiny and the imminent possibility of asserting control over and against that destiny.

### **1.3 The Birth Of A Discipline (1970-1985)**

It was in the midst of this epistemological paradigm shift towards information and concomitant anxieties about biotechnological futures that bioethics began to take shape as an academic, professional, and public field. The founding of three institutions in particular – The Hastings Center, The Kennedy Institute of Ethics, and The Society for Health and Human Values – were especially important for this historical moment of bioethical formation.

In the mid-1960s, philosopher Daniel Callahan, a recent graduate in philosophy from Harvard, began working on a book on the controversial subject of abortion. He soon realized that philosophical expertise alone was insufficient for such a project; it would also require perspectives

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101 Rose, *Politics of Life Itself*, 27.

102 Abby Lipman, “Led (Astray) by Genetic Maps: The Cartography of the Human Genome and Health Care” *Social Science and Medicine* 35, no. 12 (1992): 1470.

from fields such as demography, law, medicine, and public policy. In step with the conferences of the prior decade, he recognized that there were no formal interdisciplinary spaces to address complex biomedical problems in a systematic way, and set out to create an institute for precisely that purpose. By 1969, he had incorporated a group of academic affiliates, “The Institute of Society, Ethics, and the Life Sciences,” and, by 1970, after receiving funding from the National Endowment for the Humanities and the Rockefeller Foundation, formed what still remains the premiere bioethics institution: The Hastings Center.<sup>103</sup>

The following year, the Center began publishing its own journal, *The Hastings Center Report*, as a means to disseminate research and stimulate academic and public interest in bioethical issues. In the first issue of the journal, Callahan set the agenda for not just the institute but also the field of bioethics at large:

The goal of this “Report,” the first regular publication of the Institute, is to advance public and professional understanding of the social and ethical problems arising out of advances in the life sciences. That, indeed, is the larger goal of the Institute itself. This cannot be done, we believe, unless pertinent data is presented, principles examined, different viewpoints heard, and the possible implications of decisions and policies explored. This is not a task to be restricted to one discipline, or one viewpoint, or one methodology. To say that it must be multi-disciplinary is only to say the issues are as complex as human beings themselves.<sup>104</sup>

The use of “life sciences” in this excerpt is notable since it implies a larger field of critical investigation than just medical ethics. While doctor-patient relationships would remain at the forefront of bioethical discourse, Callahan, building on the prior decade’s interdisciplinary conferences, recognized that medical ethics could not be separated from the biological sciences that were rapidly transforming the field of medicine. This broader set of interests was reflected in the four initial research groups of the Center: death and dying, behavior control, genetic

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103 Callahan, *The Roots of Bioethics*, 7-24.

104 Daniel Callahan “Values, Facts and Decision-making” *The Hastings Center Report* 1, no. 1 (1971): 1.

engineering and counseling, and population control.

If there is a central theme in Callahan's article though, it was the need for intellectually open-ended debates where different viewpoints could be heard. On one hand, we can see almost immediate success in this regards as The Hastings Center brought together a disciplinarily diverse group of scholars that began collaborating and debating in accordance with their own ideals. Among these were some familiar names from the old guard such as Beecher, Dobzhansky, and Ramsey, and some unfamiliar ones, such as Robert Coles, René Dubos, René Fox, and Robert Veatch, who would form the new vanguard of the field. The Center also organized a number of national, interdisciplinary symposia in its first years, including: "Problems on the Meaning of Death" (1970), "Ethical Issues in Genetic Counseling and the Use of Genetic Knowledge" (1971), "Heart Transplants and Public Policy" (1971), and "The Teaching of Medical Ethics" (1972).<sup>105</sup> On the other hand, there is a recurrent tension in bioethics between the desire to include different social and ethical perspectives and the demand to systematize ethical theories and methods for practical, universal application. We will see that, by the end of the 1970s, bioethics had both attained considerable social capital in the public sphere and formalized and narrowed its ethical approaches to an unsettling degree.

Like Callahan, André E. Hellegers, director of Georgetown's Center for Population Research, felt that the occasional academic conference was insufficient for dealing with emerging issues in the reproductive sciences. With funding from Georgetown, the Kennedy Foundation, and the Ford Foundation, Helleger opened The Kennedy Institute of Ethics – a unit within the larger Center for Population Research – in July of 1971. It bears remarking that the term "bioethics" was coined by R. Sargent Shriver, the first director of the Peace Corps, in a living room conversation

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<sup>105</sup> Albert R. Jonsen, *The Birth of Bioethics*, 20-22.

with Hellegers and several others about the possibility of the Institute receiving funding. In the University's October press release announcing the funding of the Institute, it explained its purpose as: to "pioneer in the development of a new field of joint research which the institute's founders have named 'bioethics.'"<sup>106</sup>

Like the Hastings Center, The Kennedy Institute provided a home to a number of foundational bioethicists: LeRoy Walters, Warren Reich, James Childress, and H. Tristram Engelhardt, Jr. Most important, the Institute was essential in creating an academic foundation for bioethics, providing professorships, fellowships, and tools for research in *The Bibliography of Bioethics* (1975), *The Encyclopedia of Bioethics* (1978), and the National Reference Center for Bioethical Literature. In collaboration with the university's Philosophy Department, the Institute also created the first graduate degree program in bioethics in the late-1970s. The most influential product of the Institute, however, proved to be Childress and Georgetown philosopher Tom Beauchamp's *Principles of Biomedical Ethics* (1979), which offered the first "systematic analysis of the principles that should govern a wide range of decisions affecting biomedicine," and which, in its updated editions, still acts as *the* foundational textbook for bioethics.<sup>107</sup>

The Society for Health and Human Values had more explicitly religious origins than its two counterparts. In the mid-1960s, the staff of the United Ministries in Education, a collaboration of Methodist and Presbyterian Churches, initiated discussions on the role of Christian ministry in medical schools. This led to the 1965 Committee on Medical Education and Theology, which focused on means for addressing the depersonalization of medical students and the teaching of

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106 "Institute for Bioethics Established at Georgetown University," *BioScience* 21, no. 1 (1971): 1090. Albert R. Jonsen, *The Birth of Bioethics*, 20-22.

107 Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics* (New York: Oxford University Press, 1979), p. xi.

‘mechanistic’ medicine. In 1968, the committee changed its name to the Committee on Health and Human Values and, in 1969, applied for a grant from the National Endowment for the Humanities (NEH) “to identify explicitly the human values that are lacking or inadequately represented in the study and practice of medicine and to begin to remedy this deficit.”<sup>108</sup> The application was successful and, with funding from the NEH and the Russell Sage Foundation, led to the formation of the Society for Health and Human Values (SHHV).<sup>109</sup>

Led by Dr. Edmund Pellegrino – who would later act as president of the Catholic University of America, Director of the Kennedy Institute of Ethics, and Chairman of the President’s Council on Bioethics – as chair, the SHHV made more explicit attempts to incorporate theological and humanist viewpoints into medicine, and medical education in particular, than its institutional counterparts. Besides fostering its own cohort of future bioethicists, the Society’s most important contribution might have been advancing the development of the “medical humanities.” Rather than just focusing on normative ethics, SHHV scholars insisted that questions of human values and medicine could be addressed through literature and art as well as philosophy and theology. While critical theorization from this field is often underappreciated by mainstream bioethicists, the discipline of medical humanities has established a firm foothold in the academic world.

It was in large part due to the efforts of these three institutions that “bioethics” was canonized in 1974 when the Library of Congress entered it as a subject heading, citing Daniel Callahan’s “Bioethics as a Discipline.”<sup>110</sup> But while these institutions created the social, economic, and intellectual networks that formed the basis of the field, it was bioethicists’ involvement in

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108 Daniel M. Fox, "Who Are We: The Political Origins of the Medical Humanities," *Theoretical Medicine* 6, no. 3 (1985): 334.

109 Jonsen, *The Birth of Bioethics*, 24-26.

110 Daniel Callahan, “Bioethics as a Discipline,” in *Bioethics: An Introduction to the History, Methods, and Practice*, 2<sup>nd</sup> ed., ed. Nancy s. Jecker et. al. (Sandbury, MA: Jones and Bartlett Publishers, 2007), 17-22.

public policy that specified and formalized the field's predominant theoretical and methodological framework.

Bioethicists' involvement in public policy began in 1972 with the exposure of the infamous Tuskegee Syphilis Experiment. The Tuskegee Experiment was a clinical study conducted between 1932 and 1972 by the U.S. Public Health Service in which six hundred impoverished African American men, under the guise of receiving free government health care, were infected with syphilis so that scientists could observe the natural history of the untreated disease. Even though penicillin had become the standard treatment for syphilis by 1947, and research subjects were informed that the study would last a mere six months, the experiment continued for forty years until its existence was finally leaked to the national press in July of 1972.<sup>111</sup>

In response to the public outcry concerning the Tuskegee study and other examples of human experimentation such as research on fetal tissue, Congress and President Richard Nixon passed the National Research Act into Public Law 93-348 on July 12, 1974. This Act established the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research – the first bioethics public policy institution – and directed the Commission to recommend regulations to the Department of Health, Education, and Welfare that would protect the rights and welfare of human research subjects with regard to informed consent and institutional review of research.<sup>112</sup>

From the outset, the Commission was given the overarching congressional mandate to "identify the ethical principles which should underlie the conduct of biomedical and behavioral research with human subjects and develop guidelines that should be followed in such research."<sup>113</sup>

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111 James H. Jones, *Bad Blood: The Tuskegee Syphilis Experiment* (New York: Free Press, 1993).

112 *National Research Service Award Act of 1974*, Public Law 93-348, *U.S. Statutes at Large* 88 (1974): 342-354.

113 *National Research Service Award Act of 1974*, 342-354.

While the Commission produced a number of official reports on issues ranging from fetal research to psychosurgery in its first two years, it only began to address the mandate for ethical principles in earnest in 1976. The members of the Commission recognized the inherent challenge of deducing consensus ethical principles and the two years of ensuing commission meetings were contentious. Given the congressional mandate and deadline, however, the commissioners forged ahead, resulting in the publication of the *Belmont Report* in 1978 and the formalization of three consensus or “common moral” bioethical principles: respect for persons, beneficence, and justice. These principles justified the respective practices of informed consent, risk-benefit analysis, and the selection of research subjects, and were later given the force of law with respect to the federal funding of scientific research.<sup>114</sup>

These *prima facie* binding moral principles would be further canonized and augmented in philosophers Tom Beauchamp and James Childress’s *Principles of Biomedical Ethics* the following year as: “(1) respect for autonomy (a norm of respecting the decision-making capacities of autonomous persons), (2) nonmaleficence (a norm of avoiding the causation of harm), (3) beneficence (a group of norms for providing benefits and balancing benefits against risks and costs), (4) justice (a group of norms for distributing benefits, risks, and costs fairly)”<sup>115</sup> More than just elaborating the principles themselves, Beauchamp and Childress provided a comprehensive explanation of the ethical framework, “common morality principlism,” in which those principles were grounded. According to the authors, autonomy, nonmaleficence, beneficence, and justice represent the most “basic” “set of norms that all morally serious persons share as the common

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114 The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, *Ethical Principles and Guidelines for the Protection of Human Subjects of Research* (Washington, D.C.: Department of Health, Education, and Welfare, 1979).

115 Tom Beauchamp, *Principles of Biomedical Ethics*, 5<sup>th</sup> ed. (New York: Oxford University Press, 2001), 12.

morality” and which therefore bind “all persons in all places.”<sup>116</sup> Veatch captures the core idea of this framework, explaining that, common morality principlism begins from the assumption that “there is some primitive, pretheoretical insight that is shared by all normal, morally serious humans...in all places and cultures.” Humans can “intuit,” “see,” “or in some other way know that some behaviors are” wrong and others are right.<sup>117</sup> The bioethicists of the 1970s thus claimed that they were not deciding what the ethics of the public should be based on a particular mode of reasoning. Rather, they were merely identifying the existing shared values and norms of all citizens so that they could be channeled to create public policy.

In claiming that bioethics consisted of mere identification and application, bioethicists were, in effect, claiming to occupy a neutral and universal position as moral arbiters. This was also accomplished through a particular idealization of what ‘moral theories’ ought to accomplish. For Beauchamp and Childress, moral theories should be consistent and comprehensive, simple in containing the minimum number of principles necessary, and complex enough to account for the full range of moral action. Once again, however, this did not demand constructive ethical work so much as situating new problems within the predominant theoretical frames of normative ethics, utilitarianism and deontology.<sup>118</sup> While Beauchamp had a preference for rule utilitarianism and Childress for rule deontology, they nevertheless concluded, “we find that many forms of rule utilitarianism and rule deontology lead to identical rules and actions. It is possible from both utilitarian and deontological standpoints to defend the same rules.”<sup>119</sup> The four principles, then, were not just consensus in the sense of being shared by the public, but also in that they conformed

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116 Beauchamp and Childress, *Principles of Biomedical Ethics*, 5<sup>th</sup> ed., 3.

117 Robert M. Veatch, “Is There a Common Morality?” *Kennedy Institute of Ethics Journal* 13, no. 3 (2003): 189-191.

118 Beauchamp and Childress, *Principles of Biomedical Ethics*, 5.

119 Beauchamp and Childress, *Principles of Biomedical Ethics*, 40.

to the predominant frameworks in American analytic moral philosophy. This strategic rhetorical framing of the four principles as ‘commonsense’ demonstrates a “deliberative shallowness” that protected bioethicists from charges of particularism and relativism and allowed them to claim inclusiveness as a value and the law as part of their legitimate jurisdiction.<sup>120</sup> Insofar as the bioethical framework of common morality principlism claimed to reconcile a host of philosophical oppositions – particularism and universalism, neutrality and bias, simplicity and complexity, utilitarianism and deontology – it was cast as a form of expertise uniquely fit for the governance of the biomedical future.

Of the four principles, respect for autonomy, which emphasizes the values of individual rights and self-determination, has occupied a privileged place in the matrix of bioethics. Bioethicists Renée C. Fox and Judith P. Swazey note that the nascent field attracted a sizeable number of persons who had been engaged with the civil rights, women’s rights, and anti-war movements of the 1960s and 1970s and, as a result, anti-paternalism and distrust of “establishment” institutions were guiding values in the formation of ideal relationships between physicians and their patients as well as researchers and their test subjects.<sup>121</sup> The predominance of the principle of autonomy represented a meaningful shift in the history of medical ethics. Beneficence and nonmaleficence, which were, in effect, the established values of Hippocratic ethics, became subordinated to the freedoms of the patient. It signified a shift in authority, not just from physicians to bioethicists in matters of medical ethics, but also from physicians to patients in matters of medical decision-making.

Just as important, the emphasis on individual autonomy and ‘rights talk’ formalized an

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120 Saxén, *A Cultural Giant*, 171-199.

121 Renée C. Fox and Judith P. Swazey, *Observing Bioethics* (New York: Oxford University Press, 2008), 234.

intellectual trend of decontextualization in the field: decoupling analysis of patient wellbeing from analysis of social and cultural context as well as the good of ‘the patient’ from the good of communities. Fox and Swazey read this in terms of the philosophical tension between universalism and particularism; the framework of principlism has embodied “an intellectual and moral preference for universalism, in the form of transcendent principles that ‘rise above’ the particularities of historical circumstances and traditions, and of the social and cultural context and locale.”<sup>122</sup> The result, the authors argue, has been a structural predisposition toward what French sociologist Pierre Bourdieu calls “the imperialism of the universal,” i.e., one culture “universalizing its own...particular characteristics by tacitly establishing them in a universal model.”<sup>123</sup>

Later editions of *Principles of Biomedical Ethics* would clarify that the four abstract principles are not intended to be unconditional, absolute, or eternal, nor are they to be regarded as the constituent elements of a program that can be formulaically applied to all moral decision-making. Rather the principles “provide only a framework for identifying and reflecting on moral problems” and, furthermore, rules, rights, virtues, moral ideals, and moral emotions can be understood as just as important for guiding action and a comprehensive view of moral life.<sup>124</sup> The problem for critics is that the four principles have been understood and applied in a reductionist, oversimplified, and mechanical fashion, rather than as a deliberate (and deliberative) heuristic. Bioethicist Larry Churchill, for example, contends that basic knowledge of the ‘mantra’ of autonomy, nonmaleficence, beneficence, and justice has been conflated with bioethical expertise. The four principles, he suggests, ought to be understood as one set of philosophical tools, which,

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122 Fox and Swazey, *Observing Bioethics*, 239.

123 Pierre Bourdieu, "Uniting to better dominate" *Items-Social Science Research Council* 2, no. 3-4 (2001): 3.

124 Beauchamp and Childress, *Principles of Biomedical Ethics*, 5<sup>th</sup> ed., 15.

like all tools, “imply skillful useful users and appropriate contexts of use... We cannot make up for using them poorly by claiming that they have some special status in and of themselves.”<sup>125</sup> The problem for Churchill and likeminded critics, then, “is not the principles per se,” but rather their “theoretical hegemony.”<sup>126</sup> In spite of such criticisms, as well as widespread calls for other ethical approaches in the field, principlism has persisted as the *lingua franca* of bioethicists and the guiding framework for policy advice, academic training, and institutional research.<sup>127</sup>

Rather than addressing whether principlism is useful or coherent, a number of historians and sociologists have begun to address the question of *why* principlism became predominant in the first place. Evans’ approach is representative in this regard. “I do not assume,” he explains, “that ethical systems such as principlism become influential because they are ‘the best’ or ‘correct,’ but rather because the social conditions were right for the promoters of principlism to defeat those who had competing ideas.”<sup>128</sup> Focusing on bioethics’ professional legitimization through public policy, he argues that, “the rise of principlism in bioethics was not because of its inherent excellence, but was rather the result of the rise of the government official as the jurisdiction-giver in the research bioethics and public policy bioethics task-spaces.”<sup>129</sup> Here we return to his Weberian framework of formal rationalization. Evans understands principlism as both a form of commensuration (i.e., a method of “measuring different properties normally represented by different units with a single,

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125 Larry Churchill, *Self-Interest and Universal Health Care: Why Well-Insured Americans Should Support Coverage for Everyone* (Cambridge, M.A.: Harvard University Press, 1994), 321-322.

126 Churchill, *Self-Interest and Universal Health Care*, 321-322.

127 For some of the earliest criticisms of principlism, see: Robert M. Veatch, *A Theory of Medical Ethics* (New York: Basic Books, 1981). Tristram H. Engelhardt, *The Foundations of Bioethics* (New York: Oxford University Press, 1986). Edwin R. DuBose, et.al, ed., *A Matter of Principles?: Ferment in U.S. Bioethics* (Valley Forge, P.A.: Trinity Press International, 1994).

128 John H. Evans, *The History and Future of Bioethics: A Sociological View* (New York: Oxford University Press, 2012), 48.

129 Evans, *The History and Future of Bioethics*, 48.

common standard or unit”) and a form of transmutation (i.e., where information (values) that does not conform to a common standard (principles) are discarded).<sup>130</sup> Principlism simplified the otherwise too-complex discursive field of biomedical ethics – making it calculable and predictable – so that it could be used to formalize protocols and procedures in public policy, research review, and healthcare administration.

I want to underline two important implications of Evans’ argument here. First, it is not merely that bioethics has influenced public policy, but rather that American law created the structural conditions through which bioethics was established as a discipline and profession. In discussing the relationship between law and bioethics, lawyer George Annas states that, “American law, not philosophy or medicine, is primarily responsible for the agenda, development, and current state of American bioethics.”<sup>131</sup> Taking a more critical view than Annas, physician Carl Elliott explains that bioethics has “given us a picture of morality as somehow like the law in structure— for example, as a set of rules that govern interactions between strangers. This picture of morality,” he concedes, “may work adequately as long as we are in fact talking about interactions between strangers, especially strangers whose relationship is adversarial. But it overlooks the kinds of questions that are crucial to morality, and it distorts many others.”<sup>132</sup>

While the reach of bioethics in American law has increased exponentially since the period I have been focusing on (1970-1985), we can nevertheless see the Commission for the Protection of Human Subjects as creating a legislative precedent for bioethicists’ function. Since this first Commission, almost all ensuing presidential administrations have appointed their own federal

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130 Evans, *The History and Future of Bioethics*, 51-53.

131 George J. Annas, *Standard of Care: The Law of American Bioethics* (New York: Oxford University Press, 1993), 3.

132 Carl Elliott, *A Philosophical Disease: Bioethics, Culture, and Identity* (New York: Routledge, 1999), xxviii.

bioethics committees. Bioethicist Alexander Caplan explains that, rather than possessing delegated lawmaking functions, these commissions are *ad hoc* panels convened to provide policy advice on a particular subject. The work of these commissions tends to be synthetic in nature: clarifying the relevant biomedical issues, drawing together the ‘best’ current thinking on those issues, and formulating a new consensus for bioethicists and policymakers. In spite of their limited legislative power, Caplan claims that these commissions are nevertheless given “legitimate authority” by virtue of their unique public visibility and “official” status as government bodies.<sup>133</sup> Through these commissions, we can see that demands of American law still play an important structural role in determining the topics and frameworks that shape mainstream bioethics as well as in authorizing bioethics as a profession with particular kinds of social and political power.

The second implication is what Evans describes as the “thinning” of public bioethical discourse and the corresponding ‘theological retreat’ in terms of the actors authorized to participate in that discourse. Even though several theologians (or at least experts with theological backgrounds) acted as commissioners, the *Belmont Report* and its framework of principlism set a precedent for the forms of argumentation deemed appropriate in public bioethics. With the establishment of the four common moral principles, theological concerns, particularly concerns regarding ultimate ends and values, ceased to be considered appropriate unless they could be translated (or, more accurately, transmuted) into the language of autonomy, nonmaleficence, beneficence, and justice. Public bioethical discourses focused on questions of ‘utility’ – i.e., how to maximize the (purportedly) consensus four principles – rather than continuing to reevaluate the principles themselves.

We can see a representative example of this in 1980, when leaders from the National

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133 Alexander Morgan Capron, “Governmental Bioethics Commissions: The Nature of the Beast” in *Biomedical Ethics: A Multidisciplinary Approach to Moral Issues in Medicine and Biology*, ed. David Steinberg (Hanover, MA: University Press of New England, 2007), 326-329.

Council of Churches, the Synagogue Council of America, and the U.S. Catholic Conference co-authored a letter to President Jimmy Carter concerning HGE. The letter claimed that genetic engineering was tantamount to “playing God” and that its development would threaten “the fundamental nature of human life and the dignity and worth of the individual human being.”<sup>134</sup> “Who,” they asked, “shall determine how human good is best served when new life forms are being engineered.”<sup>135</sup> In response, President Carter turned to the President’s Commission for the Study of Ethical Problems in Medicine and Biomedical Behavioral Research under the direction of bioethicist Albert Jonsen for guidance. The Commission’s report, *Splicing Life* (1983), however, declared that the playing God critique offered only “vague” theoretical concerns rather than “concrete” practical ones and that concerns over playing God were outside the scope of consideration for public policy commissions.<sup>136</sup> To the extent that *Splicing Life* did address the playing God critique, it translated substantive theological concerns about the ends of biotechnologies into a simple and incoherent concern for protecting nature (understood as the other of human culture) and contended that genetic engineering was no more “unnatural” than other biomedical means.<sup>137</sup>

The *Splicing Life* report was in step with the ‘thinning’ of gene-editing ethics that had been formalized a decade earlier at the (in)famous 1975 Asilomar Conference on Recombinant DNA.

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134 Albert R. Jonsen, *Bioethics Beyond the Headlines: Who Lives? Who Dies? Who Decides?* (Lanham, MA: Rowman and Littlefield Publishers, Inc., 2005), 107.

135 President’s Commission for the Study of Ethical Problems in Medicine and Biomedical Behavioral Research, *Splicing Life: A Report on the Social and Ethical Issues of Genetic Engineering with Human Beings* (Washington, D.C.: Government Printing Office, 1983), appendix B.

136 Evans, *Playing God?*, 99-134.

137 “Translation” here refers to the reformulation and thinning of substantive arguments into “what has been set as the commensurable, universal (and numerically limited) ends of society, so that the bureaucratic state or any other formally rational institution, such as a business or a hospital, can make legitimate decisions without directly consulting the public.” Under the guise of “clarification,” this discursive process determines which concerns ought to be considered legitimate for the field of bioethics. Evans, *Playing God?*, 92.

As new techniques for modifying DNA emerged in the early 1970s, a number of biomedical researchers called for a voluntary moratorium on recombinant DNA practices. In response, a group of elite biologists and scientific experts convened in Asilomar, California to deliberate on self-imposed ethical guidelines for biological experimentation. As J. Benjamin Hurlbut explains though, these deliberations were, much like the earliest bioethics' government commissions, limited in scope, focusing on technical questions of risk assessment and refusing to engage with deeper social and ethical questions regarding how new genetic technologies might be used and to what end. Streamlining the process of self-regulation through focusing on research protocols and public-facing communiqués, the scientific community viewed the conference as a major success in quelling public anxieties about molecular genomics.<sup>138</sup>

But more than just 'thinning' the discourse, the Asilomar Conference normalized a top-down structural relationship between scientists and the public. "If risk could be contained within the laboratory and the manipulated organisms, why should the wider public have any say?"<sup>139</sup> Scientists were, according to themselves at least, capable of self-regulation and their principal responsibility to the public was transparency and openness – the transmission of knowledge – rather than inclusion of outside parties in the decision-making process. As Hurlbut rightly contends, the foundational work done at Asilomar Beach placed certain discursive and imaginative limitations on public bioethics so that "society is not in a position to judge the ethical significance of scientific projects until scientists can declare with certainty what is realistic: in effect, until the imagined scenarios are already upon us."<sup>140</sup> Insofar as scientists and technologists were

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138 J. Benjamin Hurlbut, "Limits of Responsibility: Genome Editing, Asilomar, and the Politics of Deliberation" *The Hastings Center Report* 45, no. 5 (2015): 11-14.

139 Hurlbut, "Limits of Responsibility," 11.

140 Hurlbut, "Limits of Responsibility," 12.

determining what warranted public attention, democratic governance of scientific and technological advancement was rendered “perpetually reactive.”

In the next chapter, we will see that, even though principlism still remains the *de facto* intellectual framework in bioethics, substantive concerns such as those expressed in the letter to President Carter have been returning to the mainstream of the field through the human enhancement debate. Likewise, the enhancement debate represents a far more proactive approach to bioethics than the one developed at Asilomar and elaborated in bioethics’ earliest disciplinary formations. While principlism has been a detriment to more thoroughgoing examinations of ethical and ontological issues, then, it has not sounded a death knell on the forms of substantive debate seen in the 1960s. Indeed, the further we get from the original historical moment of bioethical professionalization, the more reason we have to question whether principlism erased substantive rationality as a condition of professionalization or merely temporarily concealed it. And if it is indeed the latter, we must also question: what historical changes have afforded a return of the repressed?

We can find one important clue in the conceptual framework of “normalization” explicated in bioethicist Norman Daniels’ work on healthcare and justice. In his influential and controversial *Just Health Care* (1985), Daniels argued that asserting a basic right to healthcare does not alone help us make decisions about the allocation of healthcare and resources. Instead, he contended that we can ground a position on societies’ obligation to provide equal access to health services within a general theory of distributive justice. Daniels explained that healthcare is a “special good” because of the role it plays in meeting needs we possess at each stage of our lives. He characterized these “objectively important” needs as the basic health-related conditions necessary for “normal species functioning.” Building on the Rawlsian tradition, he defined normal functioning as the

range of opportunity within which an individual may construct and pursue his or her conception of the good. Given the universal interest in maintaining a normal range of opportunity over the course of life, Daniels concluded that individuals have a fundamental interest in establishing basic healthcare institutions to support that end. Using Rawls' fair equality of opportunity principle, he further explained that the just allocation of health care resources can, in turn, be determined based on "fair" rather than equal distribution. Given that, for example, the natural disadvantages of disease and disability enforce more severe restrictions on normal functioning, it follows that individuals with disease and disability are entitled to a greater share of healthcare resources.<sup>141</sup>

The most important contribution of Daniels' ethical framework for our purposes is the introduction of "normal functioning" into the mainstream bioethical lexicon. There is no shortage of critical literature demonstrating how social norms structurally inform meanings of 'health' in the medical sciences – often to the detriment of marginalized individuals and communities.<sup>142</sup> While Daniels' Rawlsian conception is far more philosophical than scientific, it nevertheless contributed to the proliferation of a biomedical and species-level discourse of normalization in the emergent field of bioethics. Normal species functioning was, in turn, used as the conceptual basis to define human enhancement in oppositional terms. If the concept of normal functioning afforded a universal norm and ethical end for thinking about disease and disability, bioethicists would soon begin to question where non-therapeutic technologies and techniques fit into theories of distributive justice and respect for autonomy. While Daniels' work can, in retrospect, be seen as quite traditional in its use of universalist principlism and its repurposing of Rawls, it was

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141 Daniels, *Just Health Care*, 1-74.

142 This has been especially true for feminist and disability bioethics. See, for example, Jackie Leach Scully, et al, ed. *Feminist Bioethics: At the Center, on the Margins* (Baltimore, M.D.: Johns Hopkins University Press, 2010). Jackie Leach Scully, *Disability Bioethics: Moral Bodies, Moral Difference* (Lanham: Rowman & Littlefield, 2008).

nevertheless an important intellectual bridge in expanding the limits of bioethical expertise and jurisdiction.

#### **1.4 From Normalization To Customization (1985-Present)**

The period of explosive growth in medical technologies that began in 1950s and 1960s reached new heights in the 1980s, initiating large-scale structural transformation in the biomedical sector. Sociologist Adele Clarke characterizes the period from the Second World War to the mid-1980s as one of “medicalization,” i.e., the process through which aspects of life previously outside the jurisdiction of medicine become construed as medical problems. Clarke, however, contends that techno-scientific changes in biomedicine in the past three decades are coalescing into a second social transformation. Not only is the process of medicalization intensifying (e.g., the U.S. health sector has more than tripled in size since the Second World War), but it is also being reconstituted in new, complex, and techno-scientifically enmeshed ways. Medical information technologies and the networking and integration of hospitals, clinics, and insurance companies in particular are transforming institutional sites of healthcare knowledge-production, distribution, and information management. Clinical innovations are central to this process insofar as transformations in diagnostics, treatments, and procedures from bioengineering, genomics, proteomics, computer-based visualization, computer-assisted drug development, and telemedicine are changing the very nature of medical practice. These “meso-level” institutional changes, Clarke claims, are reaching a critical mass in the structural shift to “biomedicalization,” i.e., a “regime of truth” in which “biomedicine has become a potent lens through which we culturally interpret, understand, and seek to transform bodies and lives.”<sup>143</sup>

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143 Adele E. Clarke, et. al, “Biomedicalization: Technoscientific Transformations of Health, Illness, and U.S. Biomedicine” *American Sociological Review* 68, no. 2 (2003): 163.

Biomedicalization signals the extension of medical jurisdiction over life itself and the concomitant commodification of health. “Health itself and the proper management of chronic illnesses,” Clarke explains, “are becoming individual moral responsibilities to be fulfilled through improved access to knowledge, self-surveillance, prevention, risk assessment, the treatment of risk, and the consumption of appropriate self-help/biomedical goods and services.”<sup>144</sup> Under biomedicalization, health becomes an individual goal, a social and moral responsibility, and a site for routine biomedical intervention. Rather than illness, disability, or disease being viewed as matters of fate, health is viewed as a matter of ongoing moral self-transformation. In other words, under the regime of molecularization, the body is no longer viewed as immutable or the focus of regulation, but rather as capable of being reconfigured for specific purposes or identities. This has manifested in two future-oriented discourses emerging at the center of biomedicine: susceptibility and enhancement.

Susceptibility refers to the discursive prominence of risk factors and self-surveillance. “Risks are calculated and assessed in order to rationalize surveillance, and through surveillance risks are conceptualized and standardized into ever more precise calculations and algorithms.”<sup>145</sup> These aspects of biomedicalization are, according to Clarke, quintessentially Foucauldian insofar as they represent a medical gaze directed toward the disciplining of bodies. Rather than being contained to specific spaces (e.g., hospitals or clinics) or relationships (e.g., doctor-patient relationships), “they implicate each of us *and* whole populations through constructions of risk factors, elaborated daily life techniques of self-surveillance, and the management of complicated regiments around risk and chronic conditions.”<sup>146</sup> There is a “problematization of the normal” so

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144 Clarke et. al, “Biomedicalization,” 162.

145 Clarke et. al, “Biomedicalization,” 172.

146 Clarke et. al, “Biomedicalization,” 172.

that one does not need to manifest symptoms to be considered “at risk.” We are always already at risk; it is simply a matter of degree. We therefore inhabit liminal spaces between illness and health, leading to the emergence of the “worried well” or “pre-patients,” which renders subjects prepared for and receptive to health-related discourses, commodities, and practices. Biomedicalization is thus manifested through the everyday practices of health care designed to minimize, manage, and treat risk and the taking up of risk-based individual and collective identities, e.g., “low risk” or “high risk” statuses based on epidemiological, genetic, and other quantifiable predispositions to illness.

Enhancement, on the other hand, refers to a shift from the discourse of normalization to customization, i.e., ‘rhetorics of choice’ in spaces such as cosmetic surgery, reproductive technologies, gene therapies, and neuro-pharmaceuticals, which focus on producing “better bodies” or making individuals ‘better than well’. Rose expounds,

previously, expert medical interventions were utilized in order to cure pathologies, to rectify generally accepted deviations from desirable functioning or to promote biopolitical strategies through lifestyle modification. Now recipients of these interventions are consumers, making access choices on the bases of desires that can appear trivial, narcissistic, or irrational, shaped not by medical necessity but by the market and consumer culture.<sup>147</sup>

Anthropologist Sarah Franklin captures the larger symbolic meaning of this shift in arguing that we have entered into an age of “biological control.” “This means we can no longer assume that the biological ‘itself’ will impose limits on human ambition. As a result, humans must accept much greater responsibility toward the realm of the biological, which has, in a sense, become a wholly contingent condition.”<sup>148</sup>

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<sup>147</sup> Rose, *Politics of Life Itself*, 32.

<sup>148</sup> Sarah Franklin, “Ethical Biocapital: New Strategies of Cell Culture” in *Remaking Life & Death: Toward an Anthropology of the Biosciences*, ed., Sarah Franklin and Margaret Lock (Santa Fe, N.M.: School of American Research Press, 2003), 100.

This widespread sense of “biological control” owes much to the increasing national media coverage of bioethical issues in the past three decades. From newspapers and magazines to television talk shows to Internet campaigns, science has gone public in unprecedented fashion. This is true not just in the normalization and moralization of everyday health and illness described by Clarke, but also in the formation of flashpoint bioethical controversies. We can find familiar examples of this in beginning- and end-of-life controversies such as the “Baby Doe” law in the early 1980s or the case of Terri Schiavo in the early 2000s.<sup>149</sup>

Since the mid-1990s, however, this trend of publicization has been just as prominent for bioethical issues focusing on human enhancement. There may be no more prominent example than the successful cloning of Dolly the Sheep by Scottish scientists at the Roslin Institute in Edinburgh in 1997. The cardinal issue raised by Dolly’s birth was that the same technique, somatic cell nuclear transfer, could, in principle, be used to clone human beings (or rather human embryos). The announcement of Dolly’s birth in *Nature* on February 27, 1997 unleashed a global torrent of print and electronic media coverage, with experts ranging from theology to law to biology offering commentary on the ethical implications of the suddenly real possibility of human cloning.<sup>150</sup> As

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149 The Baby Doe Law refers to a 1984 amendment to the Child Abuse Prevention and Treatment Act of 1974, which mandates that states receiving federal money must report medical neglect, including the withholding of treatment unless a baby “virtually futile.” This law was passed in response to numerous widely publicized cases of parents choosing to withhold standard medical treatment for disabled newborns, leading to their death.

Christopher Hoving, “The ‘Baby Doe’ Cases” *ABA Journal*, 72 (1986): 50–53. Kathryn Moss, “The ‘Baby Doe’ Legislation: Its Rise and Fall” *Policy Studies Journal* 15 (1987): 629–651.

Terry Schiavo was a woman from Florida who had been an irreversible persistent vegetative state for eight years. Her case involved a highly publicized legal battle between her husband, who wanted to *de facto* euthanize Schiavo through removing artificial life support, and Schiavo’s parents, who wanted to continue artificial nutrition and hydration. After more than seven years of legal challenges, Schiavo’s feeding tube was finally removed in 2005.

Arthur L., Caplan et. al, ed., *The Case of Terri Schiavo: Ethics at the End of Life* (Amherst, NY: Prometheus Books, 2006).

150 I. Wilmut et. al, “Viable Offspring Derived from Fetal and Adult Mammalian Cells” *Nature* 385, no. 6619 (1997): 810-813.

bioethicist Arthur Caplan puts it, “So what was the ethical reaction to Dolly? An announcement was made and the world went crazy.”<sup>151</sup>

These commentaries on cloning propagated the belief that limitless biological control was imminent. Callahan notes that cloning functioned as “one of the symbolic issues of what was, at that time, called ‘the new biology.’”<sup>152</sup> Biologist Lee Silver, who authored a book on cloning later that year, *Remaking Eden*, described the birth of Dolly as “unbelievable...It basically means that there are no limits. It means all of science fiction is true.”<sup>153</sup> While some scientists were critical of such sensationalist characterizations, viewing them as hyperbolic and fearing their regulatory and funding effects on future research, the predominant position was an expectation of limitless technological growth, for better or worse. Medical ethicist Ronald Munson, for example, commented that, “The genie is out of the bottle...this technology is not, in principle, policeable.”<sup>154</sup> Dolly, much like the later completion of the Human Genome Project in 2003 and the invention of CRISPR-Cas9 in 2012, blurred the line between fiction and possibility and popularized the notion of human biology as pure contingency to the American public and bioethicists alike. The public discourse surrounding Dolly, in turn, helped normalize and legitimize future-facing bioethics such as human enhancement literature. The *Brave New World* of Aldous Huxley was upon us and bioethicists were to be both its apostles and heretics.

Dolly is a representative example of how biological control has become a site of moral panic in recent decades.<sup>155</sup> News stories in the wake of Dolly focused not so much on Dolly herself

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151 Arthur L. Caplan, “What if anything is wrong with cloning a human being?” *Case Western Reserve Journal of International Law* 35, no. 3 (2003): 375.

152 Daniel Callahan, “Cloning: Then and Now” *Cambridge Quarterly of Healthcare Ethics* 7, no. 2 (1998): 141.

153 Gena Kolata, “Scientist Reports First Cloning Ever of Adult Mammal,” *New York Times*, February 23, 1997, 1.

154 Gena Kolata, “Scientist Reports First Cloning Ever of Adult Mammal,” 1.

155 A moral panic is “a social episode that contains the following elements: substantial concern about a threat or putative threat; hostility toward a deviant or folk devil; a degree of consensus among the public, or sectors of the

but the ethics of the apparently realistic possibility of human cloning. Fox and Swazey explain that, “commentators were unanimous in their condemnation of using the somatic cell nuclear transfer technique for human cloning on ethical, religious, and legal grounds” and that even the leader of the Edinburgh team, Sir Ian Wilmut, called cloning humans “repugnant” and emphasized that he and his colleagues “would all find it ethically unacceptable.”<sup>156</sup> This sense of moral concern was exacerbated by media outlets, which used sensational headlines and selective quotations to stoke the anxieties of the public, suggesting that Dolly portended futures ranging from self-perpetuating dictatorships to the commodification of children to the loss of individuality and dignity. The following year, bioethicist P.D. Hopkins wrote about the panic: “Without having read a single article, heard a single presentation or taken a single bioethics class, most Americans have already received training in the ethics of cloning.”<sup>157</sup> If the birth of Dolly produced public confidence in the limitless power of science, it also produced an immediate ethical condemnation of that power and attendant calls for strict regulation.

The moral panic surrounding Dolly thus also signaled the increasing power of the national media and the U.S. public in determining bioethical concerns and regulation. Within a week of the announcement of Dolly, President Clinton issued a memorandum on the prohibition of federal funding for cloning human beings, which clarified that no federal funds would be used for research on human cloning (formalized as an executive order in the ensuing weeks) and, based on the

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public, that the threat is real and caused by designated deviants; disproportion between the threat and the concern; and volatility in the concern—a substantial rise and fall in its intensity over time.” Erich Goode et. al, “Moral Panic” in *Routledge Handbook of Deviant Behavior*, ed., Clifton D. Bryant (London: Routledge, 2011), 46.

“the outbreak of moral concern over a supposed threat from an agent of corruption that is out of proportion to its actual danger or potential harm...the threats named may be genuine—but such claims are by definition exaggerated concerning the seriousness, extent, typicality, direction, or inevitability of alleged harm or danger”

156 Quoted in Fox and Swazey, *Observing Bioethics*, 138.

157 Patrick D. Hopkins, “Bad Copies: How Popular Media Represent Cloning as an Ethical Problem” *The Hastings Center Report* 28, no. 2 (1998): 6.

recommendation of the National Bioethics Advisory Commission, sought (but failed) to pass a bill banning human cloning in 1998.<sup>158</sup> As we will see below, this was a period in which much of bioethical jurisdiction was transferred from ‘experts’ to social and political activists. For the moment, however, I merely want to emphasize the immediacy and intensity of the reaction to Dolly. In doing so, we see evidence of Jonsen’s contention that: “The public discourse provides the subject matter for the discipline of bioethics: while we often point to the new science and technology as the cause of bioethics, it is actually the discourse about the uses of science and technology—the differing views and values about human life that inform individual and social judgment about those innovations—that gives rise to bioethics.”<sup>159</sup> While, like all moral panics, the intense concern with Dolly would pass in a matter of years, the more general ethical concern for biological control it exemplified has become a recurrent theme in both media coverage of science and the field of bioethics.

To fully understand the moral panic surrounding Dolly, however, we must also examine a concurrent shift in public bioethical discourse: the culture wars. While common-moral principlism continued to be the predominant ethical framework in professional bioethics in the 1980s, its public appeal in the U.S. context began to wane. This was, in part, the result of the emergence of the religious right in the political sphere. As the religious right built up political machineries for influencing public policy in the form of think tanks and social-movement organizations such as the Christian Coalition, Concerned Women for America, and Focus on the Family, and became a core constituent of the National Republican Party, the jurisdiction and methods of bioethicists for

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158 J. Benjamin Hurlbut, *Experiments in Democracy: Human Embryo Research the Politics of Bioethics* (New York: Columbia University Press, 2017), 139-147.

159 Jonsen, *The Birth of Bioethics*, 372.

determining policies concerning beginning- and end-of-life issues came under increasing scrutiny.<sup>160</sup>

Embryonic research in particular was a flash point in the emerging bioethical culture wars. The first bioethics commission focusing on embryonic research was the Ethics Advisory Board of the Department of Health, Education and Welfare (1978-1980), which was designed to advise the department on “problematic protocols” and drafted a report called “research involving human in vitro fertilization and embryo transfer” that recommended that embryo research be allowed up to fourteen days after fertilization. The release of the report led to almost 13,000 letters opposing in vitro fertilization (IVF) research, most of which were the result of right-to-life social movement organizations that the Roman Catholic Church either created or collaborated with. Neither the report nor the commission ended up having a substantial effect on policy, in large part because of the outspoken opposition from the political right. Indeed, conservative opposition would lead to subsequent *de facto* or formal moratoriums on embryonic research until the NIH returned to democratic hands under President Clinton in 1992.<sup>161</sup>

The debate concerning embryonic research is a representative example of several structural trends that have emerged in public bioethics since the mid-1980s. The first is a gradual diminishing of bioethicists’ jurisdiction in the political sphere. Wherever the religious right has contested the findings of government commissions, e.g., allowances for IVF and euthanasia, the ethical recommendations of those commissions have struggled to be implemented. This has, in part, been the result of growing skepticism towards the established methods and expertise of professional

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160 Seth Dowland, “‘Family Values’ and the Formation of a Christian Right Agenda” *Church History* 78, no. 3 (2009): 606-631.

161 Ronald M. Green, *The Human Embryo Research Debates: Bioethics in the Vortex of Controversy* (New York: Oxford University Press, 2001) 107-131.

bioethicists. For example, in deciding whether Congress should establish a new Ethics Advisory Board for recommending policy on embryonic research, Illinois' Republican representative Dennis Hastert argued,

So actually we have a board of people who are quote unquote 'experts'... and they're actually making moral decisions from a wide spectrum—even at this table we have quite a divergent view of what's right and wrong—but somebody in the place of the legislator... would be making those decisions on whether this in vitro fertilization... for the purpose of experimentation should take place or should not take place.<sup>162</sup>

Rather than just representing a general political skepticisms towards 'expertise', this frequent line of criticism implicitly takes aim at the fundamental premise of common moral principlism: that bioethicists can identify and channel the consensus ethical values of the American public. This premise became *prima facie* untenable in the face of the outspoken pro-life social and political activism that opposed the 'consensus' recommendations of bioethics commissions. The lack of success of these commissions in getting policies implemented can, in turn, be seen as evidence of a partial transfer of bioethical jurisdiction in the political sphere from professionals to social-movement activists.<sup>163</sup>

Rather than just a political contest between bioethicists and their others, however, the field of bioethics has internalized the culture wars with ethical positions being reconstituted along "bioliberal" and "bioconservative" lines. If the politicization of bioethics began with the maturation and expansion of the American conservative movement, it has now become reciprocal with it being "common for bioethicists to be identified as liberals or conservatives by each other."<sup>164</sup> The contest between conservative and liberal bioethicists, however, has not focused on

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162 Quoted in Hurlbut, *Experiments in Democracy*, 100.

163 Evans, *The History and Future of Bioethics*, 76-96.

164 Daniel Callahan, "Bioethics and the Culture Wars" *Cambridge Quarterly of Healthcare Ethics* 14, no. 4 (2005): 428.

the entire gamut of issues associated with the culture wars on a national scale. For example, feminism, homosexuality, gay rights, evolution, and even climate change have tended to fall outside the scope of politicized bioethical discourse. Instead, controversies have focused on a more narrow range of biomedical instrumentalities associated with the beginning and end of life: embryonic research, reproductive cloning, germ-line genetic engineering, and engineered senescence.

While bioliberals take up a permissive approach in this context, arguing that biotechnologies are a means to, and even necessary for, ensuring future human flourishing, bioconservatives take up a restrictive approach, arguing that biotechnologies will lead to ‘inhuman’ and amoral futures.<sup>165</sup> Lawyer and bioethicist R. Alta Charo explains that this cultural divide is one that exists “between those who celebrate the transformative power of science” and those who “fear” its transformations will be too “profound.”<sup>166</sup> She also, however, suggests that fear can be understood as a decisive motivator for both biopolitical positions. If bioconservatives fear the individual and social changes wrought by new technologies, bioliberals are “most fearful of the oppressive overreaching of a government bent on controlling those changes.”<sup>167</sup> She further explains that this debate is one that has been brewing for years in bioethics, but has now more explicitly joined “a debate over political philosophy and the role of government in moral regulations,” that, in her view, is as much about the “ethics of governance” as “the ethics of biology or medicine.”<sup>168</sup> While Charo is right that the ethics of regulation are at the forefront of these

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165 Alberto Giubilini and Sagar Sanyal, “The Ethics of Human Enhancement.” *Philosophy Compass* 10, no. 4 (2015): 233-423.

166 R. Alta Charo, “Passing on the Right: Conservative Bioethics Is Closer than It Appears” *Journal of Law, Medicine & Ethics* 32, no. 2 (2004): 311-312.

167 Charo, “Passing on the Right,” 311-312.

168 Charo, “Passing on the Right,” 311-312.

debates, I will, in Chapter Two, contend that these questions of regulation are best understood as extensions of more fundamental, ontological disagreements concerning what constitutes human nature.

I should clarify that the culture wars in bioethics do not map neatly onto traditional left-right political values. Conservatives sometimes include leftists concerned with social justice and environmentalism and liberals tend to lean libertarian. Take, for example, Carl Elliott, an outspoken critic of pharmaceutical enhancement.

My worry is that we will ignore important human needs at the expense of frivolous human desires; that dominant social norms will crowd out those of the minority; the self-improvement agenda will be set not by individuals, but by powerful corporate interests, and that in the pursuit of betterment, we will actually make ourselves worse off.

We live in a country where 46 million uninsured people cannot get basic medical care, while the rest of us spend a billion dollars a year on baldness remedies. It is not just the inequity here that is so impressive. It is the fact that we have gotten so accustomed to the inequity that we do not see it as obscene.<sup>169</sup>

In recognizing the role of corporate interests in the “self-improvement agenda,” Elliott is able to characterize regulation as a means of protecting rather than inhibiting individual freedoms and interests. And while his focus on minority populations, social justice, distributive healthcare, and individual interests might all be thought of as liberal, he is nevertheless cast as a conservative due to his inhibitions about unregulated pharmaceutical enhancements.

In contrast, bioliberalism has often been represented as the *de facto* position of “mainstream” bioethicists. Callahan, for example, claims that mainstream bioethics has “taken on a liberal cast” in that the “reigning values in the field [have become] those of liberal individualism,” i.e., “autonomy” coupled with “a strong antipathy to comprehensive notions of the common

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169 Arthur Caplan and Carl Elliott, “Is It Ethical to Use Enhancement Technologies to Make Us Better than Well?” *PLoS Medicine* 1, no. 3 (2004): 52.

good...closely followed by justice.” The “convergence of the liberal value of maximizing individual choice in matters bioethical and of the libertarian commitment to the market,” he further explains, has produced widespread support for “biomedical progress with few constraints” and “led to a systematic marginalization of religious and conservative perspectives.”<sup>170</sup> This mode of bioliberal thinking has been even further heightened by the recent emergence of far-left techno-enthusiasts such as Nick Bostrom and James Hughes, who make much of the liberal mainstream seem moderate by comparison. Indeed, transhumanists, who view techno-science as a literal means of salvation, and mainstream bioethicists, who espouse a ‘principled’ and cautious optimism, are somewhat odd bedfellows under the liberal moniker.

If the mainstream of bioethics still leans liberal, there is nevertheless a strong conservative cohort of bioethicists that has made its political presence felt in the past three decades. As we will see in Chapters Two and Three, the most representative example of this is the appointment of the President’s Council on Bioethics under the George W. Bush administration. The Council’s conservative positioning was most evident through its consistent recommendations against scientific research on issues ranging from embryo research to human cloning to prescription pharmaceuticals. While this critical attitude toward science represents a shift in bioethical attitudes, the emergence of conservative bioethicists speaks to two more profound shifts in the field at large, both of which have challenged the premises of common moral principlism.

First, the Council did not strive for consensus as such. The chair of the Council, Leon Kass, for example, argued that, “There are only two ways to get consensus in such a public body...Either stack the council, losing all credibility, or seek agreement on the lowest common denominator issues—e.g., human cloning is ‘at this time’ unsafe—leaving all the big questions for some other

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170 Callahan, “Bioethics and the Culture Wars,” 427-428.

body.”<sup>171</sup> Kass and other conservatives believed that the desire for consensus had thinned the substance of bioethical debate, eschewing value diversity in favor of process, procedure, and applied norms. In an ironic twist, it was liberals who had failed to uphold the value of inclusive diversity, privileging demographic diversity rather than value diversity – race and gender rather than religion and profession – and, in doing so, excluded major political constituencies such as pro-life activists. For example, Kass responded to liberal critics by claiming that his commission was “the most intellectually diverse national bioethics council in recent history when it comes to embryo research—and, I would submit, also to most other things...by political leaning we are liberals and conservatives, Republicans, Democrats, and independents; and by religion we are Protestants, Catholics, Jews, and perhaps some who are none of the above.”<sup>172</sup> Indeed, the membership of the Council was more diverse than critics suggested, though their published reports belie this fact, both because of their consistent conservative recommendations and their own universalistic rhetoric.

In articulating the deep divides in ethical values among both bioethicists and the American public, Kass brought to the fore the second structural transformation resulting from the cultural wars: the end of what bioethicist Jonathan Moreno describes as “the Great Bioethics Compromise,” which consisted of an “implicit agreement” based on a “consensus philosophy” that “allowed deep divisions about certain issues...to be courteously ignored.”<sup>173</sup> While Kass, maybe more than most, has promoted dialogue across the aisle, both academic and public bioethics has become an increasingly partisan affair as “the terms ‘liberal’ and conservative’ have become recriminatory

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171 Leon Kass, “Reflections on Public Bioethics: A View from the Trenches” *Kennedy Institute of Ethics Journal* 15, no. 3 (2005): 227.

172 Kass, “Reflections on Public Bioethics,” 225-227.

173 Jonathan D. Moreno, “The End of the Great Bioethics Compromise” *The Hastings Center Report* 35, no. 1 (2005): 14.

labels, rather than nonpolemical descriptors of differences in political philosophy and perspective.”<sup>174</sup>

This partisanship has been lamented by a number of prominent bioethicists such as Moreno who suggest that “whether and how we can keep talking to each other during the next years may define the outcome of what may justly be characterized as a crisis of identity and perhaps the survival of bioethics as we know it.”<sup>175</sup> In its more naïve interpretations, this has been understood as the *introduction* of “ideology” into bioethics, as if prior government commissions and their method of common moral principlism functioned as ideologically neutral formations. In Chapters Three and Four, we will see how this desire for ‘ideologically neutral’ expertise, like ‘consensus’, is not only a core commitment of American secularism but also manifests explicitly in bioethical, and in particular enhancement-related, discourses of secularity and secularization.

For now, I want to emphasize that the appearance of the intrusion of ideological content signaled a return of substantively rational discourse in public bioethics. Kass’s critique of the thinning of bioethics concerned not just the exclusion of diverse value constituencies, but also the elision of fundamental questions of scientific and technological ends:

In brief, our first charge is a mandate to raise questions not only about the best means to certain agreed-upon ends, but also about the worthiness of the ends themselves, a mandate to be clear about all of the human goods at stake that we seek to promote or defend. It is a call to restore to public bioethics the concerns that gave rise to the field in the late 1960s and early 1970s: Where is biotechnology taking us? What does this mean for our humanity?...We are charged once again to thicken and enrich public bioethics discourse, away from the more limited, explicitly practical approaches adopted by the collaboration of scientists/physicians and professional bioethicists through the work of previous national commissions and regulatory bodies.<sup>176</sup>

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174 Fox and Swazey, *Observing Bioethics*, 420.

175 Moreno, “The End of the Great Bioethics Compromise,” 15.

176 Kass, “Reflections on Public Bioethics,” 224-225.

To this end, the President’s Council helped introduce alternative ethical concepts, modes of reasoning, and styles of rhetoric into the bioethical lexicon. The concept of “human dignity” is representative in this regard, functioning as an oft-used moral trump card and even receiving its own report in 2008, *Human Dignity and Bioethics*. While the concept is often used to mark an ambiguous ‘natural’ good threatened by scientific and technological innovation, bioethicist Eric Cohen points us to a more important implication, i.e., that human dignity is an “ontological” concept, intrinsic to “what it means to have a human life and to be a human person.”<sup>177</sup> In refusing consensus pre-established bioethical ends, Kass and other conservatives have helped re-open ontological discussions concerning what it does and should mean to be human that had, to use Moreno’s words, been courteously ignored since the mid-1970s.

If “bioconservative” and “bioliberal” are capacious and ambiguous labels, I want to suggest that they are still useful heuristics for analyzing the enhancement debate for three reasons. First, bioethicists increasingly identify themselves and their opponents according to these labels; in other words, bioliberal and bioconservative reflect how the relevant actors understand their own positions. Second, this distinction helps us identify substantive differences in the ethical frameworks, modes of reasoning, and styles of rhetoric between those for and against biotechnological research and development. The terms bioconservative and bioliberal map onto common rhetorical and philosophical fault lines in contemporary bioethical debate. Third, the conservative/liberal divide directs us to the public-facing nature of the human enhancement debate. There is an expectation among relevant actors that these positions will become increasingly decisive political battle lines in the age of biotechnology.<sup>178</sup> If the liberal/conservative distinction

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<sup>177</sup> Eric Cohen, “Conservative Bioethics and the Search for Wisdom,” *The Hastings Center Report* 36: no.1 (2006): 47.

<sup>178</sup> Jeremy Rifkin, “Odd Coupling of Political Bedfellows Takes Shape in the New Biotech Era.” *The Los Angeles Times*, July 24, 2001. James Hughes, *Citizen Cyborg: Why Democratic Societies Must Respond to the Redesigned*

provides a useful starting point for analysis, however, it is far from a complete picture. As we will see in Chapter Two, both cohorts are, contrary to popular opinion, far more similar than dissimilar vis-à-vis their uncritical adoption of humanist ontologies.

### **1.5 The Enhancement Debate**

To this point, I have given somewhat scant attention to the category of human enhancement itself. I have instead sought to outline the intellectual and material conditions that afforded the emergence and legitimization of what I call the enhancement debate, which both emerges from and exceeds formal bioethics. While the shape and content of the enhancement debate will be elaborated in much greater detail in the ensuing chapters, a brief definition is useful here. The enhancement debate is a multi-sited, interdisciplinary discourse concerning whether it is ethical to use biotechnologies to transform or ‘improve’ human nature. The most frequently cited forms of biotechnological enhancement include: germ-line genetic engineering, cybernetic implants, human cloning, psycho-pharmaceuticals, brain-machine interfaces, engineered senescence, and molecular nanotechnologies. Targets for these forms of enhancement include: physical features, intellectual capacities, psychological wellbeing, the aging process, phenomenological experience, and moral reasoning. To speak of the “enhancement debate,” as I do throughout this project, is to use a deliberate heuristic that brings together diverse actors and media based on common philosophical methods, styles of rhetoric, ethical fault lines, and citational practices. As I clarified in the introduction, I am most interested in human enhancement as a genre or class of texts that forms an authoritative discourse on techno-science and human nature. For the purposes of this intellectual-

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*Human of the Future* (Boulder, C.O.: Westview Press, 2004). Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (New York: Picador - Farrar, Straus and Giroux, 2007).

historical chapter, I want to underline several aspects of the enhancement debate that both build on and complicate the narrative I have thus far sketched.

The first aspect concerns the foundations of the enhancement debate, which coincide with, and in some sense precede, the events of the past three decades. To my knowledge, there is no authoritative history of human enhancement. This is partially the result of the polemical nature of the enhancement debate. For supporters of human enhancement (i.e., bioliberals), enhancement is normalized so that it refers to all attempts to improve the human condition and is therefore as old as human culture itself. For detractors of human enhancement (i.e., bioconservatives), enhancement is discussed as a set of perpetually imminent interventions, something with a future but without a history. In other words, bioethicists tend to discuss enhancement as an object of analysis that is either always already present or never present as such, rather than as a discursive formation with a particular intellectual history. We can, however, identify certain foundational moments in the history of the discourse by tracing the usage of the term itself.

The first popular use of “enhancement” in bioethics appears in geneticist William French Anderson’s 1985 article, “Human Gene Therapy: Scientific and Ethical Considerations,” in the *Journal of Medicine and Philosophy*. Anderson differentiates between four levels of human genetic engineering: 1) somatic cell gene therapy (i.e., correcting a genetic defect in the somatic cells of a patient); 2) germ line gene therapy (i.e., the insertion of the gene into the reproductive tissue of the patient so that a disorder in his or her offspring is also corrected); 3) enhancement genetic engineering (i.e., the insertion of a gene to enhance a known characteristic such as adding an additional growth hormone); and 4) eugenic genetic engineering (i.e. the attempt to alter or improve complex human traits coded by a large number of genes such as personality or

intelligence).<sup>179</sup> While what Anderson describes as eugenic genetic engineering is actually now most characteristic of the term enhancement (and germ-line therapies are often included as well), his article established the basic conceptual and ethical fault line between therapies and enhancements. More specifically, he contended that, if safe and consensual, it is ethical and appropriate to use gene therapies for medical purposes (i.e., to correct genetic defects related to disease and disorder) but unethical and inappropriate to use gene therapies to “improve” a “normal healthy person.”

While Anderson makes no direct reference, one can see a clear parallel to philosopher and bioethicist Jonathan Glover’s book, *What Sorts of People Should There Be?*, published the previous year (1984). Glover, who would later describe his work as “the first philosophical book on the ethics of genetic choices,” makes a similar distinction between negative genetic engineering (which aims at the elimination of genetic defects) and positive genetic engineering (which aims at bringing about improvements in normal people). Unlike Anderson, however, Glover made the case for positive genetic engineering (i.e., enhancement) as ethical and asserted the rights of parents to choose their children’s characteristics within a “mixed system” that tempers the “genetic supermarket” with a certain measure of centralized control. If Anderson provided the terms of the debate, Glover elaborated the ethical fault lines and established the proto-bioliberal position on enhancement.<sup>180</sup>

Human enhancement became part of the mainstream bioethical lexicon over the course of the early-1990s as prominent bioethicists began to pick up and debate the concept, particularly in

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179 William French Anderson, “Human Gene Therapy: Scientific and Ethical Considerations.” *Journal of Medicine and Philosophy* 10, no. 3 (1985): 275-276.

180 Jonathan Glover, *What Sort of People Should There Be?* (New York: Penguin Books, 1984).

relation to genetics. Two examples stand out in this regard. In November of 1991, the U.S. Department of Energy sponsored a conference called “Justice and the Human Genome” at the University of Illinois that brought together experts from bioethics and law, among other fields, to discuss questions of justice raised by the Human Genome Project. The proceedings were later published in 1994 in a volume titled *Justice and the Human Genome Project* edited by Timothy F. Murphy and Marc A. Lappé. In what could act as a description for almost all enhancement-themed texts, the editors explained that “part of what makes this volume unique is what has made the Hume Genome Project unique from its inception: its consideration of ethical, legal, and social implications of genomic research before that research has completed its tasks, before genomic applications have begun to alter social and institutional arrangements and policies.”<sup>181</sup>

While the term enhancement appears in most of the essays in the volume, Norman Daniels essay, “The Genome Project, Individual Differences, and Just Health Care,” stands out for its definitional work. Building on his prior work from the mid-1980s, Daniels asks whether the therapy/enhancement distinction has a moral justification in relation to questions of healthcare, justice, and equality of opportunity. While he acknowledges that genetic information will pose complicated questions in regards to equality – e.g., what is our obligation in regards to non-medical, genetic-based differences such as height that have a demonstrable effect on equal opportunity? – he suggests that the therapy/enhancement line offers a practical (rather than metaphysical) conceptual framework for discerning moral obligation:

We have obligation to provide services whenever someone desires that a medical need be met. Generally, this is taken to mean that the service involves treatment of a disease or disability, where disease and disability are seen as departures from species-typical normal functional organization or functioning. Characterizing medical need in this way implies a contrast between uses of medical services that

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<sup>181</sup> Timothy F. Murphy and Marc A. Lappé, ed., *Justice and the Human Genome Project* (Berkeley, C.A.: University of California Press, 1994), 6.

treat disease (or disability) conditions and uses that merely enhance human performance or appearance. Enhancement does not meet a medical need even where the service may correct for a competitive disadvantage that does not result from prior choices. Accordingly, medicine has the role of making people normal competitors, not equal competitors.<sup>182</sup>

If the influence of Daniel's work on actual healthcare practices is dubious, his conceptual distinction between therapies (as medical interventions that bring an individual back to normal or species-typical functioning) and enhancements (as non-medical interventions that bring an individual above normal or species-typical functioning) has become a definitional baseline in bioethics.

The second example runs through the institutional heart of bioethics, The Hastings Center. At a Hastings Center meeting in 1993, Leroy Walters gave a presentation on "enhancement" in which he invited the audience to imagine four potential scenarios of genetic intervention: 1) increasing disease resistance, 2) decreasing the need for sleep, 3) improving long-term memory, and 4) "reducing the ferocious tendencies of human beings and increasing their generous tendencies."<sup>183</sup> The fourth scenario in particular proved controversial and raised the question: "are we so confident in the wisdom of our conceptions of normality and perfection that we are prepared to use new genetic technologies to achieve them?"<sup>184</sup> In the following months, Peter Kramer's book *Listening to Prozac*, which examined the worries about a drug that can make some feel "better than well," became a best seller. Kramer argued that since we *can* now enhance ourselves with biotechnologies like Prozac, it is time to ask how (or whether) we *should* enhance

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182 Norman Daniels, "The Genome Project, Individual Differences, and Just Health Care" in *Justice and the Human Genome Project*, ed. Timothy F. Murphy and Marc A. Lappé (Berkeley, C.A.: University of California Press, 1994), 122.

183 Erik Parens, ed., *Enhancing Human Traits: Ethical and Social Implications* (Washington, D.C.: Georgetown University Press, 1998), vii.

184 Parens., *Enhancing Human Traits*, vii.

ourselves.<sup>185</sup>

Late 1993 thus seemed like a fitting time for bioethicist Erik Parens and other researchers at The Hastings Center to ask the question: “Given that much of human history can be seen as the pursuit of one or another kind of ‘enhancement,’ and given that much of that history is strewn with needless worry about putatively ‘dangerous’ new technologies, will there ever be good reasons to worry about new biotechnologies aimed at the enhancing human capacities?”<sup>186</sup> To explore this question, the Hastings Center received a grant from the National Endowment of Humanities in 1995 to pursue a new project, “On the Prospect of Technologies Aimed at the Enhancement of Human Capacities.” In addition to independent research among the participants, the two-year project entailed four major research meetings, the papers from which became the basis for a 1998 volume entitled *Enhancing Human Traits: Ethical and Social Implications*.

Given the standing of The Hastings Center within the field, this project helped normalize and legitimize enhancement as a principal bioethical issue. The majority of the essays reference Norman Daniels’ ‘hard line’ enhancement/therapy distinction, though most of the authors aim to complicate or challenge its coherence. For example, Parens explains that, describing whether a particular intervention is or is not a treatment is not legitimate grounds for a moral claim about the goals of society. Likewise, Eric T. Juengst contends that, “perhaps the enhancement/treatment distinction itself is best understood as a social construction reflecting the medical profession’s current values and willingness to perform interventions across difference cases.”<sup>187</sup> If the concept of enhancement is to possess ethical meaning, he elaborates, we must recognize that what counts

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185 Peter D. Kramer, *Listening to Prozac* (New York: Viking, 1993).

186 Parens., *Enhancing Human Traits*, viii.

187 Eric T. Juengst, “What Does Enhancement Mean?” in *Enhancing Human Traits: Ethical and Social Implications*, ed. Erik Parens (Washington, D.C.: Georgetown University Press, 1998), 35.

as an enhancement is a measure of social dynamics and human values and therefore outside medicine's domain of expertise. Anita Silvers, approaching the problem from disabilities studies, builds on this point by explaining that, "far from being the natural way of conducting ourselves, the modes of functioning that typify our species may merely be ways of doing things that are preferred by the dominant classes and to which we have therefore become accustomed."<sup>188</sup> In spite of these critical attitudes, the authors recognize enhancement as an ideal starting point for bioethical discussion of emerging technologies. Parens explains that, while "*it would be a mistake to think that the treatment/enhancement distinction will ever provide good, transparent moral guidance* about the particular decisions faced by individuals," the distinction can still function "as one way to *begin* conversations about what doctors should and shouldn't do" and "*the term enhancement can alert us to and start conversations about the potential for long-standing problems* such as unfairness, complicity, and inauthenticity."<sup>189</sup>

These three problems – unfairness in the distribution of resources, complicity with suspect norms, and threats to human authenticity – represent the three primary areas of ethical concern identified in the project. Given that these concerns are often put into conversation with questions of public policy, the ethics of governance can be counted as a fourth primary area. It is fair to say that these four concerns have become the predominant motifs of the enhancement debate in the two decades since the volume's publication. I note this not so much to make a claim about the project's direct influence, which is unclear, but rather to mark just how established the concept of enhancement had become in bioethics by the late 1990s. It was, as Parens notes, already a part of

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188 Anita Silvers, "A Fatal Attraction to Normalizing: Treating Disabilities as Deviations from 'Species-Typical' Functioning" in *Enhancing Human Traits: Ethical and Social Implications*, ed. Erik Parens (Washington, D.C.: Georgetown University Press, 1998), 108.

189 Erik Parens, "Is Better Always Good? The Enhancement Project" in *Enhancing Human Traits: Ethical and Social Implications*, ed. Erik Parens (Washington, D.C.: Georgetown University Press, 1998), 10, 25.

bioethicists and medical experts’ “intersubjective use” and bound to “take on a life of its own.” It should be unsurprising, then, that by 2003 the term had made its way to the front of public bioethics with the President’s Council publishing a report titled *Beyond Therapy: Biotechnology and the Pursuit of Happiness*.

The Council’s report represents another historical trend of note here, which is that the enhancement debate has been an especially fertile ground for substantively rational discourse in bioethics. In language that would look quite out of place even a decade prior, the Council announced the mission of the report as to undertake “an inquiry into the potential implications of using biotechnology ‘beyond therapy,’ in order to try to satisfy deep and familiar human desires: for better children, superior performance, ageless bodies, and happy souls.”<sup>190</sup> Rather than a “research report,” the document is characterized as an “ethical inquiry” that pursues a “richer bioethics” that does “justice to the full human meaning of biotechnological advance” by focusing on “the desires and goals of human beings” and adopting “the perspective of human experience and human aspiration, rather than the perspective of technique and power.”<sup>191</sup> In characteristic bioconservative fashion, the report hazards against the development and use of biotechnologies for human ends and, in conclusion, suggests that the solution is not to go beyond therapy through biotechnological intervention, but rather to look beyond therapy and the goals of medicine in determining ultimate ends and values.

While I will return to this report in more detail in Chapter Three, I want to underline here how speculative discussions of future enhancement technologies lend themselves to ontological inquiry in the present. The concept of substantive rationality and the narrative of the culture wars

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190 The President's Council on Bioethics, *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Washington, D.C.: Government Printing Office, 2003), xix.

191 The President's Council on Bioethics, *Beyond Therapy*, 21.

fail to capture the full breadth of this shift. The President's Council – and the larger corpus of texts constitutive of the enhancement debate – are not just questioning the relationship between means and ultimate ends, nor are they just concerned with beginning- and end-of life issues; at hand, is the question of what it *does* and what it *ought* to mean to be human in the first place. Though still featured, the predominant questions are not those typical of abortion and euthanasia debates, e.g., when does life begin and end? Rather the questions are ones more familiar to the traditions of Western philosophy and theology: what is distinctive about human being? What constitutes human flourishing? What does it mean to live an ethical life? Given the diminished status of common moral principlism, we can also see a proliferation in meta-ethical discourses; in other words, it is no longer a given which ethical theories and methods are best suited to debate the ethics of technoscience. While this substantive turn is most often associated with conservative bioethics, such questions have also become central to bioliberal texts in the context of enhancement. This is not to say that more practical questions concerning safety, access, and regulation have disappeared; far from it. It is, however, to say that the enhancement debate possesses an explicit ontological character and thus affords a unique opportunity to excavate the philosophical grounds of bioethics as a site of knowledge-production.

This substantive turn has also been reflected in the expanding circle of professionals involved in bioethics vis-à-vis the enhancement debate. For example, given the trend toward privatization in the biotechnology sector, we can see a rise in far-left academic-activists and technologists contributing to and being discussed in bioethics' conferences, journals, and anthologies.<sup>192</sup> Given that transhumanism was little more than a fringe cultural movement in the

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192 On one hand, we can see this in the founding of numerous quasi-bioethical institutions such as Nick Bostrom's Future of Humanity Institute (FHI) at the University of Oxford, which is "a unique world-leading research centre that works on big picture questions for human civilisation and explores what can be done now to ensure a flourishing long-term future." The FHI has helped develop numerous emergent bioethical theories - including the simulation argument,

1980s and 1990s, it is more than a little surprising to see figures such as Nick Bostrom and James Hughes becoming prominent figures in the field and transhumanism becoming a common object of critique for conservative bioethicists.<sup>193</sup> At the same time, theological perspectives are becoming more frequent with the proliferation of Catholic and Protestant (and to a lesser extent Jewish and Islamic) medical and bioethical journals and institutions in the U.S.<sup>194</sup> While part of this phenomenon can be attributed to a more general expansion of bioethical expertise, including less explicit identification with “bioethics” as a classification, it can also be attributed to the particular character of the enhancement debate. Always already directed toward the future, the enhancement debate blurs the line between fiction and possibility, speculation and analysis, and, in doing so, expands the circle of expertise to a radical extent. The question of who is authorized to debate human enhancement remains open-ended, even within the field of bioethics itself.

Professional diversity, however, is not the same as intellectual diversity. As we will see in

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existential risk, superintelligence, whole brain emulation, and human enhancement - and has deep intellectual and financial ties to Silicon Valley’s elite.

“About FHI,” Future of Humanity Institute, University of Oxford, accessed August 8, 2021, <https://www.fhi.ox.ac.uk/about-fhi/>. Phil Torres, “The Dangerous Ideas of ‘Longtermism’ and ‘Existential Risk,’” Current Affairs, July 28, 2021, <https://www.currentaffairs.org/2021/07/the-dangerous-ideas-of-longtermism-and-existential-risk>.

On the other hand, we can see this in biotechnologists, such as artificial intelligence engineer Ray Kurzweil and biomedical gerontologist Aubrey de Gray, publishing best-selling quasi-bioethical texts and becoming popular objects of bioethical discourse (most often under the generic label of “transhumanism,” which I approach as a subgenre of bioliberalism).

Ray Kurzweil, *The Singularity is Near: When Humans Transcend Biology* (New York: Penguin Group, 2005). Aubrey de Gray and Michael Rae, *Ending Aging: The Rejuvenation Breakthroughs That Could Reverse Human Aging in Our Lifetime* (New York: St. Martin Press, 2008). Agneta Sutton, “Transhumanism: A New Kind of Promethean Hubris” *The New Bioethics* 21, no. 2 (2015): 117-127.

193 For example, the prolific conservative bioethicist Francis Fukuyama describes transhumanism as “the world’s most dangerous idea.” Francis Fukuyama, “The World’s Most Dangerous Idea,” *Foreign Policy* 144 (2004) 32-33.

194 For representative examples, see: Tracy J. Trothen and Calvin Mercer, *Religion and Human Enhancement: Death, Values, and Morality*. (Cham, Switzerland: Palgrave Macmillan, 2017). Joseph Tham et. al, ed. *Religious Perspectives on Bioethics and Human Rights* (New York: Springer, 2017). Lisa Sowle Cahill, *Theological Bioethics: Participation, Justice, and Change* (Washington, D.C.: Georgetown University Press, 2005). Howard Brody and Arlene Macdonald, “Religion and Bioethics: Toward an Expanded Understanding” *Theoretical Medicine and Bioethics* 34, no. 2 (2013): 133-145. Peter A. Kahn, “Bioethics, Religion, and Public Policy: Intersections, Interactions, and Solutions” *Journal of Religion and Health* 55, no. 5 (2016): 1546-1560.

the next chapter, positions on enhancement more often than not still fall along established bioliberal and bioconservative lines, which problematically share humanist commitments in their use of ‘human nature’ as an ontological framework and ethical criterion. And while the larger academic field of bioethics has become far more theoretically and methodologically diverse in the past two decades – including important contributions from fields such as sociology and anthropology as well as race, gender, and disability studies – this phenomenon has not been adequately manifested in texts on human enhancement. There is thus an opportunity, and I will argue an ethical demand, to diversify the theoretical and methodological approaches toward biotechnologies in the field of bioethics.

### **1.6 Looking Backwards, Looking Forwards**

In this chapter, we have seen a number of intellectual trends responsible for the development of U.S. bioethics as an academic, professional, and public field: the geneticization and molecularization of the self, the retreat of public theological discourse, the institutionalization of common moral principlism, the proliferation of biotechnological moral panics, and the ossification of the biopolitical culture wars. I have not highlighted these trends because they tell the comprehensive history of bioethics. Rather, I have highlighted them because they have been important conditions for the emergence of the enhancement debate, which does not take shape in a vacuum but owes much to a particular, if wide-ranging, discursive history that runs through the heart of institutional bioethics in the United States.

In particular, we have seen that the field of bioethics emerged, at least in part, as a response to an ontological anxiety, of which the enhancement debate is a microcosm. As advances in information-based biological sciences called into question the categorical binaries that have long grounded the Western humanist tradition – nature/artifact, organism/machine, human/God – a

demand for new ethical expertise emerged. What ethics should inform our newfound possibilities for biological control? In the span of a few decades, that (bioethical) expertise was formalized in public-facing conferences, journals, institutions, commissions, and certificate programs, all of which were guided by the overarching framework of common moral principlism. Common moral principlism, however, has demonstrated notable structural limitations; not just in its general ‘thinning’ of bioethical discourse about also its particular prioritization of autonomy and consensus as ethical ends. Through prioritizing these ends, this mode of principlism has reified humanist principles of individualism, anthropocentrism, and universalism, grounding itself in the very human(ist) subject that the information and biological sciences, to say nothing of academic critical theory, have been actively deconstructing since the mid-twentieth century.

While less bound to common moral principlism than other bioethical discourses, the enhancement debate has inherited and even intensified this cat-and-mouse intellectual strategy. As we will see in Chapter Two, whether for or against enhancement, bioethicists and adjacent theorists acknowledge greater and greater theoretical and material pressures to classical ideals of human nature only to then reaffirm and mobilize the coherence of the individual, autonomous subject as a means of ethical reconciliation. At the cost of seriously accounting for particularity and relationality as ontic realities, theorists of enhancement still uncritically assume autonomy and consensus as *the* principal bioethical ends. The enhancement debate can thus best be understood as a discourse of re-humanization, re-inking old ontological lines in the process of drawing new ethical ones.

Now that we understand some of the enhancement debate’s most important social, intellectual, and material conditions of possibility, the next step is to better understand the particular contours of the debate as it has emerged in this past three decades. Who or what is the

human of human enhancement? What imagined futures populate this bioethical discourse? This examination will entail moving away from the moderate, liberal-leaning position of mainstream bioethics and more toward far-left and far-right bioethical positions. For, as we will see, it is theorists on the ends of the biopolitical spectrum who have had the loudest voices in the enhancement debate and been most active in ‘naturalizing’ the bioethical subject.

## Chapter Two: Mapping the Enhancement Debate

### 2.1 The Thin Line: Therapy and Enhancement

In a nationally televised address on August 9, 2001, President George W. Bush announced his decision to restrict federal funding of human embryonic stem cell research. The new policy stated that new cell lines developed by researchers after the date of the address could not be used in laboratories that receive federal funding. While this was, in part, motivated by traditional conservative concerns about “the beginnings of life,” the president also explained that it was about “the ends of science,” and whether those ends ought to focus on “improving life” or “protecting life.” For the Bush administration, science ought to focus on protecting life and resist crossing a “fundamental moral line” by experimenting on potential human subjects (embryos) or modifying human nature, lest we find ourselves in the *Brave New World* of Aldous Huxley.<sup>195</sup>

Since the mid-1990s, this juxtaposition between the ends of improving life and protecting life has dominated the language of professional and public bioethics and, in particular, literature on human enhancement. To review, most bioethicists define enhancement in contradistinction to therapy.<sup>196</sup> Whereas therapies are medical practices that return individuals to “normal,” “healthy,” or “species-typical” functioning, enhancements are biotechnological interventions that increase one’s capacities, performances, or dispositions to greater than normal functioning, i.e., that make one “better than well.”<sup>197</sup> The most frequently cited forms of biotechnological enhancement

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195 George W. Bush, “Address to the Nation on Stem Cell Research,” transcript of speech delivered from Bush Ranch in Crawford, TX, August 11, 2001, American Presidency Project, <https://www.presidency.ucsb.edu/documents/address-the-nation-stem-cell-research>.

196 Erik Parens, “Is Better Always Good? The Enhancement Project,” in *Enhancing Human Traits: Ethical and Social Implications*, ed. Erik Parens (Washington, D.C.: Georgetown University Press, 1998), 1-28.

197 Alberto Giubilini and Sagar Sanyal, “The Ethics of Human Enhancement” *Philosophy Compass* 10, no. 4 (2015): 233-43. Norm Daniels, “Normal Functioning and the Treatment-Enhancement Distinction,” *Quarterly of Healthcare*

include: germ-line genetic engineering, cybernetic implants, human cloning, psychopharmaceuticals, engineered senescence, and molecular nanotechnologies. Targets for these forms of enhancement include: physical features, intellectual capacities, psychological wellbeing, the aging process, phenomenological experience, and moral reasoning. In spite of this wide range of technological projects, both proponents and opponents of enhancement classify and debate particular interventions (real and speculative) according to their presumed ends – i.e., therapy and enhancement – so that the debate takes the shape of two mutually constitutive ethical ideals.<sup>198</sup> In keeping with the operative terms of the debate, I examine enhancement as a philosophical ideal and discursive mechanism rather than focusing on each biotechnological intervention to which it might refer.

As we saw in Chapter One, the promise of enhancement technologies that modify, transform, or improve human nature has resulted in bioethicists introducing questions that were previously seen as too ambiguous, controversial, or impractical to feature in the mainstream of their field. In the context of the enhancement debate, these questions include: would human enhancement signal a fundamental transformation of human nature? Is it ethical to replace chance with choice through modifying human biology? What normative frameworks are legitimate for determining whether enhancement technologies are ethical? And what restrictions, if any, should be placed on related scientific research? These might be encapsulated in a single, more

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*Ethics* 9 (2000): 309-322. Carl Elliott, *Better than Well: American Medicine Meets the American Dream* (New York: W.W. Norton & Company, 2004).

198 The President's Council on Bioethics, for example, argues that, "*biotechnology beyond therapy deserves to be examined not in fragments, but as a whole*," and that we should understand all biotechnologies that desire to go beyond therapy "*as part of a larger human project - toward perfection and happiness*." The President's Council on Bioethics, *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Washington, D.C: President's Council on Bioethics, 2003), 277, 22.

fundamental question: what does it mean to be human and should we strive to become something ‘more than human’ or remain human ‘as we have always been’?

Recognizing these “ethical mine fields,” President Bush commissioned the President’s Council on Bioethics directed by physician Leon Kass to advise his administration on bioethical issues. Unlike past practical, policy-oriented commissions, the principal mission of the Council was “to undertake fundamental inquiry into the human and moral significance of developments in biomedical and behavioral science and technology.”<sup>199</sup> In 2003, the Council published a widely circulated report, *Beyond Therapy*, which encapsulated the “bioconservative” position: “We must live, or try to live, as true men and women, accepting our finite limits, cultivating our given gifts, and performing in ways that are humanly excellent. To do otherwise is to achieve our most desired results at the ultimate cost: getting what we seek or think we seek by no longer being ourselves.”<sup>200</sup>

Contrasting this position, an increasing number of bioethicists, philosophers, and scientists – the most enthusiastic of whom being transhumanists – have begun defending enhancement in both academic and popular literature. Not only is enhancement ethically permissible, according to these theorists, but it is also an individual and social end toward which ‘we’ ought to strive, and, in some cases, an ethical *obligation*. While transhumanism is often regarded as marginal in terms of its cultural and political influence, prominent transhumanists such as Nick Bostrom, Julian Savulescu, and James Hughes have been widely cited in bioethical literature on enhancement and

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199 “Executive Order 13237 of November 28, 2001: Creation of the President’s Council on Bioethics,” *Code of Federal Regulations*, title 3 (2001): 821-823.

200 The President’s Council on Bioethics, *Beyond Therapy*, 155.

This denouncement of enhancement has constituted the de facto stance of government commissions and legislators since at least the late 1990s when the Clinton administration banned federal funding for research on human cloning, declaring it “morally unacceptable,” in response to the successful cloning of Dolly the Sheep by Scottish scientists at the University of Edinburgh. William J. Clinton, “President’s Letter to Congress: Cloning Prohibition Act” (official memorandum, Washington DC: White House Office of the Press Secretary, Jun 9, 1997), <https://clintonwhitehouse4.archives.gov/textonly/New/Remarks/Mon/19970609-15987.html>.

the transhumanist position frequently features as a foil for mainstream bioconservative arguments. Just as important, more mainstream liberal bioethicists such as John Harris, Jonathan Glover, Gregory Stock, Ronald Bailey, and Allen Buchanan stake an almost identical position on the desirability of human enhancement: mobilizing appeals to human nature, prioritizing the individual's right to modify their own biology, and arguing for the moral potential of biotechnologies to improve individual wellbeing.<sup>201</sup>

While traditional bioethical focuses such as risk, access, and justice still populate the literature, we will see that these concerns become sublimated to ontological and existential arguments regarding what it does and should mean to be human. We can therefore best understand the enhancement debate not so much as an ethical dispute about the merits of particular technologies but instead in terms of competing theories of human nature. 'Human nature' is a multifarious term, often used to signify two distinct, if related, modes of understanding: (1) an empirical, scientific understanding of *homo sapiens sapiens*' biological and material structure and (2) a normative, philosophical understanding of universal human goods and ends. Through rhetorical appeals to nature, however, theorists of human enhancement conflate these two frameworks so that techno-science and normative ethics function as conterminous and mutually supportive systems of knowledge that can ground positions on whether enhancement is permissible, desirable, or even obligatory. Examining how bioethical actors and texts pick up and make use of the concept of human nature can thus provide us with an analytical lever for mapping the territory

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201 "Bioliberals" here refers to a smaller, more extreme cohort than the typical umbrella usage of the term. I make this hermeneutic decision for three reasons. First, transhumanists and like-minded theorists have been far more prolific than their liberal-leaning 'moderate' counterparts in writing texts on "human enhancement" and, in particular, making appeals to "human nature" – the language I am most interested in. Second, as I show throughout this project, the view of human enhancement as not just permissible but also *desirable*, or even *obligatory*, is becoming an increasingly common position in, and object of, bioethical discourse. Third, to the extent that more traditional, 'mainstream' bioliberals participate in the enhancement debate, their positions reflect a familiar view of 'cautious optimism' grounded in common moral principlism, which thus offers little new as a site of analysis.

of the enhancement debate and making sense of the normative and ideal accounts of ‘the human’ that it both depends upon and validates.

This chapter thus sets the stage for the larger mission of this project: excavating the normative theories of subjectivity that ground the human enhancement debate and imagining alternative possibilities for thinking the future of human nature. In this chapter, we will see that, whereas bioconservatives describe human enhancement as a transgression of the natural, sanctified ground of human dignity and moral status, bioliberals describe it as an affirmation of the natural, ‘higher’ traits of autonomy, rationality, and self-creation. In spite of privileging different characteristic human traits and ends, I will demonstrate that these opposing positions nevertheless share a similar understanding of the subject inherited from the Western humanist tradition and, in spite of the disruptive nature of the technologies in question, neither position moves us beyond all-too-familiar modes of thinking human nature.

## **2.2 Bioconservatism and the Sanctity of Human Nature**

As we saw in the previous chapter, it was bioconservative theorists who first authorized enhancement as a legitimate topic for public bioethics and, therefore, set the terms of the debate. To understand the contours of the enhancement debate then, we must first examine the bioconservative position in greater detail. Conservative texts on enhancement take the form of two complementary critiques: 1) the human dignity critique, i.e., the claim that using biotechnologies to modify human nature will undermine the self-understandings and modes of being that make us authentically human; and 2) the moral status critique, i.e., the claim that using biotechnologies to modify human nature will result in the loss of the common ground of moral and political rights. Both of these lines of critique build on the natural law tradition so that the identification and preservation of human nature is represented as conterminous with the survival of political

liberalism and the individual pursuit of the good life. It is, in turn, argued that enhancement will result in not just a substantive transformation in, but also the *loss of*, human nature as such. There is therefore an ethical obligation to preserve the human species through regulating, banning, or opting out of enhancement practices. I contend that these grounding appeals to human nature can best be understood in terms of the tradition of virtue ethics and that, in spite of being mobilized to critique ‘the’ techno-scientific worldview, such appeals are logically dependent on biological, and not just normative, descriptions of human life.

### **2.3 The Human Dignity Critique**

Leon Kass, former chairman of the President’s Council, is one of the most vocal and influential champions of the human dignity critique. For Kass, technologies such as human cloning, reproductive selection, and regenerative medicine represent the first step toward an “inhuman” future. The fundamental challenge posed by these technologies, however, is not the technologies themselves, but the techno-scientific worldview that grounds and motivates their development and use. In re-conceptualizing the organic body as dead-matter-in-motion – rather than as animated, purposive, and striving – the modern biological worldview, he argues, located the meaning and source of life within human will and power. “This reductive science,” he contends, “challenges our self-understanding as creatures of dignity.”<sup>202</sup>

To elaborate this point, he turns to the language of “playing God,” which he insists has been too easily dismissed by critics as a superstitious anxiety.

The concern has meaning, God or no God. By it is meant one or more of the following: man, or some men, are becoming creators of life, and indeed, of individual living human beings (in vitro fertilization, cloning); they stand in judgment of each being’s worthiness to live or die (genetic screening and abortion)—not on moral grounds, as is said of God’s judgment, but on somatic and

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202 Leon R. Kass, *Life, Liberty, and the Defense of Dignity: The Challenge for Bioethics* (San Francisco: Encounter Books, 2004), 20.

genetic ones; they also hold out the promise of salvation from our genetic sins and defects (gene therapy and genetic engineering).<sup>203</sup>

Kass connects this concern to the dignity of human life in arguing that “man” has a special ontological and moral standing because “he” possesses the “godlike” qualities of reason, freedom, judgment, and moral concern. Man, however, is at best a mere likeness of God insofar as he is also defined by his animality. In contrast to “reductionist materialism,” which defines personhood as willing and thinking, Kass insists that true human dignity is also derived from “the worthiness of embodied human life...our natural desires and passions, our natural origins and attachments.”<sup>204</sup> It is an awareness of our own needs, limitations, and mortality that grounds a way of being that has engagement, depth, beauty, virtue, aspiration, and meaning. For example, in discussing the perils of radical life-extension, Kass argues that it is the fleeting nature of our lives that affords us meaningful engagement with the people, activities, and even objects that we find worthwhile.

Taking this a step further, he suggests that the most “virtuous” and “noble” behaviors are sacrificial ones based in overcoming the attachment to self-interest and even survival itself. “To suffer, to endure, to trouble oneself for the sake of home, family, community, and genuine friendship, is truly to live” and functions as the basis of “excellence in deeds noble and just.” For example, in criticizing the project of radical life extension, Kass argues that “Immortals...cannot be noble” and “immortality is a kind of oblivion – like death itself.”<sup>205</sup> For Kass, the very purported ‘lows’ of human being, the “downward pull[s] of bodily necessity,” that enhancement seeks to overcome are essential sources and expressions of a dignified life. Given that a “truly human life” is “lived always with and against necessity, struggling to meet it, not to eliminate it,” we ought to

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203 Kass, *Life, Liberty, and the Defense of Dignity*, 129.

204 Kass, *Life, Liberty, and the Defense of Dignity*, 20.

205 Kass, *Life, Liberty, and the Defense of Dignity*, 268.

understand finitude and our existent gifts as both sufficient and necessary for human flourishing and perfection.<sup>206</sup>

Similar to Kass, political philosopher Michael Sandel contends that human enhancement threatens to erode “an appreciation of the gifted character of human powers and achievements.”<sup>207</sup> The fundamental problem for Sandel is not the drift toward mechanism but the drive toward mastery or “hyperagency,” i.e., “a Promethean aspiration to remake nature, including human nature, to serve our purposes and satisfy our desires.”<sup>208</sup> In this admittedly secular version of the playing God argument, Sandel sees the predominance of hyperagency as leading to the loss of fundamental, *a priori* moral values or virtues. Eugenics and genetic engineering in particular represent “the one-sided triumph of willfulness over giftedness, of dominion over reverence, of molding over beholding.”<sup>209</sup> Once again, it is not the practical effects of the technologies that matter most, but instead the (un)ethical orientation toward the natural and human worlds implicit in their use. In terms reminiscent of the mid-twentieth century Continental critique of technoscience, the pursuit of human enhancement reveals an attitude of domination in which human beings (including the self) are reduced to instruments for the fulfillment of pure will.

For Sandel though, it is not just about the ethical orientation we assume in the pursuit of enhancement, but also the one we conceal: the capacity to live life as a project in which we struggle, deliberate, wonder, and inquire in relation to realizing the purposes of the broader life stories in which we find ourselves. While the *telos* of one’s life project is relative to the person, and agency

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206 Kass, *Life, Liberty, and the Defense of Dignity*, 18.

207 Michael J. Sandel, “The Case Against Perfection: What’s Wrong with Designer Children, Bionic Athletes, and Genetic Engineering” in *Human Enhancement*, ed. Nick Bostrom and Julian Savulescu (Oxford: Oxford University Press, 2009), 78.

208 Michael J. Sandel, *The Case Against Perfection: Ethics in the Age of Genetic Engineering* (Cambridge: Harvard University Press, 2007), 26.

209 Sandel, “The Case Against Perfection,” 84.

is part and parcel of such a project, we must be able to encounter and engage that purpose as it unfolds rather than determining it in advance, as we would with germ-line genetic engineering or embryonic human cloning. This speaks to a broader ethic of giftedness that Sandel wants to introduce as a ‘counter-weight’ to the willfulness that predominates in our culture: to instrumentalize nature, human and otherwise, is to fail to appreciate the human goods that already inhere in ‘the given’.

This line of thought emphasizes particular values or virtues, as Sandel contends that enhancement practices would diminish our sense of humility, responsibility, and solidarity. For example, in determining the biological makeup of their offspring through germ-line genetic engineering, humans would demonstrate undeserved hubris, assume unprecedented moral responsibility, and eliminate the common ground of genetic chance. For Sandel, human dignity is grounded in a sense of the contingency of our gifts, “a consciousness that none of us is wholly responsible for his or her success,” and an “openness to the unbidden.”<sup>210</sup> Gaining complete control over our own nature would thus eliminate the possibility of encountering the world as dignified beings. While he acknowledges that there is no pre-given red line between agency and hyperagency and that we should not uncritically accept all natural givens as *a priori* goods, he nevertheless wants to remind us that what is at stake is the potential to live a dignified life, i.e., a life of moral excellence, for molder and molded alike.

The fact that both Kass and Sandel reference God, even while attempting to appeal to a pluralistic, public audience should be unsurprising given that the language of human dignity gains its coherence in the American context from not just secular political discourses on human rights but also mid-twentieth century Catholic and Protestant theological positions on medical ethics. On

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210 Sandel, “The Case Against Perfection,” 87.

December 7, 1965, the Vatican promulgated the *Pastoral Constitution on the Church in the Modern World*, which established that the universal and inalienable principle of human dignity (i.e. respect for persons made in the image of God) is the “foundation for the relationship between the Church and the world.”<sup>211</sup> This notion had widespread appeal outside of Catholic audiences in the United States, where the “socially progressive” concepts of human dignity and human rights – in particular the dignity and rights of the unborn – were used to coalesce and mobilize multiple religious groups across the political spectrum in support of the pro-life movement from the mid-1960s until *Roe v. Wade* (1973).<sup>212</sup>

The rhetorical concepts of playing God and human dignity have continued to circulate and feature in literature on enhancement from the burgeoning fields of Protestant and Catholic bioethics. Theologically conservative opponents of enhancement, for example, articulate a “stewardship” theology, which, based on *Genesis 1*, recognizes that humans are given “dominion” over God’s creations. “Dominion” here, however, is not interpreted in terms of dominance, but rather the call to protect, care for, and live in harmony with God’s creations. Furthermore, while humans are made in the image of God (*imago dei*), they are not given dominion over one another; proper dominion over humanity belongs to God alone.<sup>213</sup>

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211 Vatican Council II, “Pastoral Constitution on the Church in the Modern World: *Gaudium et spes*,” promulgated by Pope Paul VI on December 7, 1965, [https://www.vatican.va/archive/hist\\_councils/ii\\_vatican\\_council/documents/vat-ii\\_cons\\_19651207\\_gaudium-et-spes\\_en.html](https://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_cons_19651207_gaudium-et-spes_en.html).

212 Daniel. K Williams, *Defenders of the Unborn: The Pro-Life Movement Before Roe v. Wade* (New York: Oxford University Press, 2016).

213 Drawing on biblical narratives such as the Tower of Babel and Noah’s Ark, prominent advocate of public Christian bioethics Nigel M. de S. Cameron, for example, argues that, enhancement “is the final embodiment of the sinful challenge to God: to use “our” technology to displace him; to make a name for ourselves in this, his world; to let loose the Babel principle in the technology of today.” Nigel M. de S. Cameron and Amy Michelle DeBaets, “Germline Gene Modification and the Human Condition Before God” in *Design and Destiny: Jewish and Christian Perspective on Human Germline Modification*, ed. Ronald Cole-Turner (Cambridge, MA: MIT Press, 2008), 107.

As we saw in the previous chapter, however, the ‘playing God’ critique and concomitant concerns about human dignity have, since the formal establishment of the field in the mid-1970s, been dismissed in secular bioethical literature due to their implicit theological character. It was not until the Bush administration, when the President’s Council published a 2008 report, *Human Dignity and Bioethics* – in which numerous authors made use of theological language to defend the use of “human dignity” for the field – that these concerns returned to the secular mainstream. This turn to theological language should be unsurprising given that, of the twenty-one contributors to the volume, four were advocates of a central role for religion in public life and eleven worked for Christian institutions (all but two of which were Catholic).<sup>214</sup>

While the prominence of the rhetoric of human dignity testifies to the success of conservative Christian groups in entering into mainstream public bioethics through social and political activism – a continuation of their activism on issues such as abortion, stem-cell research, and euthanasia – we should not dismiss the human dignity critique as a religious argument unfit for public deliberation, as some critics have suggested.<sup>215</sup> Given that the appeal to human dignity is intended to be legible to both religious and secular audiences and has been employed by theorists across the political and ideological spectrum for a wide range of purposes (e.g., human rights activism), we ought to resist the temptation to view the rhetoric of human dignity as a ‘traditional’ religious tenet competing with secular, rational bioethical arguments. Indeed, as we will see in the next chapter, the rhetorical use of human dignity is an important discursive mechanism through which conservatives translate their substantive values into non-sectarian language and mark their position as appropriate for public deliberation and inclusion in the secular (bio)political sphere.

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214 Steven Pinker, “The Stupidity of Dignity,” *The New Republic* 238, no. 9 (2008): 28-31.

215 Ruth Macklin, “Dignity Is a Useless Concept,” *British Medical Journal* 327, no. 7429 (2003): 1419-1420.

For the moment, it is most important to note that, while Kass and Sandel build upon a theological orientation, both underscore that we need not believe in the Judeo-Christian God or even the supramundane as such. Rather, the point is that, just as living a dignified life depends upon being elevated above our animal counterparts, so too does it depend upon being subordinated to something greater than human agency. We must recognize that finitude informs our most fundamental human goods and acts as the condition for living a virtuous life, and, therefore, ought to be preserved, lest we lose the very thing that makes us human in the first place. Put differently, agency is merely one virtue among others. Whether it is God or some secular equivalent, then, living a dignified life requires a *conceptual ceiling* no less than it does a conceptual floor, i.e., a sense of ontological subordination to something greater than one's self. Understood in these terms, human dignity departs from its familiar secular, political meaning as a fundamental threshold of freedoms and rights that individual persons are entitled to by virtue of their status as human beings. Instead, it signifies an enduring and *fully contained* ontological status, i.e., a fixed position in the Great Chain of Being, and provides a universal standard for moral excellence – beholding and engaging with the giftedness of life as it is given – that runs counter to the project of human enhancement.

#### **2.4 The Moral Status Critique**

The moral status critique extends the threat of biotechnology into the realm of political theory, asserting that human rights and equality are grounded in a common human nature and that changing that nature would destabilize the coherence of equal moral status and the gains of political liberalism since the Second World War. Putting forth the most philosophically rigorous form of this claim, Frankfurt philosopher Jurgen Habermas contends that the foundation of

morality and procedural justice is a prior, ethical self-understanding of the species.<sup>216</sup> This species ethic includes three premises: 1) we are autonomous authors of our own lives; 2) we approach others as autonomous authors of their lives; and 3) we seek to live with others who acknowledge us as “self-individuating” autonomous beings in a society that protects our right to be so. Biotechnologies, especially genetic intervention at the reproductive level, threaten this species ethic by undermining the individual’s capacity to see one’s self as the sole, fully autonomous authors of one’s own life. In recognizing both one’s self and others as artifacts of genetic engineering, instrumentalized to fulfill the desires of another human being, one would be incapable of identifying as part of the moral community of human beings. Hyperagency thus paradoxically results in the inability to take autonomy, and therefore ethical responsibility, seriously as grounding moral and political concepts. When taken to its logical extreme, human will and technological instrumentalism objectify human agents so that their status as self-willing subjects loses its intellectual coherence.

Political theorist Francis Fukuyama and bioethicist George Annas are less concerned with the coherence of autonomy and more so with the coherence of human nature as a stable, universal, and self-evident concept that can ground political rights discourse. Fukuyama explains that the demand for equality and recognition implies some non-contingent, essential human quality “underneath” that is worthy of a certain minimal level of respect. This “Factor X” is human nature, i.e. “the sum of the behaviors and characteristics that are typical of the human species, arising from genetic rather than environmental factors” (accounting for some statistical variance).<sup>217</sup> Factor X cannot be reduced to any one trait such as the possession of reason, language, sentience,

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216 Jürgen Habermas, *The Future of Human Nature* (Cambridge, UK: Polity, 2016).

217 Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution*. (New York: Picador - Farrar, Straus and Giroux, 2007), 130.

embodiment, or emotions; instead it is made up of all of these qualities coming together in a complex human whole. This argument insists that genetics is the prior ground for cultural evolution; humans are wired to be cultural animals capable of modifying their own behavior through learning and transmission, which includes the capacities to derive moral values and create just political institutions.

The crucial point, however, is not what Factor X *is* but rather what factor X *does*, i.e. differentiate the human species as the basis for moral status. “Every liberal democracy,” Fukuyama explains, “does in fact differentiate rights based on the degree to which individuals or categories of individuals share in certain species-typical characteristics.”<sup>218</sup> Invoking the natural law tradition, he contends that Thomas Jefferson, John Locke, and Thomas Hobbes correctly understood that political rights and principles needed to be grounded in empirical observations of what humans were like “by nature.” There are universal, genetic-based values, norms, and capacities – e.g. the desire to embed oneself in communal relationships and the capacity to formulate, debate, and modify abstract rules of justice – that function as a solid ground for the establishment of equal political rights and, in Fukuyama’s narrative, world-historical progress toward democratic systems of government. It is therefore humans’ shared ontological status, as beings distinct from and elevated above other natural kinds, which enables us to presume an entitlement to principles such as equality and enact them in political institutions. Insofar as the presence of “posthumans” would rebut the presumption of a universal human nature and fixed species boundaries, the radical modification of human biology threatens to upend our foundational criteria for moral status. Fukuyama thus concludes that we must draw a “red line” between therapy and enhancement practices in order to protect and preserve Factor X.

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218 Fukuyama, *Our Posthuman Future*, 175.

In calling for a global bioethics based in the language and political framework of human rights, lawyer George Annas makes an almost identical case to Fukuyama. “Membership in the human species,” he explains, “is central to the meaning and enforcement of human rights, and respect for basic human rights is essential for the survival of the human species.”<sup>219</sup> Therefore, biotechnologies such as genetic engineering that threaten the species integrity of the human also threaten the framework of human rights. Annas, however, take this argument a step further. He claims that the creation of posthumans would threaten the very existence of the human species since the differences between humans and posthumans would render one species inferior in the eyes of the other, leading to exploitation, enslavement, or even “genetic genocide.”<sup>220</sup> Thus he calls for radical enhancements to be classified as “crimes against humanity” or potential “weapons of mass destruction” and proposes an international “Convention of the Preservation of the Human Species,” which would ban genetic engineering and human cloning at the global level.<sup>221</sup>

Economic and social theorist Jeremy Rifkin captures the common thread of both critiques in his discussion of “species integrity.” Rifkin insists that we are entering into a “biotech century” governed by an “algenic” worldview in which all living things are reducible to biological material, DNA, that can be extracted, manipulated, recombined, and programmed into an infinite number of combinations with the goal of “accelerating” the natural process of evolution to create a “perfect organism” of “optimal efficiency.”<sup>222</sup> Rifkin, however, contends that a concept of nature is “more

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219 George J. Annas, *American Bioethics: Crossing Human Rights and Health Law Boundaries* (New York: Oxford University Press, 2005), 44.

220 Annas, *American Bioethics*, 51.

221 George J. Annas, Lori Andrews, and Rosario Isasi, “Protecting the Endangered Human: Toward an International Treaty Prohibiting Cloning and Inheritable Alterations,” *American Journal of Law and Medicine* 28, no. 2 (2002): 152-3.

222 Jeremy Rifkin, *The Biotech Century: Harnessing the Gene and Remaking the World* (New York: Putnam, 1998), 34.

than just an explanation of how living things interact within one another. It also serves as a reference point for deciphering the meaning of existence itself” and the social norms “by which every society measures itself and justifies its relationship to the surrounding world.”<sup>223</sup> In reducing life to pure information patterns, our new scientific cosmologies eliminate the idea of species integrity and drain living beings of their “substance.” “There is no longer any question of sacredness or specialness. How could there be when there are no long any recognizable boundaries to respect?”<sup>224</sup> Thus, while Rifkin admits that some forms of bioengineering are inevitable, he urges the reader, “for God’s sake let’s put on the breaks,” lest we fail to recognize what is stake in this new scientific view of life: the sanctity and sacredness of life itself. Indeed, even when framed in terms of therapeutic ends, the fact that biotechnologies might portend enhancement leads bioconservatives to take an oppositional stance to almost all biotechnological development. Biotechnologies are a “slippery slope” and the long-term risks, i.e., the loss of human dignity and moral status, are not worth potentially more immediate therapeutic rewards.<sup>225</sup>

## **2.5 Metaphysical Biology: A Virtuous Nature**

If scientific materialism is the principal object of critique in both conservative positions, it also paradoxically serves as their ground. Fukuyama, for example, contends that humans are “complex adaptive” systems and, as a result, the biological whole cannot be reduced to its constitutive parts and small changes can lead to enormous qualitative differences. His main point, however, is not that enhancement is a project full of unknowns. Rather, it is that the current human biological makeup is an intrinsically good product of evolution, which provides us with a unique

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223 Rifkin, *The Biotech Century*, 198-99.

224 Rifkin, *The Biotech Century*, 214.

225 Evans demonstrates that “slippery slope” arguments have been one of, if not the most, persistent rhetorical strategies in bioethical debates on human gene-editing since their inception. John H. Evans, *The Human Gene Editing Debate* (New York: Oxford University Press, 2020).

gamut of emotional capacities responsible for the purposes, wants, needs, desires, and fears that ground human values and aspirations.<sup>226</sup> In spite of their critical attitude toward science and enhancement, then, bioconservative texts do not represent humans as non-biological; rather these texts interpret and mobilize biological theories – or emptier notions of ‘the biological’ – to assert the importance of fixed species boundaries and declare that our current human nature is both sufficient and required for human flourishing.

The biological in this dystopian narrative of enhancement, however, stands in for a more general philosophical notion of what philosopher Alasdair Macintyre terms “metaphysical biology” inherited from the Aristotelian tradition of virtue ethics. In this tradition, “human beings, like the members of all other species have a specific nature; and that nature is such that they have certain aims and goals, such that they move by nature towards a specific *telos*. The good is defined in terms of their species-specific characteristics.”<sup>227</sup> This kind of “pre-philosophical” virtue theory understands human nature as something that exists prior to human reflection and intervention, and which can thus ground a universal account of the good life.<sup>228</sup>

While conservatives often diverge from Aristotle’s emphasis on philosophical reflection as the core ontological activity, there is nevertheless overlap with the Aristotelian tradition of

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226 Fukuyama, *Our Posthuman Future*, 148-177.

227 Alasdair Macintyre, *After Virtue: A Study in Moral Theory* (Notre Dame, I.N.: Notre Dame Press, 1991), 139.

228 While Aristotle contended that philosophical reflection was necessary to deduce what constitutes individual human flourishing (*eudaimonia*), he nevertheless believed that this ‘final good’ was universal and objective rather than a matter of subjective preference. (I use the translation of “flourishing” rather than “happiness” for precisely this reason.) He thus laid out a number of universal, interrelated criteria for something to be considered a final good: 1) it must be pursued for its own sake; 2) it must be such that we only wish for other ends for its sake; 3) it must be such that we do not desire it for the sake of other ends; 4) it must be complete (*teleion*), i.e., always be a worthy choice; and 5) it must be self-sufficient (*autarkês*), i.e., allow for a life that lacks nothing. These criteria were further framed within Aristotle’s overarching ontological framework, according to which each creature within the Great Chain of Being was ‘naturally’ endowed with a unique function (*ergon*). For humans, this function, which also happens to meet the aforementioned criteria of a final good, is the virtuous exercise of the rational soul.

Aristotle, *Nicomachean Ethics* 1094a1-1098b20.

understanding humans as having certain essential qualities, including a pre-determined *telos*, that distinguish them as a natural kind and the ‘excellent’ pursuit (and activation) of which will lead to individual flourishing (*eudaimonia*). Biology or “species-integrity” becomes synonymous with givenness, limitation, and finitude, all of which, the argument goes, are essential for living a virtuous, contented life and gaining membership in the universal moral community. To disintegrate our fixed species boundaries through the use of biotechnologies would thus leave us ethically unmoored (or moored to unethical values) and no longer authentically human. While it is notoriously difficult for bioconservative theorists to define human nature in positive terms, the implication is clear: there is a certain ‘wisdom of nature’ that ought to be respected insofar as human nature, as both a theoretical concept and a biological reality, grounds our most important extant self-understandings and moral frameworks. In the age of biotechnologies, we can look to what human nature *is* to guide our understanding of what it *ought* to be.

## **2.6 Bioliberalism: Arguments from and against Nature**

Proponents of enhancement sometimes rebut the human dignity and moral status critiques in straightforward fashion. Nick Bostrom, for example, contends that, if we understand dignity as either 1) “the inalienable right to be treated with a basic level of respect” or 2) the quality of being worthy, honorable, or excellent, then posthumans would be no less capable of possessing dignity than their traditional human counterparts.<sup>229</sup> Regarding the first understanding, there is nothing to suggest that posthumans would not be entitled to the same basic level of respect as ordinary humans since human rights is a threshold concept grounded in basic cognitive and motivational capacities.<sup>230</sup> Regarding the second understanding, dignity depends upon the traits and values one

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229 Nick Bostrom, “In Defense of Posthuman Dignity” *Bioethics* 19, no. 2 (2005): 209.

230 In fact, positional or other kinds of inequalities that result from enhancement would, the argument goes, make human rights or a similar moral concept even more important for protecting the disadvantaged. Allen Buchanan, “Moral Status and Human Enhancement” *Philosophy & Public Affairs* 37, no. 4 (2009): 346-381. Bioethicist Elizabeth

prioritizes and, for bioliberals, dignity “consists in what we are and what we have the potential to become, not in our pedigree or our causal origin.”<sup>231</sup> According to this more relative and progressive definition, the project of transforming human biology to ‘improve’ our nature could just as easily be seen as the source, rather than the antithesis, of human dignity.

More often, however, proponents of enhancement tend to reject bioconservative critiques *prima facie* as arguments from nature. This makes sense if one takes seriously the naturalistic fallacy, i.e., that nature, human or otherwise, has no moral authority insofar as *ought* does not follow from *is*.<sup>232</sup> The real problem for proponents of enhancement, however, is that human nature, whatever virtues it might possess, is also a rich source of the unrespectable and unacceptable, including susceptibility to disease, murder, and racism. Given the (at best) ambivalent moral status of human nature, we cannot simply assume the natural as a guide to what is desirable and normatively right. Arguments from nature are problematic, then, not because of logical error, but because nature and its accidents ought to be viewed with skepticism, if not outright pessimism, lest we forget that “nature’s gifts are sometimes poisoned.”<sup>233</sup>

Bioethicists Allen Buchanan and Russell Powell, for example, explain that, human “organisms are remarkably *unlike* the work of a master engineer” insofar as human evolution demonstrates a “suboptimal design,” according to which the evolutionary process selects for traits

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Fenton similarly rejects the assumption that *biological* commonalities are a sufficient ground for determining membership in the moral community defined by the notion of human rights. Elizabeth Fenton, “Genetic Enhancement – A Threat to Human Rights?” *Bioethics* 22, no. 1 (2008): 1-7.

231 Bostrom, “In Defense of Posthuman Dignity,” 213.

232 The term “naturalistic fallacy” was coined by G.E. Moore in *Principia Ethica* (1903). Building on David Hume’s is-ought problem, Moore argued that it would be erroneous to explain ethical goodness in terms of ‘natural properties’ such as pleasure or desire. My use of the term here aligns more with David Hume’s original is-ought problem, which suggests that there is a substantive difference between descriptive statements (i.e., those about what is) and prescriptive statements (i.e., those about what ought to be) and that there is no self-evident means to logically deduce the latter from the former. Original citations: George Edward Moore, *Principia Ethica* (Cambridge: Cambridge University Press, 1903). David Hume, *A Treatise on Human Nature* (London: John Noon, 1739), 335.

233 Bostrom, “In Defense of Posthuman Dignity,” 205.

based on environmental fitness rather than the tendency to promote human good.<sup>234</sup> Philosopher Nick Bostrom and neuroscientist Anders Sandberg similarly fault the “wisdom of nature,” identifying a “value discordance” between “the standards by which evolution measured the quality of her work and the standards that we wish to apply” in terms of both individual wellbeing and social goods.<sup>235</sup> Philosophers Ingmar Persson and Julian Savulescu contend that humans have, based on their evolutionary history, evolved “myopic” moral psychologies that inhibit just and altruistic behavior.<sup>236</sup> From self-esteem to self-control to altruism, there is no shortage of all-too-limited capacities that can demonstrate the insufficient job of evolution in selecting for human traits.

Given this pessimistic view of nature, proponents of enhancement see little reason to be satisfied with our natural gifts and thus assert that we can and should use technological means to liberate ourselves from our fallible nature by improving our physical, intellectual, emotional, and even moral capacities. Transhumanist philosopher Max More asserts that it is time to “amend the human constitution” and end the “tyranny” of aging, death, and other limitations through enhancement practices such as engineering the genome and supplementing the neocortex.<sup>237</sup> Bostrom explains that “by any reasonable criteria” one could improve their life by increasing their

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234 Russell Powell and Allen Buchanan, “Breaking Evolution’s Chains: The Promise of Enhancement by Design,” in *Enhancing Human Capacities*, ed. Guy Kahane, Julian Savulescu, and Ruud ter Meulen (West Sussex, U.K.: Wiley-Blackwell, 2011), 58.

235 Nick Bostrom and Anders Sandberg, “The Wisdom of Nature: An Evolutionary Heuristic for Human Enhancement,” in *Human Enhancement*, ed. Nick Bostrom and Julian Savulescu (Oxford: Oxford University Press, 2009), 379.

236 Ingmar Persson and Julian Savulescu, *Unfit for the Future: The Need for Moral Enhancement* (Oxford: Oxford University Press, 2012). Ingmar Persson and Julian Savulescu, “The Perils of Cognitive Enhancement and the Urgent Imperative to Enhance the Moral Character of Humanity” *Applied Philosophy* 25, no. 3 (2008): 162-177.

237 Max More, “A Letter to Mother Nature,” in *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, ed. Max More and Natasha Vita-More (West Sussex, U.K.: John Wiley & Sons, 2013), 450.

lifespan and cognitive and emotional capacities.<sup>238</sup> Who would not want to live longer, remember more, and be happier? After all, we already pursue these ends through the use of medical practices (e.g., pharmaceuticals) and cultural institutions (e.g., education) and thereby implicitly acknowledge the deficiencies of our natural state. The premise for proponents of enhancement is thus unambiguous: “changing nature for the better is a noble and glorious thing for humans to do.”<sup>239</sup>

While this account would seem to indicate that proponents of enhancement reject the importance of human nature altogether, this is far from the case. In attempting to invalidate conservative appeals to an essentialist human nature, proponents of enhancement paradoxically translate their rhetoric into normative arguments for a different, no less essentialist, conception of human nature. These theorists essentialize and naturalize the interrelated traits of rationality, autonomy, and self-creation so that human enhancement, even to the point of becoming posthuman, is understood as making us *more* rather than *less* human.

There is no shortage of examples of bioliberals defending the essential humanness of enhancement. Bioethicist Gregory Stock argues that forgoing better and more powerful means to modify ourselves would be a denial “of what the past tells us about who we are.”<sup>240</sup> Citing Frederick Jackson Turner, he identifies the spirit of exploration, scientific or otherwise, as essential to human nature and the American psyche in particular. “To turn away from germline selection and modification without even exploring them,” then, “would be to deny our essential nature and

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238 Nick Bostrom, “Why I Want to Be a Posthuman When I Grow Up,” in *Medical Enhancement and Posthumanity*, ed. Bert Gordjin and Ruth Chadwick (New York: Springer Books, 2008), 112.

239 Nick Bostrom, “The Transhumanist FAQ: A General Introduction,” World Transhumanist Association. Last modified 2003, [http://www.the-astrolabe.net/transhumanist\\_faq.htm](http://www.the-astrolabe.net/transhumanist_faq.htm)

240 Gregory Stock, *Redesigning Humans: Choosing our Genes, Changing our Future* (Boston: Houghton Mifflin, 2003), 170.

perhaps our destiny.”<sup>241</sup> Rather than preserving the human species, retreating from our Promethean aspirations would “deaden the human spirit of exploration, taming and diminishing us.”<sup>242</sup> In defending the use of performance enhancing drugs in sports, bioethicist and philosopher Julian Savulescu contends that, “Biological manipulation embodies the human spirit – the capacity to improve ourselves on the basis of reason and judgment. When we exercise our reason, we do what only humans do.”<sup>243</sup> Therefore, “to choose to be better is to be human.”<sup>244</sup> Technologist Ramez Naam captures this pro-enhancement premise: “Embracing our quest to understand and improve on ourselves doesn’t call into question our humanity – it reaffirms it.”<sup>245</sup>

## **2.7 The Virtues of Enhancement**

What these accounts have in common is an emphasis on the ‘natural’, ‘higher’ capacities of rationality, autonomy, and self-creation. Building on Enlightenment thinkers such as Immanuel Kant and Francis Bacon, humans are understood as uniquely equipped with the capacity to exercise their reason and will in order to remake their selves and environments. From Kant, we see the familiar notion of reason and will as the fundamental constitutive traits of human being. According to the Kantian tradition, autonomy (i.e., self-legislation according to reason) is a practical, logical postulate necessary for morality to be intelligible. In this formulation, one’s moral goodness is determined through the internal struggle between inclination (desire) and obligation (duty). One’s duties can, in turn, be deduced through rational deliberation and the formulation of actionable maxims based in the categorical imperative, i.e., the unconditional rule, “act only in accordance

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241 Stock, *Redesigning Humans*, 170.

242 Stock, *Redesigning Humans*, 170.

243 Julian Savulescu, Bennet Foddy and Megan Clayton, “Why We Should Allow Performance Enhancing Drugs in Sport,” *British Journal of Sports Medicine* 38 (2004): 667.

244 Savulescu et. al, “Why We Should Allow Performance Enhancing Drugs in Sport,” 670.

245 Ramez Naam, *More than Human: Embracing the Promise of Biological Enhancement* (New York: Broadway Books, 2010), 10.

with that maxim through which you can at the same time will that it become a universal law,” that binds all rational agents.<sup>246</sup> Without presupposing that human beings are capable of (A) using reason to deduce moral maxims and (B) free to act upon those maxims, it would make little sense to speak of one’s moral goodness. Most prescient for our purposes, it is these same autonomous capacities that set humans apart and entitle them to be respected as unconditional ends-in-themselves, i.e., as a “supreme [limiting] condition” upon whatever ends we have.<sup>247</sup> Humans here possess intrinsic moral worth and a unique ontological status because of their given capacities to transcend their natural determination through obedience to the moral law.

If bioliberals are quick to assimilate the Kantian emphasis on rational self-determination, the practical reason in which they are interested is not the moral reasoning of Kant (i.e., deontological determinations of the good), but the scientific, goal-oriented reason of Francis Bacon. More than just popularizing the scientific method, Bacon contended that science ought to be used to ‘achieve mastery over nature in order to improve the living conditions of human beings’, or, in Bacon’s words, to ground the project of “effecting all things possible” toward the “relief of man’s estate.”<sup>248</sup> As philosopher Michael Hauskeller notes, “the ancient definition of the human animal as *zoon logon echon* or *animal rationale* is being evoked here and given a peculiar twist by putting the emphasis on practical reason or, more precisely, a reason that is directed towards self-improvement.”<sup>249</sup> What makes us human is not the ability to reason as such, but rather “a particular

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246 Immanuel Kant, *Groundwork of the Metaphysics of Morals*, ed. and trans. Mary J. Gregor (Cambridge, UK: Cambridge University Press, 1998): 31.

247 Kant, *Groundwork of the Metaphysics of Morals*, 37.

248 Quoted in Nick Bostrom, “A History of Transhumanist Thought” *Journal of Evolution and Technology* 14, no. 1 (2005), 2.

249 Michael Hauskeller, “Prometheus Unbound: Transhumanist Arguments from (Human) Nature” *Ethical Perspective* 16, no. 1 (2009): 11.

goal-oriented *use* of reason.”<sup>250</sup> From this Baconian perspective, reason in the fullest sense is the application of scientific knowledge in the form of technologies that enable self-improvement. Rational, historical progress is thus a practical and technological, rather than theoretical, project and scientific empiricism is a means rather than an end. What matters most is not whether enhancement conforms to deontic rules for action but rather what outcomes it will produce. If (A) reason *a priori* produces the most moral outcomes, (B) techno-science is the fullest manifestation of reason, and (C) human enhancement is the practical realization of the techno-scientific project, it follows that (D) human enhancement is *a fortiori* a moral pursuit.

If human enhancement represents the fullest manifestation of reason, however, it also represents the fullest manifestation of freedom. On one hand, the principle of individual freedom is used to justify the right of individuals to use enhancements on themselves and their offspring. Bioethicist John Harris explains that modern democratic states are founded on a so-called “democratic presumption,” i.e. the presumption that citizens ought to be free to make their own choices in light of their own values, regardless of whether these choices and values are acceptable to the majority; only serious, real, and present dangers to other citizens or society are sufficient to rebut this presumption.<sup>251</sup> Unless opponents of enhancement can convincingly demonstrate such dangers, it follows that “human enhancement technologies should be made widely available, and that individuals should have broad discretion over which of these technologies to apply to themselves (morphological freedom), and that parents should normally get to decide which reproductive technologies to use when having children (reproductive freedom).”<sup>252</sup>

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250 Hauskeller, “Prometheus Unbound,” 11.

251 John Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton, NJ: Princeton University Press, 2010), 71.

252 Bostrom, “In Defense of Posthuman Dignity,” 203.

For bioliberals, however, enhancement is not just an exercise in political freedom; it actually increases the freedom of the individual by providing an unprecedented number of choices. Bioethicist Ronald Bailey contends that, “giving children such enhanced capacities as good health, stronger bodies, and cleverer brains, far from constraining them, would in fact give them more freedom and more choices.”<sup>253</sup> Ethicist Nicholas Agar thus asserts that we ought to embrace a “liberal eugenics,” which enables parents to make reproductive genetic choices and ensures the greatest possible range of potential life plans for future persons. By enhancing all-purpose traits with “intrinsic” value such as intelligence, the individual would be able to pursue any number of life plans that might not have been available given his or her natural genetic code. Insofar as self-determination or “freedom” is a fundamental virtue and condition of wellbeing, technological enhancement is not just ethically permissible but also desirable.<sup>254</sup>

Political freedom and individual self-determination are not seen as two distinct modes of autonomy here but rather as mutually supportive ends. If enhancement techniques can increase individual self-determination, and if democracies exist to protect and maximize the individual, natural right of freedom, then the state ought to encourage rather than restrict enhancement projects or, just as preferable, defer to the free market. In the context of enhancement social ethics, where supply and demand drive technological advancement and the choices of the individual are paramount, liberalism necessitates libertarianism. Given bioethicists longstanding role in authorizing government funding of biomedical and biotechnological research, this critical attitude towards government oversight might be seen as somewhat surprising. The simplest explanation

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253 Ronald Bailey, *Liberation Biology: The Scientific and Moral Case for the Biotech Revolution* (Amherst, NY: Prometheus Books, 2005), 166.

254 Nicholas Agar, “Liberal Eugenics” *Public Affairs Quarterly* 12, no. 2 (1998): 137-155. Nicholas Agar, *Liberal Eugenics: in Defence of Human Enhancement* (Oxford: Blackwell, 2008).

might be to understand it as a reaction to the regulatory success of conservative bioethicists under the Bush administration and the simultaneous privatization of technological research and design in Silicon Valley. It is also, however, worth noting that, as historian Fred Turner demonstrates, American “cyberculture” and its grounding idealization of free information exchange developed directly out of the libertarian political ethos of 1960s counterculture. Even as government agencies drove the research behind digital computers and the Internet, it was championed by “digital utopians” like Stewart Brand and John Perry Barlow as a means of effecting political decentralization and personal liberation.<sup>255</sup> Given that biotechnologies are so often seen as part and parcel of the information revolution, it should be altogether unsurprising that techno-enthusiasts imagine its ideal social and political conditions in similar terms.<sup>256</sup>

Such historical connections, however, should not belie the importance of how bioliberals themselves historicize (or rather de-historicize) the project of human enhancement. In particular, bioliberals seek to establish the essential humanness of enhancement through positioning it within a classical narrative of modernization in which the Scientific Revolution and Enlightenment act as watershed moments. As transhumanist bioethicist James Hughes explains:

As soon as hominids developed the capacity for abstract thought, they began to imagine ways that their life could be radically improved. They developed medicines and magical practices to improve health and wisdom. They developed religious worldviews that posited times and places without toil, conflict, or injustice, a more perfect world where they would be free of their vicissitudes.... With the emergence of the European Enlightenment in the 1700, however, these aspirations found expression in the belief that a new world could and would be built on foundations of reason, science, and technology.<sup>257</sup>

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255 Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago, 2006).

256 While the most popular term in bioethics, and therefore this chapter, is “biotechnologies,” enhancement is often thought of in terms of an emerging and converging cluster of technologies: nano-bio-info-cogno (NBIC) innovations. See: William Sims Bainbridge and Mihail C. Roco, ed., *Managing Nano-Bio-Info-Cogno Innovations: Converging Technologies and Society* (Dordrecht, NL: Springer Books, 2006).

257 James J. Hughes, “The Politics of Transhumanism and the Techno-Millennial Imagination, 1626-2030” *Zygon* 47, no. 4 (2012): 757-758.

This world-historical narrative is intended to communicate an enduring human essence: humans have *always* been organisms directed toward the goal of self-improvement and self-creation. Proponents of enhancement thus understand themselves as continuing the historical progress initiated by the Enlightenment tradition with biotechnologies functioning as one more means to an age-old end. The key difference for these enthusiasts is that, as the culmination of a long secularizing transition to practical reason, enhancement technologies promise to – unlike magical, religious and other unscientific means – finally fulfill our ancient longings.

Despite invoking this traditional model of secularization, bioliberals do not necessarily view the scientific project of enhancement as being in conflict with religion. Hughes notes that a 2005 poll of the World Transhumanist Association showed that while two-thirds of members identified as atheist, agnostic, secular humanist, or nontheist, a third self-identified with some kind of religiosity or spirituality, including Christian (8%), spiritual (5%), Buddhist (4%), and religious humanist (2%).<sup>258</sup> Just as important, “there are beginning signs of religious-transhumanist syncretism both within and outside of the major faiths.”<sup>259</sup> Prolific Protestant theologians Ted Peters and Ronald Cole-Turner, for example, subscribe to a framework of “co-creation.” Co-creation presupposes that humans are best understood as not only made in the image of God (*imago dei*), but also as conscious subjects who act cooperatively with God in advancing the project of creation, i.e., as “created co-creators.” According to Peters, “a theology of continuing creation looks forward to the new ... [and] is realistic about the dynamic nature of our situation. Everything

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258 Hughes, “The Politics of Transhumanism and Techno-Millennial Imagination,” 768.

259 James Hughes, “The Compatibility of Religion and Transhumanist Views of Metaphysics, Suffering, Virtue and Transcendence in an Enhanced Future” *Global Spiral* 8, no. 2 (2007): 6.

changes.”<sup>260</sup> From this follows an ethics that “denies that the status quo defines what is good, denies that the present situation has an automatic moral claim to perpetuity.”<sup>261</sup> Instead, Peters insists, “the concept of the created co-creator we invoke here is a cautious but creative Christian concept that begins with a vision of openness to God’s future and responsibility for the human future.”<sup>262</sup> Whether expressed in religious or secular terms, however, the premise is the same: humans are, by their very nature, engaged in a project of not just self-determination but also self- and world-creation.

## 2.8 Philosophical Ethics and/as Evolutionary Biology

Rather than just forwarding a normative philosophical essence, this account is also naturalized to fit with understandings of evolutionary biology and molecular genomics. Like with its historical narration, the bioliberal account connects to an evolutionary narrative in which the human species has always been subject to change and *Homo sapiens sapiens*’ capacity to modify both self and environment has been crucial to its survival. As Buchanan and Russell explain, from the perspective of evolutionary biology, “survival is contingent on *change*, not *stasis*, since adaptive optimality is spatially local and temporally fleeting.” As a product of evolution, then, enhancement “is simply one more way in which a lineage (in this case, the human species) can buffer itself against the perennially decaying selective environment.”<sup>263</sup> Given humans’ “suboptimal” evolutionary adaptations - e.g. the genetic insensitivity to the post-reproductive quality of life – and the potential of intentional genetic modification (IGM) to overcome these “severe” limitations, evolutionary theory (purportedly) supports developing IGM technologies.

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260 Ted Peters, *Playing God?: Genetic Determinism and Human Freedom* (Cambridge: International Society for Science and Religion, 2007), 155.

261 Peters, *Playing God?*, 155.

262 Peters, *Playing God?*, 156.

263 Russell and Buchanan, “Breaking Evolution’s Chains,” 65.

Futurist Ray Kurzweil argues that evolution – both biological and technological – is a process of creating patterns of increasing order and complexity according to an exponential model known as Moore’s Law, which he refigures as the “Law of Accelerating Returns.”<sup>264</sup> Based on this trend of exponential increase, the next logical step is for humans to go beyond the hardwired limitations of the brain’s computing power by merging with intelligent machines. This merger of human and machine – which will involve utopian outcomes ranging from indefinite life-extension to the virtual uploading of consciousness – is what Kurzweil calls the “Singularity.” While the Singularity is a historical rupture in which biology is “transcended,” it is also perfectly consistent with an informatic view of evolution and is thus considered completely natural and even teleological.<sup>265</sup> “Being human,” he explains, “means being part of a civilization that seeks to extend its boundaries.”<sup>266</sup> Thus, even in a universe in which artificial intelligence altogether supersedes its biological counterpart “our civilization will remain human—indeed, in many ways it will be more exemplary of what we regard as human than it is today, although our understanding of the term will move beyond its biological origins.”<sup>267</sup>

The importance of the natural for proponents of enhancement is further elucidated through their discussions of the means of enhancement. While these thinkers tend to acknowledge that ‘traditional’ means of enhancement such as education are legitimate, they nevertheless view them as insufficient. For example, proponents of moral enhancement such as philosophers Mark Walker

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264 Developed by Gordon Moore, co-founder of Fairchild Semiconductor and Intel, Moore’s law predicts that the number of transistors in integrated circuits will continue to double approximately every two years. Gordon E. Moore, “Cramming More Components onto Integrated Circuits,” *Electronics* 28, no. 8 (1965).

265 Kurzweil argues that, as uniquely intelligent, creative beings, “Waking up the universe, and then intelligently deciding its fate by infusing it with our human intelligence in its nonbiological form, is our destiny.” Ray Kurzweil, *How to Create a Mind: The Secret of Human Thought Revealed* (New York: Penguin Books, 2012), 282.

266 Ray Kurzweil, *The Singularity is Near: When Humans Transcend Biology* (New York: Penguin Group, 2005), 275.

267 Kurzweil, *The Singularity is Near*, 40.

and Thomas Douglas contend that ethical virtues including truthfulness, justice, and caring are in large part heritable and are therefore subject to genetic modification.<sup>268</sup> If the degree to which one possesses these virtues is hardwired, then there may be a limit to which the ethical aim of eradicating “evil” “can be realized through processes of socialization and education alone.”<sup>269</sup> It follows that intervening in the human genome directly is the most efficient and, in some cases, the only means for humans to morally enhance themselves.<sup>270</sup>

In this rendering of the human future, the utopian imagination is reoriented from social and political means toward biotechnology with biological enhancement functioning as the primary means to achieve individual human flourishing. If biology is the source of our defective physical, intellectual, and moral existence, it is also the potential source of our salvation. The bioliberal account of human nature is thus not intended to be a simple description of humans’ characteristic behavior. Rather, it is used as a ground for the normative directive to enhance. In this alternate understanding of human nature, enhancement is “what we are *meant* to do by virtue of what we are.”<sup>271</sup> If we want to remain true to our nature, then we must support the development and use of enhancement techniques in all aspects of life. Thus Bostrom cites Kant’s famous motto of enlightenment and implores the reader: “*Sapere aude!* Have the courage to use your own intelligence.”<sup>272</sup>

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268 Mark Walker “Genetic Virtue: A Project for Twenty-First Century Humanity?” *Politics and the Life Sciences* 28, no. 2 (2009): 27-47. Thomas Douglas, “Moral Enhancement” *Journal of Applied Philosophy* 25, no 3 (2008): 228-245.

269 Walker, “Genetic Virtue,” 29.

270 Douglas provides the most concise definition of moral enhancement: “A person morally enhances herself if she alters herself in a way that may reasonably be expected to result in her having morally better future motives, taken in sum, than she would otherwise have had.” Douglas, “Moral Enhancement,” 129.

271 Hauskeller, “Prometheus Unbound,” 11.

272 Bostrom, “A History of Transhumanist Thought,” 4.

## 2.9 Bio-Humanism and Beyond

Frustrated with liberal and conservative bioethicists talking past one another, Hastings Center bioethicist Erik Parens published an analysis of the enhancement debate in 2005 that attempted to open a path of reconciliation between the two sides. Parens contended that both advocacy for and criticism of enhancement depend upon different understandings of “authenticity” that “grow out of two different but equally worthy ethical frameworks, which stand in fertile tension with each other.”<sup>273</sup> Drawing on philosopher Charles Taylor’s *The Ethics of Authenticity*, he explained that each of us finds our own way of being in the world: “It is my job as a human being to find my way of flourishing as a being true to myself. ‘If I am not [true to myself], I miss the point of my life, I miss what being human is for me,’” leading to an experiential state of alienation.<sup>274</sup> Parens thus describes the two poles of the enhancement in terms of differing “psycho-ethical frameworks” of authenticity: gratitude and creativity. Gratitude obliges us to recognize that “we human beings are not the creators of life; we are creatures, whose job is to remember that life is a gift. It is our responsibility to express our gratitude for the mysterious whole, which we have not made.”<sup>275</sup> Creativity, on the other hand, compels us to recognize that enhancements “do not separate us from what is most our own. On the contrary, they *give* us what is most our own; they free us up so that we encounter the world as it really is and authentically create ourselves.”<sup>276</sup>

While Parens’ synthesis of the enhancement debate maps onto what we have seen so far, his analysis draws our attention to the fact that the two predominant positions on enhancement

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273 Erik Parens, “Authenticity and Ambivalence: Toward Understanding the Enhancement Debate” *The Hastings Center Report* 35, No. 3 (2005): 34-41.

274 Parens, “Authenticity and Ambivalence,” 35.

275 Parens, “Authenticity and Ambivalence,” 37.

276 Parens, “Authenticity and Ambivalence,” 36.

share more in common than most observers have been able or willing to recognize. In his attempt to generate more honest deliberation and collaboration, however, Parens chooses an approach of inclusive validation according to which the two predominant perspectives are folded into an ideal political pluralism and recognized as ‘authentic’ or ‘equally worthy’ by virtue of being principled beliefs. While Parens is right to identify sameness between the two sides, I want to suggest that the more exigent common ground between bioconservatives and bioliberals is their deep commitment to classical humanist ideals of selfhood and their unreflexive approach to the category of human nature. After all, the crux of both the conservative and liberal positions on enhancement is that we ought to pursue what will make us *most human*, whether that is preserving our species integrity or becoming posthuman. What is needed for enhancement ethics to progress, then, is not simply a more civil civic discourse in which conservatives and liberals actually listen to one another. Rather, we need to understand that both operative frameworks fail to meaningfully challenge or re-imagine familiar ontological understanding of ‘the human’ and are therefore equally *unworthy* of evaluating the moral potential of biotechnologies.

Posthumanist philosopher Tamar Sharon’s reading of biotechnologies through Gilles Deleuze and Felix Guattari’s lens of “schizoanalysis” is especially useful for understanding the discursive strategies through which humanism is operationalized in the enhancement debate.<sup>277</sup> In *Capitalism and Schizophrenia*, Deleuze and Guattari elaborate a cycle of de- and re-territorialization in which relations, concepts, or practices are freed from their given “territory” and then resituated as part of a different system or assemblage. For Deleuze and Guattari, this is most evident in capitalism’s transformation of products into commodities, which deterritorializes

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277 Tamar Sharon, *Human Nature in an Age of Biotechnology: The Case for Mediated Posthumanism* (New York: Springer Books, 2013), 175-197. Tamar Sharon, “A Schizoanalysis of Emerging Biotechnologies: Renaturalized Nature, the Disclosed Secret of Life, and Technologically Authentic Selfhood” *Configurations* 19, no. 3 (2011): 431–460.

labor-power by freeing it from specific means of production and reterritorializes it as wages. The main effect of the process of deterritorialization is that it liberates “desire,” what Deleuze and Guattari view as the primary reality of subjective and social being. Once unleashed, however, this libidinal surplus comes up against a “paranoid” counter-trend, a reaction that seeks to incorporate and re-code schizophrenic energies by reterritorializing them back onto transcendental signifiers and normalizing institutions.<sup>278</sup>

While I have no commitment to the psycho-analytic framework of “desire,” the concept of “reterritorialization” or, in this case, ‘re-naturalization’ is especially pertinent to our examination of the enhancement debate.

Emerging biotechnologies embody a great ‘schizophrenic’ potential to challenge and undermine – to deterritorialize – traditional, essentialist understanding of nature, the human and subjectivity. But these technologies also often comprise a ‘paranoid’ tendency, that aims to capture and rechannel this subversive potential - to deterritorialize it – back onto fixed, conventional understandings of nature and the human, thus reinstating rather than invalidating humanist narratives.<sup>279</sup>

Sharon examines this cycle using the case study of Assisted Reproductive Technologies (ARTs) such as in vitro fertilization (IVF), artificial insemination, donor insemination, preimplantation genetic diagnosis (PGD), hormone treatment, surrogacy, and cryo-preservation. On one hand, these disruptive interventions sever the link between heterosexual and biological reproduction, fragmenting conventional meanings of “nature,” “gender,” “reproduction,” “motherhood,” and “family.” For example, surrogate motherhood deconstructs the classical concept of “motherhood” as necessarily biological and social, instead affording different concepts of genetic, birth, adoptive,

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278 Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1980).

279 Sharon, *Human Nature in an Age of Biotechnology*, 176.

and surrogate maternities.<sup>280</sup> On the other hand, as feminist scholars of science have argued at length, “the technologization and medicalization of conception has transformed women’s bodies into sites for increasing medical intervention and control...the reproductive female body in such narratives is...a body that needs to be incorporated into systems of normative surveillance and necessitates discipline.”<sup>281</sup> For example, even in ‘liberal’ countries such as Austria, France, Denmark, Ireland, and Sweden, donor insemination and IVF are restricted to women who are married and, most often, in heterosexual relationships.<sup>282</sup>

Sharon is far from alone in accounting for this trend of paranoid counter-production in the realm of techno-science. Speaking on the naturalization of gender boundaries, Anne Balsamo explains that when “stable boundaries are displaced by technological innovation (human/artificial, life/death, nature/culture), other boundaries are more vigilantly guarded.”<sup>283</sup> Guatarri would later describe the “immense processual potentials brought forth by the revolutions in information

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280 For a more detailed discussion of these emergent biotechnological kinships and identities, see: Marilyn Strathern, *Reproducing the Future: Essays on Anthropology, Kinship, and the New Reproductive Technologies* (Manchester: Manchester University Press, 1992). Sarah Franklin and Helena Ragone, ed., *Reproducing Reproduction: Kinship, Power, and Technological Innovation* (Philadelphia: University of Pennsylvania Press, 1998). Marcia C. Inhorn and Daphna Birenbaum-Carmeli, “Assisted reproductive Technologies and Culture Change” *Annual Review of Anthropology* 37, no. 1 (2008): 177–196.

281 Sharon, *Human Nature in an Age of Biotechnology*, 185. Elizabeth Sourbut elaborates: “The discourse of biological destiny defines infertility within the terms of biological science. Heterosexuality and the nuclear family are presented as natural. Only procreation through heterosexual intercourse within marriage is seen as producing legitimate parenthood. This, of course, is profoundly disrupted by the new reproductive technologies, which not only bypass heterosexual intercourse, but often involve third-party donations of gametes. This contradiction can only be contained by rigid discursive conventions which privilege genetic inheritance over all other forms of parent–child ties.” Elizabeth Sourbut, “Gynogenesis: A Lesbian Appropriation of Reproductive Technologies” in *Between Monsters, Goddesses, and Cyborgs*, ed., Nina Lykke and Rosi Braidotti (London: Zed Books, 1996), 236.

282 Sharon, *Human Nature in the Age of Biotechnology*, 185–187. Szkupinski Quiroga further explains that the such institutional practices of ARTs are not just about affirming ideals of the heterosexual, nuclear family, but also ideals of racial purity. “Sperm banks simultaneously manage the subversion of patriarchy and racial purity through the careful cataloguing of donors’ physical characteristics, which are then used as a basis

for “matching” and choosing the appropriate donor.” Seline Szkupinski Quiroga, “Blood is Thicker than Water: Policing Donor Insemination and the Reproduction of Whiteness,” *Hypatia* 22, no. 2 (2007): 150.

283 Anne Balsamo, *Technologies of the Gendered Body: Reading Cyborg Women* (Durham, N.C.: Duke University Press, 1996), 9.

processing, telematics, robotics, office automation, biotechnology and so on” as thus far only leading to “a monstrous reinforcement of earlier systems of alienation, an oppressive mass-media culture and an infantilizing politics of consensus.”<sup>284</sup> Jill Didur contends that, “despite the rhetoric of hybridity and constructivism that characterizes...claims about the impact of these new technologies in society, their ownership, implementation, and regulation are haunted by an Enlightenment subject that presupposes knowledge as disembodied and humans as autonomous and unified agents.”<sup>285</sup> Donna Haraway identifies this paranoid trend as the “informatics of domination” in which the “*translation of the world into a problem of coding*” affords “control strategies” that essentialize, rather than deconstruct, classical dichotomies such as primitive and civilized, religious and secular, nature and culture, and organism and machine.<sup>286</sup> The result is that new paradigms of understanding – in this case, the language of information – can reinscribe existing power relations and, for Haraway at least, the ends of global capitalism and militarism. These posthumanist authors share a belief that while the ‘anxiety’ or ‘pressure’ that biological sciences and technologies put on the liberal subject possess liberative potential, the informatic self often paradoxically does little more than reconstitute the humanist subject in different terms.

Sharon, however, goes on to argue that this kind of reterritorialization is never just a repetition, and that the meaning of familiar categories becomes plastic and flexible, rather than just reinscribed or erased, when resituated. Scholar Gaymon Bennett echoes this view in his examination of human dignity, when he explains that “[It] is not a rhetorical remainder either of

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284 Félix, Guattari, “Regimes, Pathways, Subjects” in *Incorporations*, ed. Jonathan Crary and Sanford Kwinter (New York: Zone, 1992), 29-30.

285 Jill Didur. “Re-Embodying Technoscientific Fantasies: Posthumanism, Genetically Modified Foods, and the Colonization of Life,” *Cultural Critique* 53 (2003): 100.

286 Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist Feminism in the Late Twentieth Century" in *Simians, Cyborgs and Women: The Reinvention of Nature* (New York; Routledge, 1991), 164.

the history of humanism or human rights.” Rather, it is a distinctive discursive project enmeshed in particular “programmatically efforts to invent and stabilize new forms of life.”<sup>287</sup> While I acknowledge that the discursive practices for making sense of biotechnologies are more than mere repetitions, the ‘paranoid’ element of reterritorialization cannot be understated in mapping the territory of the enhancement debate. If biotechnologies’ material and symbolic potential to subvert familiar ideas of human nature represents a schizophrenic crisis of humanism, the human enhancement debate embodies a paranoid counter-trend in which human nature is reterritorialized as a transcendental signifier through which the threat of human enhancement can be reconciled.

This is most apparent in the fact that “humanism” is a featured, normative part of the enhancement lexicon. Bostrom, for example, describes transhumanism as derived from and an extension of humanism. Humanists, he explains, believe that “individuals matter” and that “we can make things better by promoting rational thinking, freedom, tolerance, democracy, and concern for our fellow human beings.”<sup>288</sup> Transhumanists, however, go further in asserting that, “just as we use rational means to improve the human condition and the external world, we can also use such means to improve ourselves, the human organism.”<sup>289</sup> It is little surprise, then, that transhumanists self-identify with Renaissance and Enlightenment thinkers such as Pico della Mirandola, Immanuel Kant, Francis Bacon, and Marquis de Condorcet who described human progress and the exercise of rational will as co-substantial. It is this desire to further the reach of

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287 Gaymon Bennett, “Bioethical Pastoral: Life, Ethics, and the Politics of Human Dignity” *Biosocieties* 13, no. 3 (2018): 618.

288 Bostrom, “The Transhumanist FAQ”

289 Bostrom, “The Transhumanist FAQ”

the human mind, and its concomitant view of the human body as an obstacle to be overcome, that leads critics to describe transhumanism and likeminded thinking as “ultra-humanist.”<sup>290</sup>

Bioconservatives, on the other hand, often criticize a scientific or materialist humanism, which implies both a reduction of the human to its empirical attributes and an elevation of the human to a position of absolute will. This mode of humanistic thought, however, does not exhaust all the possible humanisms for conservatives. Edmund Pellegrino, who succeeded Kass as chairman of the President’s Council on Bioethics, offers a different reading of Renaissance humanism, intimating that it put forth a more authentic vision of humanism than our current paradigm. This vision affirms the now-familiar ideal of an ontologically contained human dignity: “that human beings were the only creatures endowed with reason and the freedom to use it to determine their own destiny. That freedom, they thought, placed us firmly between the angels and the apes and endowed us with an inherent dignity that set us apart from both.”<sup>291</sup> This speaks to a more pervasive sentiment among conservative bioethicists; it is not that we must reject humanism *per se*, but rather that we must subscribe to the right kind of humanism, one that champions being human rather than becoming more than human.

The term “humanism” deserves some clarification at this point. What is it that makes the models of subjectivity being operationalized in the enhancement debate humanist? Humanism has historically been an unstable and contested category. From Renaissance humanism to German idealism to Darwinian scientific humanism, no two humanisms are identical.<sup>292</sup> In this context,

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290 Bradley B. Onishi, “Information, Bodies, and Heidegger: Tracing Visions of the Posthuman,” *Sophia* 50, no. 1 (2011): 101-112.

291 Edmund D. Pellegrino, “The Lived Experience of Human Dignity,” in *Human Dignity and Bioethics: Essays Commissioned by the President’s Council on Bioethics* (Washington, D.C.: Government Printing Office, 2008), 513..

292 Vito R. Giustiani, “Homo, Hamanus, and the Meanings of ‘Humanism.’” *Journal of the History of Ideas* 46, no. 2 (1985): 167-195.

however, it can be useful to speak of humanism as a coherent philosophical framework for several reasons. Foremost, there are a number of shared positions about the human subject that persist across different historical humanisms and which gained decisive articulation in seventeenth through nineteenth century Euro-American philosophy: 1) *fixedness*: man is a distinct and elevated natural kind whose constitutive characteristics are both pregiven and universal; 2) *rationality*: based on the use of reason, man is the locus of theoretical and practical certainty; 3) *autonomy*: man can self-consciously exercise his will to determine his own situation; and 4) *transparency*: man himself is both a privileged and knowable object of knowledge.<sup>293</sup> In tandem, these traits express a historically particular idealization of Aristotle's classical *animal rationale*, the 'enlightened' recognition and exercise of which have been widely understood as decisive in initiating Western "modernity."<sup>294</sup>

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293 The primary source material – what we might think of as the “canon” of Western philosophy – is far too prolific to give a meaningful account of here. Besides my own engagement with Enlightenment philosophers, this description of a shared position about the distinctive features of human subject as well as more general epistemological obsession with realist classification during this period, however, owes much to Michel Foucault's work on the invention of “modern” subjectivities. Michel Foucault, *The Order of Things: An Archeology of the Human Sciences* (New York: Vintage Books, 1994). Michel Foucault, *The Archeology of Knowledge: And the Discourse on Language*, trans. A.M. Sheridan Smith (New York: Vintage Books, 2010).

294 “Modernity” here does not refer to an objective historical period so much as a thesis or meta-narrative about the progressed and progressive state of post-Enlightenment Euro-American culture(s). Sociologist Anthony Giddens capture this general thesis, defining modernity as: “...a shorthand term for modern society, or industrial civilization. Portrayed in more detail, it is associated with (1) a certain set of attitudes towards the world, the idea of the world as open to transformation, by human intervention; (2) a complex of economic institutions, especially industrial production and a market economy; (3) a certain range of political institutions, including the nation-state and mass democracy. Largely as a result of these characteristics, modernity is vastly more dynamic than any previous type of social order. It is a society—more technically, a complex of institutions - which, unlike any preceding culture, lives in the future, rather than the past.” Anthony Giddens and Christopher Pierson, *Conversations with Anthony Giddens: Making Sense of Modernity* (Cambridge Oxford: Polity Press, 1998), 94.

Kant's framing of Enlightenment as “man leaving his self-caused immaturity” through the self-willed public use of individual reason has been especially influential for theorizations of modernity. Immanuel Kant, “What is Enlightenment?” in *Sources of the Western Tradition*, Volume II, 3rd ed, trans. and ed. by Marvin Perry et. al (Boston: Houghton Mifflin Company, 1995), 56-57.

Philosopher of religion Mark C. Taylor further clarifies that to speak of “modernity” is to take up a tripartite dialectic of time: ancient (thesis), medieval (antithesis), modern (synthesis). Taylor, however, argues that, modernity can best be understood as a *theological* invention, which owes as much to medieval debates about realism and nominalism, Christian millennialism, Martin Luther's *sola scriptura*, and John Calvin's “invisible hand” as it does to the Enlightenment philosophies that followed from them. Mark C. Taylor, *After God* (Chicago: Chicago University Press, 2007), 43-83.

Critiques from feminist, post-colonial, environmental, and post-humanist studies, however, have demonstrated that, more than just delineating distinctive human capacities, what ties together humanism as a coherent “philosophy of man” is the inscription of a dominant subject defined in oppositional and hierarchical terms.<sup>295</sup> We can follow Saba Mahmood in understanding this as a paradoxical practice of universalization in which certain descriptive and normative categories of being and acting – in Mahmood’s example, an inherent desire for self-realization through the unconstrained exercise of individual autonomy – are assumed to apply independent of particular context.<sup>296</sup> Political philosopher Jeffrey Minson notes that this humanist legacy can, in part, be traced back to Kant’s ethical formulation, which de-situated moral action through universalist, deontological determinations of the good that exist over and against the particular contexts in which moral acts unfold.<sup>297</sup> To this, we might also add Kant’s explicit framing of embodiment – including desire, pleasure, and emotion – as the principal antagonist in cultivating a moral life.<sup>298</sup>

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295 The literature on this topic is once again all-too-voluminous. Some of the notable works that have influenced my thinking include: Michel Foucault, “What is Enlightenment?” in *The Foucault Reader*, ed. Paul Rainbow (New York: Pantheon Books, 1984) 32-50. Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life*, trans. Daniel Heller-Roazen (Stanford, CA: Stanford University Press, 1998). Rosi Braidotti, *The Posthuman* (Cambridge, UK: Polity, 2013). Peter Sloterdijk, “Rules for the Human Zoo: a response to the ‘Letter on Humanism’” *Environment and Planning D: Society and Space* 27 (2009): 12-28. Kate Soper, *Humanism and Anti-Humanism* (LaSalle, IL: Open Court Press, 1986).

296 Saba Mahmood, *Politics of Piety: The Islamic Revival and the Feminist Subject* (Princeton, N.J.: Princeton University Press, 2005), 1-39.

297 Jeffrey Minson, *Questions of Conduct: Sexual Harassment, Citizenship, Government* (New York: St. Martin’s Press, 1993).

298 While this is true for Kant’s more general corpus, we can find notable examples in his writings on religion. In discussing the concept of original sin, for example, he argues that “The difference, whether the human being is good or evil, must not lie in the difference between the incentives that he incorporates into his maxim (not in the material of the maxim) but in their *subordination* (in the form of the maxim): *which of the two he makes the condition of the other*. It follows that the human being (even the best) is evil only because he reverses the moral order of his incentives in incorporating them into his maxims.” Evil here is understood as failing to subordinate inborn desirous inclinations to high-minded obligations in the formation of one’s (universal) maxims for ethical action. While he contends that all religions could in some sense meet his standard for “pure moral faith” and “practical reason,” i.e., providing the imaginative conditions for obedience to the moral law, he relishes in criticizing both Catholicism and Judaism for their top-down institutionalism, superstitious dogma, and plurality of embodied, ritualistic practices. For Kant, these religions, at least in their contemporaneous instantiations, do not meet the standard of “true religion” because of their failure to adequately disembody and decontextualize the individual subject. Immanuel Kant, *Religion Within the*

Indeed, feminist critiques have long noted how rational thought and individual agency have secured their place as the constitutive characteristics of the humanist subject through the discursive exclusion of the bodily, feminine, emotional, non-rational, and intersubjective.<sup>299</sup> This practice of universalization is thus paradoxical because it equalizes through constructing oppositions and hierarchies. Descriptions of purportedly ‘natural’, ‘human’ modes of being and acting depend upon and afford the exclusion, erasure, or de-humanization of their non-conforming counterparts. In the context of humanism, then, ‘the human’ functions as a conceptual and linguistic sign of difference that delimits the self through marking non-humans (e.g., animals, technologies, nature, and non-normative persons) as both other and less than.

Both the particular traits of the humanist subject and its oppositional, hierarchical status here depend upon a prior *metaphysical* integrity. This should sound counterintuitive given that, in the prior chapter, we saw how the movement to a ‘molecular’ way of knowing acted as a condition of the human enhancement debate. To review, beginning in the late 1800s, medical illness was relocated in individual bodies and medicine was reconceptualized in terms of depth, organs, and functions, rather than just species and classifications. The body that emerged under this “clinical gaze” – a bounded, systemic whole – became the predominant model across scientific and humanistic disciplines in the nineteenth and twentieth centuries.<sup>300</sup> Starting in the postwar period, however, life scientists began to conceive of organisms in terms of transferable elements of genetic

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*Boundaries of Mere Reason*, ed. and trans., Allen Wood and George di Giovanni. (Cambridge: Cambridge University Press, 1998), 59. For Kant’s discussion of Catholicism and Judaism, see 91-149.

299 Some of the earliest and most influential texts to develop this point include: Judith Butler, *Bodies That Matter: On the Discursive Limits of “Sex”* (New York: Routledge, 1993). Elizabeth Grosz, *Volatile Bodies: Toward a Corporeal Feminism* (Bloomington I.N.: Indiana University Press, 1994) Moira Gatens, *Imaginary Bodies: Ethics, Power, and Corporeality* (London: Routledge, 1996). My work, however, takes special inspiration from: Margrit Shildrick, *Leaky Boundaries and Bodies: Feminism, Postmodernism and (Bio)Ethics* (New York: Routledge, 1997).

300 Michel Foucault, *The Birth of the Clinic: An Archeology of Medical Perception*, trans. A.M. Sheridan Smith (New York: Pantheon Books, 1973), 107-148.

information. According to this molecular way of knowing, the ‘stuff’ of life – information patterns – could be stored, transported, and reassembled, including across species lines. Human nature is always already ‘recombinatory’ and, taken to its logical extreme, the subject is an open, rather than closed, system of information flows.<sup>301</sup> While I will return to the idea of molecular subjectivity in Chapter Five, the important point here is that the idea of human enhancement depends upon a prior understanding of the human body as an informatic self, always already open to biotechnological intervention. This recombinatory model of subjectivity provides the epistemic ground upon which bioethicists can speak of enhancement as a serious possibility in the first place.

While this would seem to suggest that bioethicists are discussing a non-humanist subject with ‘leaky boundaries’, the actual subject of enhancement discourse – the human whose nature is at stake and whom we must make ethical decisions about – is instead the self-contained, self-determining subject of classical humanism. Bioethical appeals to human nature presuppose what post-humanist theorist Elaine Graham describes as an “ontological hygiene,” i.e. a refusal to recognize that the conceptual (and not just physical) distinctions between the organic and technological, nature and artifact, human and machine are being called into question by both critical theory and techno-science itself.<sup>302</sup> Both conservative and liberal thinkers reproduce a quasi-Cartesian dualism in which the human subject is separated from the rest of the natural and artificial world. For conservative thinkers, biotechnologies threaten to impinge on the human from the outside, penetrating the boundaries and integrity of the sacred, autonomous subject and thereby threatening human dignity and moral status. Even while will and power are questioned as supreme

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301 For more detail on how this ideal of ‘recombination’ emerged through discourses of genetics and heredity, see: Lily E. Kay, *Who Wrote the Book of Life: A History of the Genetic Code* (Stanford: Stanford University Press, 2000). Evelyn Fox Keller, *The Century of the Gene*, 3<sup>rd</sup> ed. (Cambridge, MA: Harvard University Press, 2000).

302 Elaine Graham, “Post/human Conditions” *Theology and Sexuality* 10, no. 2 (2004): 18.

values and ends, the ontologically distinctive and fully contained nature of the human subject remains paramount. For liberal thinkers, biotechnologies are a means for the autonomous, rational subject to exercise mastery over the natural world. While this more dynamic subject integrates technologies into the self toward the end of self-improvement, it remains in a fixed, transcendent position in relation to its environment and even its own body.

In both cases, the imagined subject of enhancement is reminiscent of what Charles Taylor refers to as the “buffered self” characteristic of the modern, secular age: an individual self that (A) exists within and is “responsible” for a natural, material, and immanent real and which (B) internalizes knowing and acting into the interior space of the (rational) mind.<sup>303</sup> While Taylor presents a far-reaching narrative of secularization and disenchantment that we will return to in Chapters Three and Four, the important point here is that, within the enhancement debate, there is a strong *metaphysical* distinction between the internal self and the outside world that acts as the condition for beliefs about the ethical status of enhancement and the future of human nature. Subjects are imagined as self-contained, self-determining entities, (heretofore) distinct from both nature and artifice, rather than constructed “in and through our environment, our tools, our artifacts, and our networks of human and non-human life.”<sup>304</sup>

This model of subjectivity is, in turn, ‘naturalized’ by virtue of its universal and transhistorical status. For conservatives, the nature that biotechnologies threaten is one that has persisted through time and space as the (biological) common ground of species membership. Whether through references to God, nature, or virtue, these theorists establish the stakes of enhancement as the same conditions for living an authentic life that have existed as long as there

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303 Charles Taylor, “The Immanent Frame” in *A Secular Age* (Cambridge, MA: Harvard University Press, 2007), 539-593.

304 Graham, “Post/human Conditions,” 25.

have been humans to pursue individual flourishing. There is, according to this position, nothing particularly modern about the values and ends that humans do (or ought to) pursue. Even when referencing modern political systems, the implication is that the coherence of these systems depends upon what humans have always been like ‘by nature.’ Put differently, modernity *already* sufficiently provides all the conditions required for human flourishing vis-a-vis the political recognition of human dignity and human rights and is, therefore, an achievement worth conserving. Likewise, for liberals, the unifying trait of goal-oriented self-determination allows historical, technological, and biological change to be assimilated into an enduring human essence. Modernization, realized through the development of techno-science, merely creates the conditions for humans to achieve goals – longer life, increased intelligence, greater contentment, and more moral behavior – as old as human culture itself.

As Foucault reminds us, however, the transcendent subject in question “is neither the oldest nor the most constant problem that has been posed for human knowledge...it was the effect of a change in the fundamental arrangements of knowledge” beginning with the invention of the human sciences in the early modern period.<sup>305</sup> For Foucault and other postmodern thinkers, seriously examining the ‘ontology of ourselves’ requires understanding the human as subject to socially and historically determined relations of knowledge and power. As Mahmood explains, “if the ability to effect change in the world and in oneself is historically and culturally specific,” then our categories of human understanding such as “agency,” “cannot be fixed in advance, but must emerge through an analysis of the particular concepts that enable specific modes of being, responsibility, and effectivity.”<sup>306</sup> While the historically determined character of the human should

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305 Foucault, *The Order of Things*, 386-387.

306 Mahmood, *Politics of Piety*, 14-15.

be obvious to bioliberals, who understand themselves as extending Enlightenment thought into the present and future, historicization counts for very little when one assumes that the ontological claims in question are ‘objective’.

Objectivity here is articulated not only through philosophical appeals to essence but also scientific naturalization. By appealing to the scientific notion that certain morally worthy human traits inhere in our biological structure, both sides are able to treat their preferred traits as authoritative and universal. For conservatives, humans possess a “species integrity” in which the (purportedly) enduring biological characteristics of *homo sapiens sapiens* are valuable and even sacred. While the actual biological characteristics in question remain elusive in these accounts, there is little doubt that there is some structural relationship between the complexity of human biology as is and (conservative) human values. Meanwhile, liberals operationalize evolutionary biology to normalize and universalize the desire to enhance. If evolution itself is a process of modifying self and environment toward the end of self-improvement, then there is nothing qualitatively new or different about the use of biotechnologies, and enhancement is something toward which all humans *already* tacitly strive. In both cases, the metaphysical integrity of the humanist subject is somewhat paradoxically authorized by the very sciences that seem to call it into question.

It is thus equally important to recognize that biological definitions are no less socially and historically determined than accounts of philosophical essence. Critical theorists such as Foucault and Donna Haraway have demonstrated that the biological and medical sciences have naturalized and normalized different traits at different moments in modern western history and, in doing so, provided moral authority to particular persons and systems of power. Evolutionary and behavioral sciences in particular have played a crucial role in reinforcing existing social assumptions by

formulating and instituting the disciplinary and regulative mechanisms according to which subjects are constituted as “normal” and “deviant.”<sup>307</sup> Indeed, the histories of biology and psychology cannot be told without acknowledging the institutional projects of classifying homosexuals, women, persons of color, and the disabled (among others) as ‘naturally’ deficient and in need of medical correction (or altogether uncorrectable). While many such problematic theories have since been rejected, to presume that science will correct itself in an indefinite and progressive fashion misses the point: science is informed by and fed back into the cultural context in which it is produced and, therefore, scientific knowledge – operating as a discursive means of deriving objective truth about the self – is always already part and parcel of structuring social and political power.

For both conservative and liberal thinkers, however, questions of power, to the extent that they are addressed, are articulated in the limited terms of technological access and positional equality.<sup>308</sup> While the issues of access and equality are no doubt pressing, they ignore the more fundamental issues of power implicit in the philosophical and scientific project of normalization that underlies the enhancement debate. As philosopher Anita Silvers explains in an early critique of “normal species functioning,” “normalizing equalizes opportunity primarily for those who can be maintained in or restored to the image of the dominant group. But no natural biological mandate nor evolutionary triumph assures that the functional routines of this group are optimally efficient

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307 Michel Foucault, *The History of Sexuality Volume 1: An Introduction*, trans. Robert Hurley (New York: Vintage Books, 1990). Haraway, *Simians, Cyborgs, and Women*.

308 Whereas opponents of enhancement claim that enhancement technologies will exacerbate the already troubling class divide between rich and poor, proponents assert that the price point on these technologies will drop in short order and enhancements could actually level rather than further unbalance the socio-economic playing field. See, for example: Rifkin, *The Biotech Century*, 168. Naam, *More than Human*, 75.

or effective.”<sup>309</sup> Philosopher Melinda takes this claim to its logical extension in her discussion of disability and transhumanism, contending that the ideal of human enhancement mediates “the protocols, procedures, and discourses surrounding, inhibiting, and constituting the identities of those considered unfit for the future...the task of defining who counts and, therefore, who gets to live.”<sup>310</sup> The therapy/enhancement distinction, which depends upon prior socio-medical definitions of normal species functioning, both carries the ideational load of prior normal/deviant distinctions and portends their extension into the realm of the biotechnological. However well-intentioned, the projects of normalization implicit in the enhancement discourse threaten to “preserve existing patterns of functional dominance and privilege.”<sup>311</sup> To examine the power dynamics at work in human enhancement, then, we must also, as I have begun to in this chapter, reflexively analyze the ontological and ethical norms that are taken up in bioethical imaginings of both ‘normal’ and ‘enhanced’ human natures.

Through this chapter, I have argued that both bioconservatives and bioliberals utilize rhetorical strategies of ‘naturalization’ – essentialist appeals to a biological and normative human nature – to ground their respective position on human enhancement. Furthermore, despite their apparent differences, both appeals depend on a similar humanist ideal of the subject as an autonomous, unified, and transhistorical agent. To frame the ethical status of enhancement, above all, in terms of whether it will make us more or less human, however, presumes the ontological coherence and privileged moral status of ‘the human’ and thus occludes critique of humanism and

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309 Anita Silver, “A Fatal Attraction to Normalizing: Treating Disabilities as Deviations from ‘Species-Typical’ Functioning” in *Enhancing Human Traits*, ed. Erik Parens (Washington, D.C.: Georgetown University Press, 1998), 114.

310 Melinda C. Hall, *The Bioethics of Enhancement: Transhumanism, Disability, and Biopolitics* (Lanham, MD: Lexington Books, 2017), xi.

311 Silver, “A Fatal Attraction to Normalizing,” 108.

its universalist, oppositional, and hierarchical premises. We must, therefore, seriously question whether ‘humanness’ or ‘human nature’ is the most useful reference point for determining the ethical status of biotechnological development. Rather than using human nature as a means to identify and validate ‘consensus’ ethics, I suggest that we see the enhancement debate as a discursive occasion to open up and deconstruct the black box of longstanding humanist principles in bioethics.

As critical theorist Neil Badmington reminds us, however, posthumanist intellectual practice cannot consist in the mere fashioning of “scriptural tombs” for humanism. Rather, posthumanist practice requires a “working through” and “rewriting” of humanist discourse from the *inside* – a “repetition” that identifies and questions “what is implicit in the founding concepts” without reinstating that logic.<sup>312</sup> The next two chapters will continue this labor of “building a way” out of humanist bioethics through a more critical examination of the conservative and liberal positions on biotechnologies. In particular, we will see how problematic frameworks of secularism and secularization shape the operative utopian and dystopian logics of human enhancement. In turn, we can begin to ask: what would it look like to think the biotechnological ‘crisis’ in terms other than enhancement and its governing meta-narratives of naturalistic affirmation?

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312 It is worth noting that Badmington’s language here draws on that of Sigmund Freud, Michel de Certeau, and Jacques Derrida, who he sees as proto-posthumanists. Neil Badmington, “Theorizing Posthumanism,” *Cultural Critique* 53 (2003): 20-22.

## Chapter Three: Theologizing Public Bioethics

### 3.1 A Substantive Turn

In Chapter One, I documented and built on sociologist John Evans' description of the development of American bioethics as a process of Weberian formal rationalization in which the professionalization of bioethics and the coextensive development of common moral principlism narrowed and instrumentalized public-facing bioethical discourse. While I believe that Evans places too much emphasis on professional distinctions – narrating theologians as the unique mantle bearers of substantive reason – his overarching description of the invention of bioethics as a process of discursive “thinning” is nevertheless persuasive.<sup>313</sup> Beginning in the 1970s, bioethical modes of reasoning did in fact become more “formal” than “substantive” – a trend that still persists in most subfields of the discipline. While other historians of bioethics do not often use the same thin/thick language as Evans, he is far from alone in framing the birth and development of bioethics along these narrative lines.<sup>314</sup>

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313 John H. Evans, *Playing God?: Human Genetic Engineering and the Rationalization of Public Bioethical Debate* (Chicago, IL: University of Chicago Press, 2002). John H. Evans, *The History and Future of Bioethics: A Sociological View* (New York: Oxford University Press, 2014). John H. Evans, “Science, Bioethics, and Religion,” in *The Cambridge Companion to Science and Religion*, ed. Peter Harrison (Oxford, UK: University of Oxford, 2010), 207-266.

314 As we saw in Chapter One, most historical and sociological analyses take the invention of common moral principlism to be the defining moment in the development of academic, public, and professional bioethics. While the retreat of religion is not stated in such explicit terms in most of these analyses, the more critical ones identify similar problems with the philosophical narrowness of the field's guiding framework. The implication is that, whether incidental or necessary, the professionalization of bioethics has involved a ‘thinning’ of bioethical discourse vis-à-vis the predominance of utilitarian ethics, scientific interests, and legislative pragmatism. Carl Elliott, *A Philosophical Disease: Bioethics, Culture, and Identity* (New York: Routledge, 1999). Renée C. Fox and Judith P. Swazey, *Observing Bioethics* (New York: Oxford University Press, 2008). Robert M. Veatch, *A Theory of Medical Ethics* (New York: Basic Books, 1981). Tristram H. Engelhardt, *The Foundations of Bioethics* (New York: Oxford University Press, 1986). Edwin R. DuBose, et.al, ed., *A Matter of Principles?: Ferment in U.S. Bioethics* (Valley Forge, P.A.: Trinity Press International, 1994). Daniel Callahan, *The Roots of Bioethics: Health, Progress, Technology, Death* (Oxford University Press, 2012). Heikki Saxén, *A Cultural Giant: An Interpretation of Bioethics in Light of Its Intellectual and Cultural History* (Finland: Tampere University Press, 2017).

This narrative framing, however, deserves further complication in two interrelated respects. First, for Evans and likeminded thinkers, the formal rationalization of bioethics reads much like a reiteration of the traditional secularization thesis in which theologians and other religious actors ‘retreat’ from the public sphere as a condition of modern, secular life. It is no coincidence that Max Weber formulated one of the earliest and most influential versions of this thesis, describing the modern “disenchantment of the world” – grounded in the predominance of scientific empiricism and institutional utilitarianism – as necessitating the gradual diminishment of traditional, religious authority in public life.<sup>315</sup> Second, we have seen that, at least in the context of the human enhancement debate, substantive concerns have begun to return to the mainstream of the field. Questions concerning ultimate ends and values – asked and answered vis-à-vis the language of human nature – are at the center of enhancement discourse. There has, however, been no straightforward reversal in which theologians re-enter the field and scientists retreat from it. How, then, can we understand the re-emergence of thick, public-facing bioethical discourse?

To answer this question, we must undertake two tasks. First, we must examine the President’s Council on Bioethics (2001-2008) under President George W. Bush, which, as I noted in Chapter One, played an outsized and deliberate role in thickening public bioethical discourse through their reports on human enhancements. Second, we must leave behind not just the straightforward distinction between theologians and scientists but also the hard distinction between the religious and the secular that it implies.

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315 While I will return to Weber’s disenchantment thesis in more detail in Chapter Four, the basic outlines of his argument can be found in Max Weber, “Science as a Vocation” in *Essays in Sociology*, ed. and trans. H.H. Gerth and C. Wright Mills (New York: Oxford University Press, 1946), 129-156. For secondary elaboration on the idea of disenchantment, see: Jason A. Josephson-Storm, *The Myth of Disenchantment: Magic, Modernity, and the Birth of the Human Sciences* (Chicago: Chicago University Press, 2017).

Scholars of religion have long sought to trouble the presupposed oppositional relationship between religion and secularism, including the monolithic meta-narrative of modernization-as-secularization upon which it depends. For example, critical theorists of religion have noted that, even if oppositional, religion and secularism are mutually constituted categories and therefore relational; secularism thus paradoxically ensures the presence, rather than the absence, of religion.<sup>316</sup> To this end, historians of American religion have demonstrated that the retreat of religious actors and institutions from the public sphere and the purported internalization and domestication of religious life has been overstated; from the “prophetic religion” of the Civil Rights Movement to the rise of the evangelical Christian Right, religion persists as both an external and public phenomenon in the United States.<sup>317</sup> Taking this a step further, religionists have shown that secularism – both as an abstract political ideal and in its particular institutional instantiations in the United States – is a *theological* invention, deeply informed by Protestant understanding of

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316 This has become a *de facto* position within the critical theorization of religion and secularism. One of the earliest and most influential articulations of this point, however, can be found in Talal Asad’s genealogical *Formations of the Secular* in which Asad argues that secularism does not represent a break from religion so much as a new kind of sacred, the production of which involved imbuing ‘religious’ concepts with new meanings and changing their ‘grammar’ to reflect different sensibilities about self and world. But more than just tracing secularism’s genealogical debt to religion, Asad shows that secularism’s enactment depends upon discursive acts of oppositional definition. Within the master narrative of secularization, religion is redefined as a mental phenomenon, i.e., a matter of private belief, individual conscious, and mythic imagination. This definitional work is what allows the secular to represent itself as the objective reality within which religion can (and ought to) be sited. The secular, in other words, foremost defines itself through descriptions of religion as ‘other’ – descriptive acts which are, paradoxically, derived from historically religious and, in particular Christian, modes of reasoning. Talal Asad, *Formations of the Secular: Christianity, Islam, Modernity* (Stanford, Calif: Stanford University Press, 2003).

317 There is no shortage of literature, particularly from scholars of American religion, that demonstrates the (continued) presence of religion in the public sphere of (ostensibly) secular contexts. The two examples I reference here – “prophetic religion” in the Civil Rights Movement and the rise of the Evangelical Right – are simply two acute examples of religion both being imagined by religious actors as a political project and motivating highly visible political intervention. David L Chappell, *A Stone of Hope: Prophetic Religion and the Death of Jim Crow* (Chapel Hill, NC: University of North Carolina Press, 2005). Seth Dowland, “‘Family Values’ and the Formation of a Christian Right Agenda,” *Church History* 78, no. 3 (2009): 606-631. It is also worth noting that sociologist Robert Bellah takes this idea a step further, arguing that political life in the United States is itself a form of “civil religion,” which involves “a genuine apprehension of universal and transcendent religious reality as seen in or, one could almost say, as revealed through the experience of the American people.” Robert N. Bellah, “Civil Religion in America,” *Daedalus* 96, no. 1 (Winter 1967): 1-21.

“true religion.”<sup>318</sup> This has, in turn, led to a recognition that, in spite of its self-representation, secularism is not an ‘empty’, neutral framework; it is full of particular metaphysical, ontological, and normative commitments ranging from an immanentist metaphysics to an individualist and pluralist pursuit of authenticity.<sup>319</sup> Just as important, there is no singular, global secularism to which we can refer; rather, there are multiple *secularisms*, which shape and are shaped by the contexts in which they develop and operate.<sup>320</sup>

While I will return to some of these arguments in greater detail in this chapter and the next, I want to highlight one of the common threads of these critical approaches: like “religion,” “secularism” is not (or not just) an objective sociological, historical, or philosophical description of a/the modern state of affairs; rather, it is a flexible category of understanding that operates in the very world(s) it attempts to describe. When we seek to make sense of secularism, then, we must attend to the particular ways in which the framework is being implicitly and explicitly

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318 Once again, there is no shortage of relevant texts on this topic. My thinking, however, especially indebted to philosopher of religion Mark C. Taylor, who traces the invention of secular modernity back to Luther’s and Calvin’s respective theological frameworks, historian of American Religion John Lardas modern, who demonstrates how antebellum evangelicals systematicity developed the conditions the secular experience of religion in their pursuit of “true religion,” and historian of American religion Tracy Fessenden, who examines how normative Protestant ideals have been repackaged in (exclusionary) textual narratives of authentic secularism since European colonists first ‘settled’ in the United States. Mark C. Taylor, *After God* (Chicago: Chicago University Press, 2007). John Lardas Modern, *Secularism in Antebellum America* (Chicago: University of Chicago Press, 2011). Tracy Fessenden, *Culture and Redemption: Religion, the Secular, and American Literature* (Princeton: Princeton University Press, 2007).

319 This idea has most often been approached in terms of the identifying the metaphysical, ontological, and normative commitments that living secularly involves taking up – commitments elaborated on by many of the authors mentioned in these footnotes and which I will expand on below through engagement with philosopher Charles Taylor’s idea of the “immanent frame.” It also worth noting that some scholars have begun to approach this topic in terms of embodiment and affect rather than just self-conscious understanding. Charles Hirschkind for example, asks, “Is there a secular body? Or, in somewhat different terms, is there a particular configuration of the human sensorium – of sensibilities, affects, embodied dispositions – specific to secular subject, and thus constitutive of what we mean by ‘secular society?’” Charles Hirschkind. “Is There a Secular Body?” *Cultural Anthropology* 26, no. 4 (November 2011): 633.

320 While it has the been the subject of a fair amount of criticism, José Casanova’s sociological work on the public character of Spanish, Polish, Brazilian, and American Catholicism has been an especially important departure point for this academic conversation. José Casanova, *Public Religions in the Modern World* (Chicago: University of Chicago Press, 1994). For an overview of the argument(s) regarding the multiplicity of secularism(s), see: Janet R. Jakobsen and Ann Pellegrini, *Secularisms* (Durham: Duke University Press, 2008).

operationalized. In this case, this means looking to how particular actors in a particular secular space – public bioethics – negotiate the terms of their own secularity, or lack thereof.<sup>321</sup>

With this in mind, this chapter critically examines how the President’s Council on Bioethics addressed the topic of human enhancement. Through an examination of the Council’s meetings, statements, and reports, we can see this federal body, and the larger bioconservative cohort it represented, as attempting to construct a normative, ontological ground for the therapy/enhancement distinction based in the conceptually prior distinction of nature/artifice and expressed, in part, in Judeo-Christian theological terms. Given their use of theological language and conservative stance towards biotechnologies, the Council has often been represented as bringing ideological and theological modes of governance into an otherwise public, secular, and neutral domain: governmental bioethics. In contrast, I contend that that we can best understand the Council’s work as a discursive project of reconstituting the secularity of public bioethics through mobilizing a nexus of familiar philosophical and political ideas – “human dignity,” “human flourishing,” and “moral status” – and replacing “ideological neutrality” with “value diversity” as the basis for public debate. While it will become apparent that the Council’s ‘dignitarian politics’ are ethically problematic, I ultimately contend that its attempt at constructing a “richer bioethics” that takes ontological inquiry seriously is nevertheless instructive.

### **3.2 New Council, New Bioethics**

Over the course of the late-1990s and early-2000s, the ethics of using human embryos, and in particular embryonic stem cells, for biomedical research became a major source of public controversy. While the scientific and medical communities championed the potential of stem-cell

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321 To be clear, not all of the aforementioned theorists take up a Foucauldian or constructivist approach to secularism. Each does, however, approach secularism, secularization, and/or secularity as formations that operates in the world and which are, therefore, not immune to their own standards of critique, including empirical analysis.

research for producing novel therapies, and in particular for correcting physical disabilities, the “pro-life” movement believed that the use of human embryos violated the “sanctity of life” in a manner akin to abortion.<sup>322</sup> Motivated by the concerns of his conservative, pro-life constituents, President George W. Bush announced his decision to restrict federal funding for human embryonic stem cell research on August 9, 2001. Moving forward, laboratories that received federal funding were restricted to using only the twenty one viable cell lines that had already been created prior to the announcement.<sup>323</sup>

Declaring that stem cell research was just one of the “ethical mine fields” at our scientific doorstep, President Bush followed this announcement less than three months later with Executive Order 13237, which established The President’s Council on Bioethics, chaired by physician Leon Kass, to advise the President on bioethical issues. The establishment of this Council was far from unique; with one or two exceptions, each president, beginning with Richard Nixon in 1974, had formed an *ad hoc* presidential commission to make biomedical policy recommendations. If the establishment of the President’s Council itself was par for the course though, it was clear from the outset that this commission would be different from its practical, policy-oriented predecessors as its first and foremost mission was “to undertake fundamental inquiry into the human and moral significance of developments in biomedical and behavioral science and technology.” Just as important, the president’s Executive Order declared that there was “no overriding concern to find

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322 For an overview of the human embryonic cell debate, see: Suzanne Holland, Karen Lebacqz, and Lauria Zoloth, ed. *The Human Embryonic Stem Cell Debate: Science, Ethics, and Public Policy*. (Cambridge, MA: MIT Press, 2001). For more on formation of the “pro-life” movement see, Mary Ziegler, *After Roe: The Lost History of the Abortion Debate* (Cambridge, MA: Harvard University Press, 2015).

323 George W. Bush, “Address to the Nation on Stem Cell Research,” transcript of speech delivered from Bush Ranch in Crawford, TX, August 11, 2001, American Presidency Project, <https://www.presidency.ucsb.edu/documents/address-the-nation-stem-cell-research>.

consensus,” the Council was “free to establish its own priorities,” and “public education” was to be considered no less important than “policy guidance” in its reports.<sup>324</sup>

This account maps onto the language of the Council’s reports themselves, which often remark that prior commissions too narrowly focused on practical, utilitarian concerns rather than the relationship between ‘fundamental human goods’ and the ends of science. In the preface to their initial 2002 report, *Human Cloning and Human Dignity*, for example, the Council described their project in terms that both acknowledged and sought to subvert Evans’ description of the field.

Investigating human cloning...provides the Council an important opportunity to illustrate how bioethics can and should deal with those technological innovations that touch deeply our humanity. Here, as elsewhere, the most profound issues go beyond the commonplace and utilitarian concerns of feasibility, safety, and efficacy.<sup>325</sup>

It was with this in mind that the Council stated their goal as a “richer bioethics” – “one that seeks to do justice to the full human meaning of biotechnological advance” – and approaches biotechnology not just as practical means but a “*conceptual and ethical outlook*” based in “progressive aspirations” of “human empowerment” and situated as part of “a larger human project – toward perfection and happiness.”<sup>326</sup> The foremost questions we must ask, the Council intimated, are not ones of utilitarian ends or even ethical permissibility, but rather, “*What is a human being?*” and “*What are the implications of our humanity for how we pursue the growth of our knowledge and its applications in practice?*”<sup>327</sup>

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324 “Executive Order 13237 of November 28, 2001: Creation of the President’s Council on Bioethics,” *Code of Federal Regulations*, title 3 (2001): 821-823.

325 The President's Council on Bioethics, *Human Cloning and Human Dignity: An Ethical Inquiry* (Washington, D.C.: Government Printing Office, 2002), xviii.

326 The President's Council on Bioethics, *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Washington, D.C.: Government Printing Office, 2003), 21-22.

327 The President's Council on Bioethics. *Human Dignity and Bioethics* (Washington, D.C.: Government Printing Office, 2008), 28.

How did questions such as these, which were previously seen as inappropriate for public deliberation because of their substantive and implicitly theological character, become legitimate topics of inquiry for the President's Council? Foremost, prospective human enhancement technologies such as human cloning, germ-line genetic engineering, and psycho-pharmaceuticals functioned as a discursive mechanism through which substantive, and sometimes overtly theological, inquiry was re-introduced into the public bioethical sphere. Unlike past ethical dilemmas such as abortion or euthanasia, the Council claimed, "What's at issue is not the crude old power to kill the creature made in God's image but the attractive science-based power to remake ourselves after images of our own devising."<sup>328</sup> "At stake," they explained, "are the kind of human being and the sort of society we will be creating in the coming age of biotechnology. At stake are the dignity of the human being... and the nature of human flourishing."<sup>329</sup> The implication of these claims was that the unique power of biotechnological interventions to transform human nature demanded thicker ethical engagement than other biomedical interventions.

The imminent prospect of human enhancement, however, does not offer a self-sufficient explanation for the re-introduction of substantive rationality. After all, as we saw in Chapter One, this was not the first time that enhancement technologies had come before a presidential commission. For example, past reports on human genetic engineering such as *Splicing Life* (1983) had declared that similar concerns over 'playing God' were outside the scope of public policy commissions.<sup>330</sup> As the history of professional bioethics demonstrates, and as I suggest of much of the humanistic thinking on biotechnologies, it is very much possible to exclude relevant

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328 The President's Council on Bioethics, *Beyond Therapy*, 11.

329 The President's Council on Bioethics, *Human Dignity and Bioethics*, 302.

330 President's Commission for the Study of Ethical Problems in Medicine and Biomedical Behavioral Research, *Splicing Life: A Report on the Social and Ethical Issues of Genetic Engineering with Human Beings* (Washington, D.C.: Government Printing Office, 1983), Appendix B.

language and ideas that do not map neatly onto the extant terms of bioethical debate. We must therefore resist an explanation that even implicitly depends upon technological determinism, i.e., the reductionist belief that technologies unidirectionally determine social structures and culture values.<sup>331</sup> While particular technologies, real or speculative, might afford certain modes of reasoning, there is no *necessary* relationship between technology and discourse.<sup>332</sup> How then was Council's substantive discourse legitimized for a purportedly secular space and an imagined American public? What, in other words, was different about this institution? To answer this, we first need to turn to a prior commission, President Clinton's National Bioethics Advisory Commission (NBAC), created by executive order on October 3, 1995.<sup>333</sup>

### **3.3 Dolly: A Wolf in Sheep's Clothing**

As we saw in Chapter One, the successful embryonic cloning of Dolly the Sheep by scientists at the University of Edinburgh in 1997 led to a spectacular moral panic in the United States. The logical implication that the same technique, somatic cell nuclear transfer, could be developed to clone human beings was widely interpreted as a threat to established reproductive and individualist norms. While the public reaction omitted important details regarding the science of embryonic cloning – failing to recognize the role of environmental factors in biological development and the still-limited success of the technique itself – the long-term threats were clear enough. If reproduction can be achieved through laboratory practices alone, what will happen to

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331 For more on theories of technological determinism, see: Merritt Roe Smith and Leo Marx, ed., *Does Technology Drive History? The Dilemma of Technological Determinism* (Cambridge, MA: M.I.T. Press, 1994).

332 As I detail in Chapter Five, theorists who work on the social construction of technology argue that while technologies influence discourse, “different social groups associate different meanings with the artifacts leading to interpretive flexibility appearing over the artifact.” Ronald Kline and Trevor Pinch, “The Social Construction of Technology” in *The Social Shaping of Technology*, ed. Donald MacKenzie and Judy Wajcman (New York: Open University, 1999), 113.

333“Executive Order 12975 of October 3, 1995: Protection of Human Research Subjects and Creation of National Bioethics Advisory Commission,” *Federal Register* 60, no. 193 (Oct 1995): 52063-52065.

the value we assign to sexual reproduction and, by extension, the heterosexual, nuclear family? If I can be cloned whole cloth in the form a ‘delayed’ genetic twin, does that mean my ontological and normative status as a unique individual is a fabrication? Will human cloning and related practices of genetic manipulation lead to a *de facto* state of eugenics?<sup>334</sup> While I believe that we should understand these concerns as quite specific to the Euro-American context – grounded in Christian ideals of heteronormative familial life, constitutional frameworks of rights-based political liberalism, and the post-World War II association between fascism and eugenics – this was not the common understanding. Rather, human cloning was seen as a threat to *universal* and *natural* human norms and therefore as a form of playing God in an otherwise established natural order.

This moral panic led to widespread calls for political regulation and, on February 24, 1997, President Clinton requested that the NBAC, chaired by Harold T. Shapiro, assess the ethical and policy dimensions of human cloning and issue recommendations for a federal response within ninety days. A week later, the President issued an executive order banning federal funding of research on human cloning and requested that the private sector adhere to an indefinite voluntary moratorium.<sup>335</sup> The following day, Representative Vernon Ehlers (R-MI) introduced two bills, one banning federal funding for human cloning research and the other criminalizing it.<sup>336</sup> While neither

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334 These question reflect what the NBAC referred to as the “three novel developments” involved in embryonic cloning: “the replacement of sexual procreation with asexual replication of an existing set of genes; the ability to predetermine the genes of a child; and the ability to create many genetically identical offspring.” National Bioethics Advisory Commission, *Cloning Human Beings* (Washington, D.C.: Government Printing Office, 1997), 2.

335 Katharine Q. Seelye, “Clinton bans federal money for efforts to clone humans,” *The New York Times*, March 5, 1997, <https://www.nytimes.com/1997/03/05/us/clinton-bans-federal-money-for-efforts-to-clone-humans.html> mes.com

336 U.S. Congress, House, *Human Cloning Research Prohibition Act*. H.R. 922, 105th Congress, introduced in House March 5, 1997, <https://www.congress.gov/bill/105th-congress/house-bill/922>.; U.S. Congress, House, *Human Cloning Prohibition Act*, H.R., 923. 105th Congress, introduced in House March 14, 1997, <https://www.congress.gov/bill/105th-congress/house-bill/923?q=%7B%22search%22%3A%5B%22hr+923%22%5D%7D&s=4&r=1>.

bill made it to the floor – due largely to their ambiguous language and extensive federal reach – these would be the first of a number of similar bills introduced in subsequent years that sought to place limits on a scientific future that suddenly appeared to have no inherent ones.<sup>337</sup>

As historian of bioethics J. Benjamin Hurlbut notes, much of the public discourse from scientists focused on the misrepresentation of the science itself by the national media as scientists and their biopolitical allies (unsuccessfully) sought to educate public constituents and representatives in order to create the conditions for factual, informed decision-making and prevent a negative overreaction that would halt related scientific research and development.<sup>338</sup> While public bioethics commissions have long been represented as allies of the scientific community, the NBAC zagged from its predecessors in its 1997 report, *Cloning Human Beings*, and, rather than privileging scientific expertise, sought to solicit the “widest possible range of views” and “strongest representations” so that “no aspect of public sentiment [would be] left unexplored” in its study of human cloning.<sup>339</sup>

Challenging the conventions of their predecessors even further, the NBAC argued that this kind of representational labor required soliciting religious perspectives. The Commission suggested that the popular depiction of the human cloning debate as a “classical confrontation between science and religion” was “misleading” and that “the possibility of cloning humans offers

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337 In May of 2007, for example, Senators Orrin Hatch (R-Utah) and Dianne Feinstein (D-Calif.) introduced a similar, if more specific and permissive, bill proposed banning reproductive cloning. "Senators Hatch and Feinstein Promote Stem Cell Research, Human Cloning Ban," Press Releases, United States Senator for California: Dianne Feinstein, March 08, 2007, accessed August 22, 2021, <https://www.feinstein.senate.gov/public/index.cfm/press-releases?ID=6b15078d-95ef-794d-24e1-9735246f58d1>.

338 Historian J. Benjamin Hurlbut offers an especially rich description of how the public cloning debate unfolded in J. Benjamin Hurlbut, *Experiments in Democracy: Human Embryo Research and the Politics of Bioethics* (New York: Columbia University Press), 133-178.

339 U.S. Congress, Senate, Committee on Environment and Public Works, *Cloning, 2001: Special Hearing Before a Subcommittee of the Committee on Appropriations*, 107th Congress, 2001.

an opportunity for substantive dialogue between scientists and theologians.”<sup>340</sup> The Commission thus solicited both oral and written testimonials from Jewish, Roman Catholic, Protestant, and Islamic ‘representatives’ on their respective traditions’ relevant theological positions, summaries of which were given a standalone chapter, “Religious Perspectives,” in the final report. Secular bioethicists on the NBAC synthesized these perspectives under common themes such as “responsible human dominion over nature,” “human dignity and destiny,” “procreation,” and “family life,” the content of which ranged from strong conservative claims that human cloning is intrinsically immoral and should therefore be banned to more moderate claims that it could be morally justified under some circumstances but would need to be strictly regulated in order to prevent abuses.<sup>341</sup> I want to suggest that, even independent of their content, the inclusion of such religious material represented a dramatic sociological shift; for the first time in almost three decades, theologians had been invited back to the public bioethical table.

While I do not doubt the NBAC’s belief that the inclusion of religious perspectives could ‘offer mutual enrichment’, the motivation for that inclusion can best be understood in terms of the longstanding bioethical desire for moral ‘consensus’. As report itself states,

The Commission was interested in religious arguments and conclusions about human cloning because religious traditions influence and guide many citizens’ responses to various issues in biomedicine, including such novel developments as human cloning...[the] NBAC was interested in determining whether various religious traditions and secular approaches achieve a rough consensus about appropriate public policy toward creating children through somatic cell nuclear transfer at this time.<sup>342</sup>

Mobilizing a traditional ideal of American pluralism – according to which different and even conflicting religious norms are allowed to co-exist so long as those norms do not violate a shared

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340 NBAC, *Cloning Human Beings*, 39.

341 NBAC, *Cloning Human Beings*, 39-62.

342 NBAC, *Cloning Human Beings*, 39-40.

commitment to the laws of the state<sup>343</sup> – the NBAC believed that it could democratically represent all U.S. citizens by locating moral premises held in common beneath pluralistic disagreement. “Religious perspectives,” in this case, stood in for public opinion and the positions of even elite theologians provided a litmus test for whether public policies, or the lack thereof, related to human cloning would engender “vigorous, widespread, and sustained moral objection.”<sup>344</sup> Even while acknowledging that there is “no single ‘religious’ view on cloning humans,” the Commission never questioned whether consensus is possible or ought to be the principal end of public bioethics.<sup>345</sup>

The NBAC’s report on human cloning nevertheless represents a substantial disruption to the public bioethical conventions that had been established in the 1970s in at least two senses. First, in treating all public disagreement over embryo research as ‘reasonable’ moral disagreement, and therefore appropriate for the public sphere, the Commission subverted the longstanding warrant that scientists, lawyers, and bioethicists possessed a privileged expertise on biomedical issues. In understanding themselves as a mechanism of representative, democratic governance, the NBAC, at least in principle, equalized and pluralized the kinds of knowledge needed for making bioethical policy decisions. Second, in seeking to discover a consensus bioethical position on human cloning, the Commission implicitly rejected the premise that this consensus had already been determined through the invention of common moral principlism. This unprecedented moment in scientific history seemed to demand another round of serious self-examination at the national level.

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343 Here I have in mind what Nathan Hatch calls the “democratization of American Christianity” and what Kevin Schultz later describes as the invention of “tri-faith America” according to which different religious denominations or traditions come to, at least in principle, occupy a similar socio-political status, competing for individual faith commitments and public opinion within a shared secular context. Nathan O. Hatch, *The Democratization of American Christianity* (New Haven: Yale University Press, 1989). Kevin M. Schultz, *Tri-Faith America: How Catholics and Jews Held Postwar America to Its Protestant Promise* (New York: Oxford University Press, 2011).

344 NBAC, *Cloning Human Beings*, 40.

345 NBAC, *Cloning Human Beings*, 57.

In pursuing consensus, however, the NBAC also reaffirmed a long-presumed epistemic divide characteristic of ideal secularism between scientific and moral questions; legitimate democratic disagreement concerned disagreement over questions of values rather than facts. As Hurlbut explains, this allowed the NBAC to sidestep the “ontological” and “moral status” questions that had previously structured public debates about human embryo research, i.e., the question of what the embryo *is*.

The commission judged that If ontological questions were important to ethical debates, it was only because one system of values had attached particular meanings to them. These meanings could be dissociated from the ontological accounts and treated as yet one more moral account in the range of plural perspectives. Controversy over the embryo was a straightforward result of moral pluralism within the polity, and the NBAC’s task was to discover the overlapping consensus within.<sup>346</sup>

Despite the NBAC’s aforementioned desire for “substantive dialogue” then, the *Cloning Human Beings* report was not especially substantive (at least not in the full sense in which I use the term to include ontological discourse). Theological claims concerning the nature of human being are present in the report, but the content of those claims is (intentionally) omitted as a subject of bioethical debate.

In looking at the final recommendations of the report, the Commission advises the President to continue the current moratorium on cloning research and, if possible, ban such research through federal legislation (pending a later review of the issue in 3-5 years).<sup>347</sup> The principle reason provided, however, is that “scientific evidence indicates that such techniques are not safe at this time.”<sup>348</sup> However unusual the presence of theological discourse in the report might have been then, the NBAC still ended performing a familiar act of translation, transcribing

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346 Hurlbut, *Experiments in Democracy*, 170.

347 NBAC, *Cloning Human Beings*, iii-v.

348 NBAC, *Cloning Human Beings*, 81.

religious ‘premises, modes of reasoning, and conclusions’ into a secular, normative idiom. To the extent that religious perspectives factor into the report’s actual recommendations, it is as a reminder of the still-unfulfilled need to discover a consensus on “the ethical and social implications of this technology...should the time come when present concerns about safety have been addressed.”<sup>349</sup>

### **3.4 The (Ontological) Politics of Human Dignity**

If the NBAC’s pluralistic model of consensus value-finding opened the path for religious actors and modes of reasoning to be included in public bioethics, the President’s Council sought to follow that path to its logical conclusion by maintaining the importance of pluralistic “value diversity” but abandoning the principal end of consensus, minimizing the need for secularizing translation, and re-introducing ontological questions into the public sphere. In the letter of transmittal to the president for their 2003 report, *Beyond Therapy*, the Council thus explained that, “In enjoying the benefits of biotechnology, we will need to hold fast to an account of the human being, seen not in material or mechanistic or medical terms but in psychic and moral and spiritual ones.”<sup>350</sup>

This account of human being turned out to be grounded, above all, in a particular conception of human dignity. Human dignity might be most familiar to us as a modern, secular political ideal – referenced in documents such as the Charter of the United Nations (1945) and Universal Declaration of Human rights (1948) – that refers to a fundamental threshold of freedoms and rights individual persons are entitled to by virtue of their status as human beings. For those of us with some knowledge of American religious history (or readers of Chapter Two), it might also

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349 NBAC, *Cloning Human Beings*, 110.

350 The President's Council on Bioethics, *Beyond Therapy*, xvii.

be familiar from the Vatican's 1965 *Pastoral Constitution on the Church in the Modern World* – which established that the universal and inalienable principle of human dignity (respect for persons made in the image of God) is the “foundation for the relationship between the Church and the world” – and the subsequent use of the “dignity of the unborn” as a slogan of the pro-life movement from the mid-1960s until *Roe v. Wade* (1973).<sup>351</sup> While both of these genealogies inform the Council's use of the term, I want to suggest that neither captures its full meaning or importance.

The term human dignity first appears in the title of the Council's inaugural 2002 publication, *Human Cloning and Human Dignity*. While the Council spends a fair amount of time discussing how embryonic cloning-for-children might upset traditional, heteronormative familial and sexual dynamics, the real threat to dignity resides in the conceptual and ethical outlook structured into the practice of human cloning. In discussing cloning as a reproductive practice, the Council states:

Why does this matter? It matters because human dignity is at stake. In natural procreation, two individuals give life to a new human being whose endowments are not shaped deliberately by human will, whose being remains mysterious, and the openness of whose future is ratified and embraced. Parents beget a child who enters the world exactly as they did—as an un-made gift, not as a product. Children born of this process stand equally beside their progenitors as fellow human beings, not beneath them as made objects. In this way, the uncontrolled beginnings of human procreation endow each new generation and each new individual with the dignity and freedom enjoyed by all who came before.<sup>352</sup>

On one hand, we see that the dignity of the cloned child – who will question their individual identity and self-ownership as a result of being an intentional, unoriginal product – is in question.

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351 Vatican Council II, “Pastoral Constitution on the Church in the Modern World: *Gaudium et spes*.” promulgated by Pope Paul VI on December 7, 1965, [https://www.vatican.va/archive/hist\\_councils/ii\\_vatican\\_council/documents/vat-ii\\_cons\\_19651207\\_gaudium-et-spes\\_en.html](https://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_cons_19651207_gaudium-et-spes_en.html).

Daniel. K Williams, *Defenders of the Unborn: The Pro-Life Movement Before Roe v. Wade* (New York: Oxford University Press, 2016).

352 The President's Council on Bioethics, *Human Cloning and Human Dignity*, 105-106.

This is no less true of cloning-for-biomedical-research, where one performs the willful destruction of human embryos, which, though not full human beings, are “not humanly nothing and therefore should not be treated as a resource alone.”<sup>353</sup> On the other hand, and far more provocative, it is the dignity of those who would use or even support cloning that is at stake. “An embryo may seem to amount to little or nothing, but that very insignificance tests not the embryo’s humanity but *our own*.”<sup>354</sup> When we “learn to receive the next generation less with gratitude and surprise than with control and mastery,” it is *our* dignity that is harmed.<sup>355</sup> Dignity here refers not just to a fundamental moral status to which we are entitled, but also living a dignified life, i.e., a life of moral excellence. Whether for reproduction or research, cloning implies an ethical stance of ‘molding’ rather than ‘beholding’ – a failure to respect the givenness of human life – and therefore results in indignity for molder and molded alike.

This conception of dignity gains clearer articulation in the Council’s 2003 report, *Beyond Therapy*, which examines the ethics of enhancement technologies ranging from amphetamines to SSRIs to engineered senescence. Rather than organizing the report around particular biotechnologies, however, the Council, explains that, “to understand the human and social meaning of the new age, we must begin...from where human beings begin, namely, with...human desires...desires for better children, superior performance, younger and more beautiful bodies, abler minds, happier souls.”<sup>356</sup> While the Council stresses that each of these desires are ‘essentially human’ and worthwhile, pursuing them through biotechnological means would nevertheless be undignified and, indeed, inhuman.

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353 The President's Council on Bioethics, *Human Cloning and Human Dignity*, 163.

354 The President's Council on Bioethics, *Human Cloning and Human Dignity*, 106-107.

355 The President's Council on Bioethics, *Human Cloning and Human Dignity*, 106-107.

356 The President's Council on Bioethics, *Beyond Therapy*, 277.

The report thus counters the prospect of achieving each of these desires through “artificial,” biotechnological means with the potential loss of a respective “natural” and “dignified” human good. In creating better children through genetic screening or prescription amphetamines, we risk erasing the autonomy of the child; in improving competitive performance through muscular or cognitive enhancement, we risk losing the dignity of earned achievement; in ending aging through genetic intervention, we risk losing the meaning of finitude; and in modulating happiness through psycho-pharmaceuticals, we risk confusing ignorant bliss with self-aware contentment. While the case studies examined in the report are quite different from one another, the Council argues that they should nevertheless be read as parts of a whole insofar as “the desire to have a perfect body, one that perfectly executes the dictates of the will, is tantamount to a desire to transcend our embodiment altogether, to become as gods, to become something more-than-human.”<sup>357</sup> Regardless of the particular biotechnological means or human ends then, acting on this posthuman “hubris” would entail replacing “full human flourishing” with “spurious or shallow substitutes.”<sup>358</sup>

The solution to this problem, the Council contended, is not (or rather not just) extensive regulation of biotechnological research and development, but rather a substantive shift in our ethical outlook. We must go “beyond therapy,” the Council claims, not in the sense of enhancing our biology, but rather in looking beyond a medicalized and scientific view of life altogether; “for medicine, sickness, and healing are not the natural or best lens through which to look upon the whole of human life. Health, though a primary human good, is not the only—or even the supreme—human good.”<sup>359</sup> The report further elaborates:

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357 The President's Council on Bioethics, *Beyond Therapy*, 150.

358 The President's Council on Bioethics, *Beyond Therapy*, 287.

359 The President's Council on Bioethics, *Beyond Therapy*, 307-308.

Going “beyond therapy” in this sense means returning to an account of the human being seen not in material or mechanistic or medical terms but in psychic and moral and spiritual ones. It is to see the human being as a creature “in-between,” neither god nor beast, neither dumb body nor disembodied soul, but as a puzzling, upward-pointing unity of psyche and soma whose precise limitations are the source of its—our—loftiest aspirations, whose weaknesses are the source of its—our—keenest attachments, and whose natural gifts may be, if we do not squander or destroy them, exactly what we need to flourish and perfect ourselves—as human beings.<sup>360</sup>

Here we begin to see a more fleshed out understanding of what the Council means when it refers to human dignity. Living a dignified life – i.e., a life of moral excellence – requires a recognition of and appreciation for our given, biological limitations. When we approach our finitude as the source of human goods – of doing, striving, and becoming – we see that we already have the tools for human flourishing at hand. While we might still use biomedicine for therapeutic ends, we should be extremely skeptical of the slippery slope towards enhancement, for therein lies the path to wanting to become something more than human and, in doing so, becoming something less than human.

Following the release of *Beyond Therapy*, bioethicist Ruth Macklin published an article entitled “Dignity is a Useless Concept,” in which she argued that the Council’s use of dignity was a “hopelessly vague” “slogan” that acted as a Trojan horse for theological, and in particular Roman Catholic, views about the sanctified natural order. Properly understood, dignity merely restates an established bioethical principle, respect for autonomy, and can therefore “be eliminated” from secular literature in medical ethics “without any loss of content.”<sup>361</sup> In response to Macklin’s article and likeminded critiques, the Council published a report, *Human Dignity and Bioethics*, in 2008, which sought to both clarify the meaning of human dignity and defend its usefulness to the field.

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360 The President's Council on Bioethics, *Beyond Therapy*, 308.

361 Ruth Macklin, “Dignity is a Useless Concept,” *British Medical Journal* 327, no. 7429 (2003): 1419.

The fascinating part of this response, however, was that a good portion of the chapters in the volume did *not* seek to conceal religious language and present an authentically secular account of human dignity. Rather, most authors sought to explain why religious (in this case, Judeo-Christian) ideas were useful or even ‘essential’ to a meaningful account of human dignity. The most frequent argument to be found in the report is that without some prior ontological grounding, claims to human uniqueness are mere “assertions.” For example, in his aptly named essay, “The Irreducibly Religious Character of Human Dignity,” David Gelernter contends that,

human dignity as bioethics understands it is actually a sanitized version of “human sanctity”—one that has been purified of all traces of religion... Yet we sacrifice something when we switch from “human sanctity” to “human dignity”...*Deleting religion has a cost*—a truth the modern academic doesn’t want to acknowledge. Human sanctity carries a built-in explanation of its existence. Humans are set apart because, no matter what they make of themselves, God made them in His own image.<sup>362</sup>

This reference to *Genesis* and the concept of *imago dei* is a frequent occurrence in the report. In his essay, “Human Dignity and the Mystery of the Human Soul,” for example, Robert Kranyak, contends that “the Bible and Christian theology may make the strongest case for human dignity.”<sup>363</sup> Performing what can only be described as scriptural exegesis, Kranyak cites both the Christian Bible and *Psalms* to show that “the special status of man cannot be reduced to any set of essential attributes but rests on the mysterious ‘election’ of man as the only creature in the universe made in the image of God.”<sup>364</sup> The conclusion of these likeminded chapters is clear enough. If human dignity is to be useful category of understanding in bioethics, it must mean something more than an entitlement to political rights; it must elaborate the grounds and content of human specialness – a task for which Judeo-Christian theology, the argument goes, is especially well-suited.

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362 Gelernter, “The Irreducibly Religious Character of Human Dignity” in *Human Dignity and Bioethics*, 395.

363 Kranyak, “Human Dignity and the Mystery of the Human Soul,” in *Human Dignity and Bioethics*, 62.

364 Kranyak, “Human Dignity and the Mystery of the Human Soul,” in *Human Dignity and Bioethics*, 62.

Given Macklin's critique, it should be unsurprising that the report demonstrates a recurrent frustration with the bioethical principle of autonomy – understood as deriving from Immanuel Kant's philosophical position that individuals are entitled to dignity by virtue of being rational, self-determining beings – as presenting too 'narrow' of a view of moral life and human being. Kass explains this in terms of a distinction between “the *basic* dignity of human *being* and the *full* dignity of being (actively) *human*, of human *flourishing*.”<sup>365</sup> While basic dignity, understood as a respect for autonomous persons intended to protect the weak, might be sufficient for the domains of clinical medicine and research involving human subjects, we need a more robust notion of human dignity to account for biotechnologies, which possess the potential for “dehumanization.” In other words, our bioethical principles must not just protect us from what is “humanly worst” but also seek to preserve what is “humanly best.”

In elaborating what is humanly best, Kass first points to our “higher qualities.” Mobilizing the theological language of *imago dei*, he argues that, “the human being has special dignity because he shares in the godlike powers of reason, freedom, judgment, and moral concern, and, as a result, lives a life freighted with moral self-consciousness—a life above and beyond what other animals are capable of... the inviolability of human life rests absolutely on the higher dignity—the god-like-ness—of human beings.”<sup>366</sup> Recognizing only these god-like qualities, however, would be to misunderstand the true meaning of *imago dei* since “to be an image is also to be different from that of which one is an image. Man is, at most, a mere likeness of God. With us, the seemingly godly powers and concerns just described occur conjoined with our animality. God's image is tied to blood, which is the life.”<sup>367</sup>

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365 Kass, “Defending Human Dignity” in *Human Dignity and Bioethics*, 299.

366 Kass, “Defending Human Dignity” in *Human Dignity and Bioethics*, 325.

367 Kass, “Defending Human Dignity” in *Human Dignity and Bioethics*, 325.

Kass, like other Council members, thus seeks to rescue the finite and mundane as the principle source of human dignity. “The account of human dignity we badly need in bioethics,” he explains, “goes beyond the said dignity of ‘persons’ to embrace the worthiness of embodied human life, and therewith of our natural desires and passions, our natural origins and attachments, our sentiments and repugnances, our loves and longings. What we need is a defense of the dignity of what Tolstoy called ‘real life,’ life as ordinarily lived, everyday life in its concreteness.”<sup>368</sup> To this end, Kass provides an assortment of ‘dignified’ activities – sewing a dress, cooking a meal, offering a blessing made in gratitude, receiving a guest, kissing one’s bride, raising a glass in gladness – that do little more than hint at his own heteronormative proclivities and demonstrate just how difficult it is for bioconservatives to define their ideal in positive terms. The philosophical crux of his contention, however, is clear enough. There is an ethical demand to glorify ‘our’ “enobling human passions.”

Hope, wonder, trust, love, sympathy, gratitude, awe, and reverence for the divine. No account of the dignity of being human is worth its salt without them. And no technologically driven world of the future that fails to safeguard the dignity of everyday life deserves our assent.<sup>369</sup>

Put differently, the very purported ‘lows’ of human being, the “downward pull of bodily necessity” – embodied life, emotional passions, and social attachments – that enhancement seeks to overcome are essential sources and expressions of a dignified life.

It is here that we find principal role of relating dignity to God for the Council. Rather than just providing an ontological ground for human uniqueness, theological language helps us understand that dignity, properly construed, entails humility and continual aspiration. “The dignity of being human, rooted in the dignity of life itself and flourishing in a manner seemingly issuing

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368 Kass, “Defending Human Dignity” in *Human Dignity and Bioethics*, 313-314.

369 Kass, “Defending Human Dignity” in *Human Dignity and Bioethics*, 315.

only in human pride,” Kass explains, “completes itself and stands tallest when we bow our heads and lift our hearts in recognition of powers greater than our own. The fullest dignity of the god-like animal is realized in its acknowledgement and celebration of the divine.”<sup>370</sup> While Kass and others stress that we need not believe in the Judeo-Christian God, we must nevertheless recognize that the good life requires a sense of one’s own limitations – an ontological outlook that acknowledges that we *are* finite, and this finitude affords our most fundamental human goods. Losing this finitude, or even taking up an ethical outlook that fails to privilege it, would thus be tantamount to losing the very thing that makes us human in the first place. Understood in these terms, human dignity, far from being a functional, legal placeholder for respecting basic personhood, names an Aristotelian project of achieving individual human flourishing and provides a sense of purpose within that life project – beholding and engaging with the giftedness of life as it is given – which runs counter to the aspirations of human enhancement.

### **3.5 Ideology and Secularity in Value Diversity**

Unsurprisingly, the Council was widely criticized for acting against the secular, pragmatic conventions of public ethics. The most straightforward critique took the familiar form of accusing the Bush administration of ‘stacking the deck’ by populating its commission with conservative thinkers.<sup>371</sup> This critique, however, took a more particular form in the context of bioethics: the Council’s work was introducing “ideology” into the public sphere. Through the use of theological language and emotion-based modes of reasoning like the “wisdom of repugnance,”<sup>372</sup> the Council

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370 Kass, “Defending Human Dignity” in *Human Dignity and Bioethics*, 329.

371 Rick Weiss, “Bush Unveils Bioethics Council: Human Cloning, Tests on Cloned Embryos will Top Agenda of Panel’s 1st Meeting,” *The Washington Post*, January 17, 2002, <https://www-proquest-com.ezproxy.cul.columbia.edu/docview/2075009527?accountid=10226&pq-origsite=summon>.

372 Kass more fully elaborates this idea in his article. Leon R. Kass, “The Wisdom of Repugnance,” *The New Republic* 216, no. 22 (1997): 17-26.

members were publicly mobilizing what, according to the premises of American secularism, ought to be internal, domesticated beliefs. In doing so, the Council was, the argument went, corrupting a space that was otherwise neutral by virtue being areligious, utilitarian, and consensus.<sup>373</sup>

This threat of “ideology” had been anticipated since the beginning of the biopolitical culture wars. For example, a 1993 report from the Office of Technology Assessment on public policy bioethics commissions claimed that “successful commissions were relatively free of political interference, had flexibility in addressing issues, were open in their process and disseminations of findings, and were comprised of a diverse groups of individuals who were generally free of ideology and had wide range expertise.”<sup>374</sup> Going further, the report states that, “ideology is a destructive criterion in appointing a bioethics committee. While selecting members solely on the basis of their stance on a particular issue – such as abortion – might be viewed by special interests as useful, such an approach is short sighted and likely to create gridlock.”<sup>375</sup>

This critique, however, problematically assumes that secular, public institutions like bioethics commissions are, or at least can be, free of all ideological agendas. We can both clarify and problematize this understanding of secular neutrality through a (brief) examination of philosopher Charles Taylor’s influential text, *A Secular Age*. Taylor begins his work with the question: “Why is it so hard to believe in God in (many milieux of) the modern West, while in

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373 For example, former members of the Council, Elizabeth Blackburn and Janey Rowley claimed the Council’s content offered “sensational” “myths” about the science in question that distorted the potential and motivations of biomedical research. Elizabeth Blackburn and Janet Rowley, “Reason as Our Guide,” *PLoS Biology* 2, no. 4 (2004): 402. Bioethicist Leslie A. Meltzer accused the council of wrapping “political and religious agendas in the guise of dignity.” Leslie A. Meltzer, review of *Human Dignity and Bioethics: Essays Commissioned by the President's Council on Bioethics*, *The New England Journal of Medicine* 359, no. 6 (August 2008): 660. Bioethicist Jacob M. Appel wrote that “the panel itself, far from being an incubator of intellectual ferment, had evolved into a publicly funded right-wing think tank with a handful of token moderates for window dressing.” Jacob M. Appel, “Moving Bioethics Forward,” *St. Louis Post-Dispatch*, July 8, 2009.

374 U.S. Congress, Senate, Committee on Labor and Human Resources, *Biomedical Ethics and U.S. Public Policy*, 103<sup>rd</sup> Congress, October 14, 1993, 18.

375 U.S. Congress, Senate, Committee, *Biomedical Ethics and U.S. Public Policy*, 34.

1500 it was virtually impossible not to?”<sup>376</sup> To answer this question, he describes ‘the’ modern secular condition in terms of being held “captive” in an “immanent frame.” We can understand the immanent frame as a background picture, an unselfconscious worldview, that entails taking up certain “exclusive humanist” premises – namely, an individual “buffered” identity, a scientific materialist epistemology, a normative confidence in instrumental rationality, and an immanent or “closed” metaphysics – as if self-evident. For Taylor, the “truth” of these epistemic commitments is so entrenched that the immanent frame always already appears to the consciousness of Western moderns as the neutral, given conditions under which life operates. It is in the confines of this secular, “disenchanted” “Closed World Picture” that religion is internalized and reduced to one (unreasonable) option among others.

Taylor, however, is interested in more than just identifying the constitutive characteristics of the immanent frame; he wants to understand what provides that frame with its discursive power. What makes or has made the immanent frame seem “obvious,” “unchallengeable,” and “axiomatic” in the first place? To this end, he argues that the immanent frame depends upon two interrelated “master narratives” of modernization-as-secularization. The first is the Enlightenment narrative of maturation, according to which the development of scientific materialism and self-legislating moral reason represents the transition from childhood to adulthood, from barbarism to civilization, and, in doing so, makes religious “transcendence” “irrelevant to life.” The second narrative is the further framing of this maturation as a “subtraction” story in which the distortions of religion are “sloughed off” to reveal true understandings of the world and authentic understandings of the self. Modernization and secularization are, according to this narrative framing, deconstructive

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376 Charles Taylor, “The Immanent Frame,” in *A Secular Age* (Cambridge, MA: Harvard University Press, 2007), 593.

processes that merely reveal reality rather than construct it. In short, it is through representing itself as a “factual” and “objective” worldview that inevitably results from rational civilization that the immanent frame becomes a picture “that cannot be challenged; indeed, alternatives to [it] are impossible to imagine. That’s what it means to remain captive.”<sup>377</sup> As sociologist José Casanova surmises, “the function of secularism as a philosophy of history, and thus *as ideology*, is to turn the particular Western Christian historical process of secularization into a universal teleological process of human development.”<sup>378</sup>

Taylor complicates the content of the immanent frame and the master narratives that support it in two instructive senses. First, taking up a secular, immanent worldview requires no less of a “leap of faith” than taking up a transcendent one. The term “belief” fails to capture the foundational nature of this leap since belief itself a secular invention that relocates moral and other self-conscious commitments inside of individuals who already exists in an otherwise objective, immanent real. Rather, independent of its logical or empirical coherence, the immanent frame is unselfconsciously taken up as the natural container for human experience and, in this sense, is logically prior to the questions of validity, justice, and belief we might ask within it. Second, the subtraction narrative “gives too little place to the cultural changes wrought by Western modernity, the way in which it has developed new understandings of the self, its place in society, in space and in time. It fails to see how innovative we have been.”<sup>379</sup> While we might all now “wield” our modern meta-narratives in some sense, secularization was neither inevitable nor the result of destructive revelation. From the scientific establishment of “the true facts about the world” to the

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377 Taylor, *A Secular Age*, 566.

378 José Casanova, “The Secular and Secularisms,” *Social Research* 76, no.4 (Winter 2009): 1054-1055. Emphasis mine.

379 Taylor, *A Secular Age*, 573.

Kantian determination of “the ultimate values by which [we] live,” the secularization characteristic of modern life was (and I will argue still is) a profoundly constructive process.<sup>380</sup>

Following both of these conclusions, I want to suggest that we should resist viewing secularism, and in particular secular institutions like public bioethics, as neutral, empty containers free from political or religious ideologies. To be secular or even to claim secularity is to take up a full breadth of metaphysical, ontological, and normative positions that shape all ensuing discourse. If the President’s Council disrupted the entrenched secular conventions of public bioethics through the production of theological and ontological content, this disruption did *not* represent the *introduction* of ideology into the public bioethical sphere. As I have suggested since the beginning of this project, the longstanding commitment to common moral principlism and scientific expertise in secular bioethics is a value-laden one that, like Taylor’s general description of the immanent frame, involves the prior assumption of humanist ideals about the metaphysical integrity of the self, the universality of Western moral norms, and, indeed, the separation of religion and state. Public bioethics was never free of ideology to begin with; no institution, secular or otherwise, is.

We must, however, go further than just leveling religious and secular perspectives; for this still leaves the door open to view the Council’s work as *merely* religious and thus to uphold the strong religion/secular binary. For this task, we must return to the critical theorization of secularism and move beyond Taylor’s immanent frame.<sup>381</sup> Critical theorization of secularism, at least in the field of religious studies, has most often entailed demonstrating an internal relationship between religion and secularism and, in particular, how Protestant understandings of religious life

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380 Taylor, *A Secular Age*, 580.

381 For however groundbreaking Taylor’s description was, it still problematically framed secularism as a monolithic and fully actualized (if somewhat disappointing) phenomenon. It is thus with great certainty that he claims, “What I have been describing as the immanent frame is common to all of us in the modern West.” Taylor, *A Secular Age*, 543.

have informed secularism writ-large since its inception. While this line of criticism is cogent and well-worn, I am more interested in another theoretical trend: the call to contextualize and pluralize secularism.

As scholars Janet Jakobson and Ann Pellegrini argue in their edited volume *Secularisms*, “If secularism is constituted in relation to religious formations, then secularism is not the universal discourse emanating from the European Enlightenment, but is in fact multiple, as are religions. We might then more aptly speak in terms of secularisms.”<sup>382</sup> The master narrative of secularization as a singular, global process does not just (empirically) fail in light of religion’s persistence in the public sphere or its own religious origins; it also fails in light of the development of different secularisms in different contexts. While we must not elide “the dominating power relations in which this diversity is formed” – i.e., the history of Euro-American colonialism – we can nevertheless see that secularism in Turkey, secularism in India, and secularism in the United States are each informed by different (religious) genealogies that afford different imaginings and embodiments of the relationship between ‘church’ and state.<sup>383</sup>

While these differences might be especially acute when comparing and contrasting nation-states, the need to contextualize runs deeper than national identities. We must approach secularism as fully embedded *in history*, rather than as the condition, truth, or *telos* of history, i.e., we must approach it in the Foucauldian sense of “a set of material and linguistic practices that work across

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382 Jakobson and Pellegrini, *Secularisms*, 13.

383 This is one of the central points of Jakobson and Pellegrini’s edited volume, *Secularisms*. The three examples I list here are drawn from chapters on these respective contexts within that volume. Taha Parla and Andrew Davidson, “Secularism and Laicism in Turkey,” in *Secularisms*, ed. Janet Jakobsen and Ann Pellegrini (Durham: Duke University Press), 58-75. Banu Subramaniam, “What Tangled Webs We Weave: Science, Secularism, and Religion in Contemporary India” in *Secularisms*, ed. Janet Jakobsen and Ann Pellegrini (Durham: Duke University Press), 178-202. Tracy Fessenden, “Disappearances: Race, Religion, and The Progress Narrative of U.S. Feminism” in *Secularisms*, ed. Janet Jakobsen and Ann Pellegrini (Durham: Duke University Press), 139-161.

multiple institutions.”<sup>384</sup> Without discounting the common frame of imaginative reference that the master narrative of secularization provides, we can acknowledge that, even within the United States, both the discourse of secularism and its institutional instantiations change across time and space.<sup>385</sup> If secularism is “a political project that deploys the concept of the secular,” then we can observe how the concept of the secular, like all discursive content, is necessarily subject to creative interpretation and instrumentalization.<sup>386</sup> From this perspective, secularism is a *process* rather than a *product*, and the secularity of a given person, community, or institution is best approached as *in media res*.<sup>387</sup>

With this in mind, I want to suggest that we should *not* view the Council as performing conservative religious work over and against a liberal secular counterpart. Rather, we can understand the Council’s introduction of substantive content as both the enactment and consequence of a change in the secularity of public bioethics. We can see this in at least two senses. First, building on the NBAC’s *Cloning Human Beings* report, the Council adopted a view of public bioethics as a site of reasonable moral disagreement. As we saw in Chapter One, Kass’s principal justification for the Council’s composition was its inclusion of diverse ‘ideologies’ or ‘values’ (rather than demographic or professional identities). This framework of value diversity, which was

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384 Jakobson and Pellegrini, *Secularisms*, 7.

385 For example, in his ethnographic work on contemporary non-believer organizations, Joseph Blankholm demonstrates that different self-avowed secular coalitions understand and enact the secular/religious boundary differently, and that the structuring condition of secularism described by theorists thus cannot fully account for these “everyday forms of secularism.” Jacob Blankholm, “Making the American Secular: An Ethnographic Study of Organized Nonbelievers and Secular Activists in the United States,” PhD Diss, Columbia University, 2015.

386 Jakobson and Pellegrini, *Secularisms*, 7.

387 This language draws on scholar of religion Angela Zito’s discussion of “culture” in which she argues that “culture must be approached as process and not as thing; that it is produced through the social organization of material life, in time, and through human efforts; that this is all accomplished through the agency of persons whose very subjectivities are one of the products of this process.” Angela Zito, “Culture” in *Key Words in Religion, Media, and Culture*, ed. David Morgan (London: Routledge, 2008), 74.

intended to model an ideal secular pluralism, reconstituted biomedical expertise so as to include non-scientists and non-bioethicists. In taking the NBAC's premise to its logical conclusion though, the Council, in essence, leveled all bioethical commitments as individually held "beliefs," "theories," or "values." Much like the U.S. evolution debate in which biological evolution has been reduced to "just" a "theory," established secular content – in this case, the four common moral principles – became subject to the very understanding of non-factual "belief" that was originally "dialectically produced in the [secular] discourse of religion."<sup>388</sup> The point I mean to make here is not (just) that this flattening of expertise was somewhat ironic in its reduction of secular claims to the status of religious ones (or vice versa). Rather, it is that this flattening reflected a quite traditional secular, democratic premise: that public policy debates should mirror those of the general public. Taking the social reality and normative merit of pluralism seriously, the argument went, requires building ideologically diverse institutions that are willing and able to debate topics in a grammar and depth that reflect actual public concerns – including, in this case, correcting an underrepresentation of conservatism in formal bioethics.

Second, the prominence of "human dignity" can be read as a deliberate interpretation and instrumentalization of an established, if contested, secular category. Religious beliefs here are not introduced as self-sufficient ideas but discursively channeled through a political term already deemed appropriate for public debate. It matters that the foremost goal of the Council was to explain why and how the concept of human dignity (and not religion *per se*) is useful, or even necessary, for doing bioethics in the age of biotechnology. Religion – in the monolithic, Judeo-Christian terms the Council understood it – is just one pluralistic tool, albeit an important and

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388 Robert J. Baird, "Late Secularism" in in *Secularisms*, ed. Janet Jakobsen and Ann Pellegrini (Durham: Duke University Press), 175.

underutilized one, for enriching extant secular bioethical discourse. Even for those who claimed that theological understandings were “necessary,” this rhetorical move most resembles Kant’s ideal of “practical necessity,” according to which we need to presuppose certain faith-based propositions – in Kant’s case, free will, the existence of God, and the immortality of the soul – in order to coherently intuit and live a duty-bound life.<sup>389</sup> The Council, in other words, did not understand human dignity as a convenient means to sneak religion into public life; rather, religion was understood as an interpretive device that could clarify the extant concept of human dignity without undermining its most important secular attribute, i.e., being a ‘commonsense’ ideal that both reflects and reaches across pluralistic differences.

Indeed, even as Kass and other members championed their departure from the secular norm, the Council did not understand its work as non-secular. Rather, by providing “richer” and more pluralistic content, the Council understood itself as performing a more ideal form of public debate. If the Council shifted some familiar secular binaries like private/public and fact/value to an uncomfortable degree, its work was nevertheless deeply informed by a secular imagining of pluralism *par excellence* and enacted predominantly through the use of a secular category, human dignity, that was intended to be legible to an imagined democratic audience independent of religious commitments. While it is important to acknowledge just how different the Council was from its predecessors, it is no less important to acknowledge that that difference was afforded by

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389 In the *Second Critique*, Kant argues that we need to take up certain metaphysical postulates as if true in order for morality to be intelligible. The three most prominent postulates he identifies are free will, the existence of God, and the immortality of the soul. Without free will there would be no moral choice - i.e., the choice between obligation and inclination - about which we could speak of in the first place. Without the existence of God, an omniscient and neutral moral arbiter, we cannot reasonably believe there are objective criteria for judging our moral maxims. And without the immortality of the soul we have no greater end towards which our gradual, but always incomplete moral self-cultivation can be directed. These postulates are “practical” (as opposed to theoretical) because, given our non-access to the *noumenal* world, they cannot be definitely proven. They are, nevertheless, “necessary” in that their assumption is required for living a dutiful life. Immanuel Kant, *Critique of Practical Reason*, trans., Thomas K. Abbott (New York, NY: Dover Publications, 2004).

a reconstitution, rather than a subversion, of public bioethics' secularity. Without this understanding in place, we run not just the general risk of omitting the contextual, flexible nature of secularism(s), but also the more particular risk of re-siting all substantive bioethical work, even work that takes place in secular institutions and grammars, in the distinctive realm of religion, and, as is so often the case, de-legitimizing it in the process.

To be abundantly clear, I do not believe that any bioethical position is inherently more legitimate by virtue of being secular. Rather, I am responding to the fact that the rhetorical strategy of labeling certain substantive questions or topics as “religious” has historically functioned as a means to marginalize them within the field of bioethics, public and otherwise. By deliberately emphasizing the secularity of the Council’s work, then, I am attempting to expand the familiar horizon of what counts as bioethical secularity, and, in doing so, complicate the clean distinction upon which such de-legitimizing rhetorical strategies depend. The fact that the Council’s work *can* be read as secular,<sup>390</sup> both in spite of and because of its public use of theological content, shows us that substantive rationality cannot simply be excluded from bioethical debate on the basis of its religiousness or those characteristics – e.g. being a private matter of individual belief or otherwise “ideological” in character – most often associated with religion in a secular, immanent frame.

### **3.6 A ‘Richer Bioethics’ or a ‘Return to the Norm’?**

In November of 2009, President Barack Obama replaced the President’s Council on Bioethics with the Presidential Commission for the Study of Bioethical Issues: a body intended to

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390 To further clarify, even when I use the normative language that we *should* understand the Council’s work as being secular, I am not suggesting that it is *necessarily* so. Such a position would require an essentialist view of secularism write-large, which I reject outright in this project. Rather, I am arguing that we *can* cogently read it along these lines and *benefit the most* from doing so, at least for the purpose of understanding how the Council’s work was afforded a space in public bioethics and why that affordance was exigent.

offer “practical policy options” rather than philosophical guidance.<sup>391</sup> For liberal bioethicists and scientists, this move (at least initially) represented a welcome return to the secular, bioethical norm.<sup>392</sup> In conclusion, I want to suggest that, while the findings of Bush’s Council are problematic, its intent to disrupt bioethical conventions can nevertheless be seen as instructive; and, likewise, that there is good reason to be suspicious of a return to the norm.

First, there is merit in the Council’s elision of consensus as a prerequisite for bioethical inquiry. The common moral principlism long characteristic of formal bioethics can be dangerous insofar as consensus functions as a mechanism of power through which all non-normative ethical positions are concealed from, or marginalized within, public bioethical discourse. Insofar as principlism presupposes that there already exists moral norms toward which all communities are predisposed, prior bioethics commissions had no choice but to assume and present a consensus position, lest the whole framework collapse upon itself. While the President’s Council was often criticized for its conservative agenda, a closer reading of the meetings and reports demonstrates a surprising amount of time and space given to dissenters; even if positioned as marginal perspectives, liberal bioethicists, scientists, and philosophers are still given some voice in the Council’s work and it is recognized that consensus cannot, nor should it be, assumed.<sup>393</sup>

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391 “Executive Order 13521 of November 24, 2009: Establishing the Presidential Commission for the Study of Bioethical Issues,” *Code of Federal Regulations*, title 3 (2010): 270-281. Christine Grady, “Making the Choices Necessary to Make a Difference: The Responsibility of National Bioethics Commissions,” *Hastings Center Report* 47, no. S1 (2017): S42-S45.

Nicholas Wade, “Obama Plans to Replace Bush’s Bioethics Panel,” *The New York Times*, June 17, 2009.

392 While optimism was high when President Obama first announced the new Commission and its pragmatic goals, the choice of its politically “uncontroversial” membership, including a mere two credentialed bioethicists, Dan Sulmasy and Christine Grady, quickly soured those within the bioethical discipline. Even this disappointment, however, speaks to the eagerness of bioethicists to return to the pre-President’s Council norm. David Magnus, “Bioethics and President Obama,” *The American Journal of Bioethics* 10, no. 5 (2010): 1-2.

393 I have thus far intentionally minimized the Council’s internal contestations in order to focus on the shared positions of its conservative majority and their substantive differences from past bioethical commissions. Of the three reports I examine though, both *Human Cloning and Human Dignity* as well as *Human Dignity and Bioethics* include dissenting viewpoints from moderate and liberal voices. *Human Cloning and Human Dignity*, for example, sets aside a section for the “minority recommendation” in its Executive Summary, which advocates a less severe regulatory

Likewise, I want to suggest that the Council’s bioethical work was in fact “richer” than its predecessors in that took ontological inquiry seriously as a necessary condition of (at least modern) bioethical discourse. Sidestepping ontological concerns might, as Hurlbut argues, serve a functional purpose, but making normative claims about how a state of affairs *ought* to be necessarily involves taking up (often-tacit) claims about what the current state of affairs *is*. In this case, practical, utilitarian concerns of risk, access, and safety – while pressing and worthwhile – always already depend upon conceptually prior understandings of human subjectivity that narrow the scope of bioethical decision-making. These understandings ought to be made explicit so that their validity can be defended and alternatives can be considered. While I am not convinced that governmental commissions are the most appropriate space for this mode of deliberation, I have little doubt that biotechnologies do demand a more substantive analysis in which questions of human nature are not taken for granted – a premise that has, to some degree, been manifest in the enhancement debate.

If the questions the Council asked were richer though, the answers it provided were not. For all their criticisms of consensus thinking, the Council ironically recapitulated that same mode of thinking in the content of its bioconservative positions, which claim to speak for and about human life *in toto*. Whether it is describing reproduction and child-rearing in heterosexual terms or educational and professional success as capitalist, meritocratic projects, there is no shortage of contextually-specific values that are uncritically framed as universal, natural, and God-given goods. The normative ideal of the dignified human presented here *is* more embodied and situated than

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approach than its majority counterpart. Likewise, *Human Dignity and Bioethics* presents at least three essays that could be read as contrarian, including one from transhumanist Nick Bostrom. See: Dennett, “How to Protect Human Dignity from Science” in *Human Dignity and Bioethics*, 39-60. Churchland, “Human Dignity from a Neurophilosophical Perspective” in *Human Dignity and Bioethics*, 99-121. Bostrom, “Dignity and Enhancement” in *Human Dignity and Bioethics*, 173-206.

most humanist imaginings; but, even as the finitude of human nature is reframed in a positive light, the metaphysical integrity, privileged normative status, and transhistorical presence of that nature is never meaningfully brought into question. The bioconservative position that ‘we’ ought to remain human ‘as is’ depends upon a profoundly strong sense of species-level identity and, therefore, a necessary concealment of substantive cultural, historical, and biological difference. To the extent that the Council’s Aristotelian and Judeo-Christian dignitarian politics represent an alternative to common moral principlism, then, it is an alternative of somewhat negligible distinction.

These problems with the Council’s work, however, do not mean that we should simply welcome a return to the secular norm. Just as we should resist the temptation to view secularism as neutral, we should also resist the temptation to understand it in triumphalist terms. To dramatize this point, we can return to critical theorization on secularism and, in particular, the work of cultural anthropologist Talal Asad. In his influential *Formations of the Secular*, Asad explains that the secular is not “simply an intellectual answer to a question about enduring social peace and toleration. It is an enactment by which a *political medium* (representation of citizenship) redefines and transcends particular and differentiating practices of the self that are articulated through class, gender and religion.”<sup>394</sup> The secular, Euro-American “ideology of political representation” is, in other words, a mechanism of de- and re-essentializing human subjects that sublimates particular modes of being into common, state-based identities. More than just cultural misunderstanding, Asad explains, this secular mode of sublimation has long acted as the basis for colonial and other kinds of ‘political’ violence towards Muslim and other non-Western peoples.<sup>395</sup> After all, in the

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394 Asad, *Formations of the Secular*, 16.

395 “Violence” here refers to both punitive, carceral measures internal to the state and interventionism (occupation, war, or other forms of political influence) abroad. To make the point reductively, we need look no further than one of the basic political justifications for the United States’ recent wars in Iraq and Afghanistan: “spreading democracy to

meta-narrative of Enlightenment progress, secularization – including the formation of a liberal, democratic state that relocates religion in the private sphere – is an inherent good, and therefore justified at almost all costs. Asad thus rhetorically asks, “why is it that aggression in the name of God shocks secular liberal sensibilities, whereas the act of killing in the name of the secular nation, or of democracy, does not?”<sup>396</sup>

While this kind of large-scale political critique might seem far afield from public bioethics, it is an important reminder that we should not uncritically accept the secularity of public institutions as a societal good. Rather, we must critically examine the discursive and material labor that such institutions’ secularity (and claims to secularity) perform. In this case, the secular convention of common moral principlism performs an erasure of difference through both its commitment to consensus ethics and its more fundamental elision of subject-formation as an object of bioethical debate. We would do well, then, to heed the President’s Council’s call for a richer bioethics. The ethical and ontological theories we take up in doing so, however, must be richer as well, lest we fall into the same trap of treating human being and flourishing as fixed, universal, and natural givens.

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the Middle East.” Regardless of the normative merit of this end, there is little question that it does justify large-scale violence in the name of re-constituting other peoples in the image of ideal secularism and, furthermore, depends upon on a master narrative in which the formation of the liberal, democratic state represents the maturation of all human civilizations.

396 Talal Asad, “Is Critique Secular?” in *Is Critique Secular?: Blasphemy, Injury, and Free Speech*, by Talal Asad, Wendy Brown, Judith Butler, and Saba Mahmood (New York: Fordham University Press), 10.

## **Chapter Four: From Disenchantment to (Moral) Bioenhancement**

### **4.1 The Desirability Of Enhancement**

The year is 2050. Based on advances in “optogenetics,” it is now possible to genetically engineer human embryos so that the activity of individual neurons can be both measured and manipulated externally. Genetically modified neurons (GMNs) contain “nanosignalers” that indicate when activity is occurring in specific neurons and emit signatures of light that are picked up by a ubiquitous light-based communications network. In the confines of this network, information, even the information ‘inside our heads’, is transmitted to and from bioquantum computers that are trillions of times more powerful than their digital predecessors.

2050 also marks the five-year anniversary of the completion of The Great Moral Project: the construction of the world’s most powerful, self-learning bioquantum computer, the “God Machine.” The God Machine monitors the thoughts, desires, and intentions of each human being, and is capable of modifying a person’s behavior in nanoseconds without that person ever knowing their behavior was modified. The God Machine was designed to give humans “near complete freedom” and only ever intervenes in human action to prevent great harms or injustices such as murder or rape. For example, as soon as a person forms the intention to murder, and it becomes inevitable that the intention will be acted on, the God Machine intervenes and the would-be-murderer ‘changes his mind’. In the year 2050, then, there is no more “serious crime” and no more “malevolent” behavior; we have become morally “fit for the future.”<sup>397</sup>

This Brave New World is the thought experiment proposed by philosophers Ingmar Persson and Julian Savulescu to compel their imagined audience to recognize the benefits of

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397 Ingmar Persson and Julian Savulescu, “Moral Enhancement, Freedom, and the God Machine,” *The Monist* 95, no. 3 (2012): 399-421.

“moral bioenhancement.” Moral bioenhancement (MBE), in the most general sense, is the use of bio- and neuro-technologies such as pharmaceuticals, neural implants, and genetic engineering for the deliberate improvement of an individual’s moral character, motives, or behavior, and represents the most recent and controversial variation of the human enhancement debate in bioethics.<sup>398</sup> While such a project might seem far-fetched to outsiders, theorists of enhancement – speculating on recent findings in genetics, evolutionary biology, psychology, and neuroscience – see MBE as a plausible future scenario. The guiding question of the discourse, then, is not necessarily whether MBE is *feasible*, but rather whether it is *desirable*.<sup>399</sup>

The debate concerning the desirability of MBE, in turn, depends on a more fundamental meta-ethical question: what ethical frameworks are legitimate for evaluating transforming our moral capacities and behaviors? In other words, on what normative grounds can we determine what counts as moral ‘improvement’, which capacities or behaviors should be targeted, and whether moral enhancement itself is a worthwhile project? Whereas meta-ethical positions are often implicit within other areas of the enhancement discourse, theorizing the ethics of modulating emotion, reason, and action – written into the literature as essential characteristics of the self – necessitates a clearer articulation of what ends constitute the good and what means are legitimate for its achievement than, for example, extending one’s lifespan or altering one’s physical appearance.<sup>400</sup> Examining the discourse of moral enhancement thus affords a more precise picture

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398 Thomas Douglas, “Moral Enhancement,” *Journal of Applied Philosophy* 25, no. 3 (2008): 228-245. Mark Rowlands, “What is Moral Enhancement?” *Royal Institute of Philosophy Supplement* 83 (2018): 5-18. Brian D. Earp, Thomas Douglas, and Julian Savulescu, “Moral Neuroenhancement,” in *Routledge Handbook of Neuroethics*, ed. L. Syd M Johnson and Karen S. Rommelfanger (New York: Routledge, 2017), 166-184.

399 Jona Specker, Farah Focquaert, Kasper Raus, Sigrid Sterckx, and Maartje Schermer, “The Ethical Desirability of Moral Bioenhancement: A Review of Reasons,” *BMC Medical Ethics* 15, no. 67 (2014): 1-17.

400 Birgit Beck, “Conceptual and Practical Problems of Moral Enhancement,” *Bioethics* 29, no. 4 (2015): 233-240. Bernard Baertschi, “Neuromodulation in the Service of Moral Enhancement,” *Brain Topography* 27, no. 1 (2014): 63-71.

of the (bioliberal) ethical frameworks forefronted in this project as well as the logics that cut across more traditional philosophical distinctions.

The discourse of MBE, however, also offers a second and more provocative point of leverage for understanding the larger enhancement discourse and its constitutive representations of human nature. While the now familiar liberal individualism of bioethics still predominates here, liberal bioethicists take up a far more social-minded rhetoric in pursuing the question of whether moral enhancement is desirable. In the case of moral enhancement, bioethical inquiry invites not just bio- and neuro-logical explanations of morality, but also social and historical ones. Which social processes are responsible for cultivating morality? Where do humans stand in terms of the history of moral progress? To put it in even more straightforward terms, we must first understand where we have been and where we are now in order to answer the question of where we should go. For advocates of MBE, we will see that this understanding turns out to be a master narrative of social and historical development eerily similar to classical secularization theses.

In what follows, I begin with delineating three different proposed models of MBE: behavioral, virtuous, and rational – which, respectively, correspond to the Western philosophical traditions of utilitarianism, virtue ethics, and deontology. If a description of these models reveals how bioethicists imagine MBE taking effect though, it still does not tell us how MBE is being framed as *desirable* for imagined audiences. In the next part of the chapter, then, I demonstrate that the pro-MBE position depends upon both the implicit and explicit mobilization of modernization-as-secularization narratives. We will see that each of the three models shares common premises about what makes moral enhancement feasible and desirable, namely, the reducibility of all moral life to biological causes and the necessity of outgrowing ‘traditional’ means of moral cultivation if moral ‘progress’ is to continue.

In the ensuing section, I contend that, we can nevertheless identify important differences between this narrative framing and more traditional versions of the secularization thesis and should, therefore, understand it as a *particular* discursive formation, rather than just one more instantiation of a global, monolithic secularism. In conclusion, however, I suggest that this narrative's constitutive species-level language still conceals both questions of power and the extent to which moral subject-formation is a social, embodied, and contextual process. While the inclination of advocates of MBE to situate their projects in social and historical contexts is instructive, the stories we tell must still move beyond master narratives of secularization if we want to seriously evaluate the potential consequences of modulating emotion, cognition, and behavior through biotechnological means.

#### **4.2 Behavioral Enhancement**

The MBE debate began in earnest in 2008 when philosophers Ingmar Persson and Julian Savulescu published an article entitled "The Perils of Cognitive Enhancement and the Urgent Imperative to Enhance the Moral Character of Humanity" in the *Journal of Applied Philosophy*.<sup>401</sup> The authors' argument for moral enhancement being a species-level ethical obligation has since generated more (critical) attention than any other textual thread on the same topic. The logic of this position is apocalyptic in nature: developing and using technologies to improve our moral capacities at the bio- and neuro-logical level is a necessary means of preventing humanity from

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401 Persson and Savulescu, "The Perils of Cognitive Enhancement," *Journal of Applied Philosophy* 25, no. 3 (2008): 162-177.

The authors have since fleshed out their project in numerous later works including: Ingmar Persson and Julian Savulescu, *Unfit for the Future: The Need for Moral Enhancement* (Oxford: Oxford University Press, 2012). Ingmar Persson and Julian Savulescu, "Reply to Commentators on Unfit for the Future," *Journal of Medical Ethics* 41, no. 4 (2015): 348-352. Julian Savulescu, Thomas Douglas, and Ingmar Persson, "Autonomy and the Ethics of Biological Behavior Modification," in *The Future of Bioethics: International Dialogues*, ed. Akira Akabayashi (Oxford, UK: Oxford University Press, 2014), 91-109. Ingmar Persson and Julian Savulescu, "Unfit for the Future? Human Nature, Scientific Progress, and the Need for Moral Enhancement," in *Enhancing Human Capacities*, ed. Julian Savulescu and Ruud ter Meulen (West Sussex, UK: Blackwell Publishing, 2011), 486-502.

destroying itself. We can understand the rationale for this imagined future as premised on what is referred to as the ‘Bermuda Triangle of extinction’: 1) radical technological power, 2) mankind’s myopic moral psychology, and 3) liberal democracy.

In an ironic twist, it is technological progress itself that poses the basis of the ‘ultimate harm’ of human extinction. The argument holds that ever-increasing technological advancements increase both the destructive power of technologies themselves and the likelihood of destructive technologies falling into the hands of a rogue state or lone, crazed individual. It will, in turn, become progressively easier for humans to cause disproportionate and catastrophic harms through, for example, biological and chemical warfare, weapons of mass destruction, and environmental degradation. Furthermore, these threats or ‘big harms’ need not be the consequences of *intentional* acts (e.g., terrorism); we see the potential for such harms in the side effects of scientific experimentation (the authors use the example of the 1970s Australian “mousepox” epidemic that resulted from the mass-sterilization of mice to prevent a “mouse plague”) or the economic means of production and consumption (the clearest example being capitalist-induced global warming).

The authors stress that human “common-sense morality” – i.e., “a set of moral attitudes that is a common denominator of the diversely specified moralities of human societies over the world” – has historically featured a conception of responsibility as causally-based, according to which we are more responsible for the actions we directly commit or cause than those we allow to occur through our omissions (the so called “act-omission doctrine”).<sup>402</sup> In contrast, Persson and Savulescu contend that, “we are all equally, and *fully*, responsible for a failure to help, not just responsible for contributing a ‘bit’ to such a failure.”<sup>403</sup> On the macro-level, this means that the

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402 Persson and Savulescu, *Unfit for the Future*, 13.

403 Persson and Savulescu, *Unfit for the Future*, 64.

more extensive powers of action societies possess due to science and technologies, the greater their moral responsibilities.<sup>404</sup> To use the language of bioethical principles, beneficence (the promotion of the good) consists in more than just nonmaleficence (omitting harm), and that failures to act for the end of benefit are no less morally wrong than actions that harm. In short, humans have historically been bad at anticipating and taking responsibility for actions that occur as a result of indirect causes and their own omissions. Given the ever-increasing destructive power of technologies and the structural potential for both intentional and unintentional large-scale harms, it is a small leap for the authors from terrorist attacks and corporate pollution to extinction-level events.

The commonsense morality referred to by the authors is not intended to be historical or anthropological so much as biological and psychological in nature. And while Persson and Savulescu trace most of our moral dispositions to deficient evolutionary traits such as the “special ferocity” with which non-human animals defend themselves and their territory,<sup>405</sup> the authors argue that we do possess at least two morally worthwhile, hardwired traits: justice and altruism. Justice is described here in terms of fairness: “if you deserve some treatment then, other things being equal, it is just or fair that you receive it.”<sup>406</sup> Altruism, on the other hand, involves (A) an

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404 This is something that has, at times, been recognized but, most often, not acted upon at the level of the nation-state. For example, in 2008 only five countries (Sweden, Luxembourg, Norway, Denmark, and the Netherlands) met the modest goal of the United Nations to provide 0.7 percent of their national GDP in international aid. Persson and Savulescu, *Unfit for the Future*, 63.

405 Persson and Savulescu, *Unfit for the Future*, 19. For example, the doctrine of negative rights – according to which we have rights against others that they do not interfere with the use that we could make of ourselves and the property that we have by our own efforts – is described as one that initially evolved to enable small groups of humans (around 100) to promote the survival and reproduction of the overall group and has an evolutionary origin in the territorialism of non-human animals. For this description, see: Persson and Savulescu, *Unfit for the Future*, 15-23.

406 Persson and Savulescu, *Unfit for the Future*, 34. For example, reciprocity has been observed as a structural trait in communities of chimpanzees. This reciprocity, however, is of the “tit-for-tat” variety (e.g., sharing food in return for grooming). For this description, see: Persson and Savulescu, *Unfit for the Future*, 32-42.

empathetic capacity to imagine from the inside what it would be like to be another conscious subject and (B) sympathetic concern about the wellbeing of that subject for its own sake.<sup>407</sup>

Since our capacities for justice and altruism have evolved myopically to fit small circles of moral concern and primitive technologies, however, we are limited in our capacities to extend reciprocity outside of direct causal actions and altruism toward foreign and unfamiliar groups. Humans have thus historically failed to adequately recognize the interests of other human beings, future generations, and non-human animals and environments. What I want to emphasize is that, despite some recent backtracking efforts,<sup>408</sup> morality is being described here as a biological problem that requires a biological (or rather bio-technological) solution. If we are to respond to the moral responsibilities of a globalized, technologically advanced world in which the potential for harms and benefits are increasing at an exponential rate – i.e., if we are to become “fit for the future” – then we “must” decrease malevolence and increase beneficence through the use of drugs, implants, genetic engineering, and other biological interventions that enhance the core moral dispositions of altruism and justice.

While political mechanisms are traditionally thought to address such issues, liberal democracies, which enact the limited moral interests of the majority, have failed to prevent, and in some cases worsened, global injustice and environmental destruction. Furthermore, the authors argue, liberal democracies’ goal of maximizing the freedom of individuals and offering tolerance to violent, hateful groups compounds the dangers of technological destruction; liberalism, in effect, pursues the goal of moral neutrality rather than a utilitarian maximization of benefit. Just as important, liberal democracies, with their emphases on freedom, pluralism, and privacy are

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407 Persson and Savulescu, *Unfit for the Future*, 109.

408 Ingmar Persson and Julian Savulescu, “The Art of Misunderstanding Moral BioEnhancement,” *Cambridge Quarterly of Healthcare Ethics* 24, no.1 (2015): 48-57.

impractical for instituting the sorts of programs required to secure mankind's future welfare. For the authors' imagined MBE project to be successful, it would need to be both global and compulsory since, in their predictive model, even a handful of morally deficient individuals pose an existential threat.<sup>409</sup> In spite of these criticisms, Persson and Savulescu do not suggest abandoning democratic institutions as such, but rather complementing them with MBE so that consumers and voters will make more just and altruistic decisions. While personal freedoms – in this case, the freedom to make decisions with respect to one's own biology – might seem to be a high cost for a more moral future, the authors contend it is a necessary one to ensure that there is a future at all.

I describe Persson and Savulescu's model as "behavioral" in order to underline that enhancing behavior is both the preeminent goal and only legitimate criterion for evaluating morality in their framework. Building on classical utilitarianism, or its more particular variant welfarism, the premise is that we can and should judge morality according to how one contributes to the greater good through practical, empirically verifiable actions. It does not matter *per se* whether or not you can reason ethically or possess ethical motives or virtues; what matters is whether or not your actions function in service of "everyone on the whole." The God Machine, for example, would be justifiable, even at the cost of certain kinds of autonomous decision-making, because the consequences represent a clear benefit to the wellbeing of the communal whole; after all, according to the authors, "serious crimes" are those actions we already agree upon as incontrovertible threats to communal welfare. There is also a surface resemblance to classical behaviorist models in biology and psychology here. While internal mechanisms are not 'black

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409 The authors do, however, argue that some is better than none in this case as it would "reduce" the threat from a probability standpoint. Ingmar Persson and Julian Savulescu, "Against Fetishism about Egalitarianism and in Defense of Cautious Moral Bioenhancement," *American Journal of Bioethics* 14, no. 4 (2014): 39-41.

boxed' for descriptive or explanatory purposes as in behaviorism, internal and biological causes are considered relevant only insofar as the enhancement of them is a (or, in this case, *the*) means to an end: catastrophe-avoidance.

### 4.3 Virtuous Enhancement

We can find a different model of bioenhancement in philosopher Mark Walker's proposed Genetic Virtue Project: an interdisciplinary effort between philosophers, psychologists, and geneticists to discover and enhance genetic correlates of virtuous behavior. The Genetic Virtue Project depends upon three premises. First, the foundation of moral behavior lies in "personality traits" – a psychological term referring to "enduring behaviors that are stable across time and situations" – which Walker understands as being coterminous with both virtues and vices.<sup>410</sup> While the goal is still to enhance behavioral output in this model, the targets, in the mold of classical virtue ethics, are the enduring character traits that both explain and are responsible for that behavior. Second, pointing to suggestive evidence from evolutionary biology and clinical psychology, almost all personality traits demonstrate at least "moderate" genetic heritability. For example, given that deception is a common tactic among a range of species as well as part of heritable mental illnesses like anti-social personality disorder (APD), it is reasonable to assume that truthfulness has a genetic component.<sup>411</sup> While not committing to a complete biological determinism, Walker stresses that our genes at least *influence* our personalities and enduring behaviors.

Third, if our virtues have some kind of genetic basis, then it is logical to postulate that we can detect and control the genes responsible for these heritable components. There is no *a priori*

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410 Mark Walker, "Genetic Virtue: A Project for Twenty-First Century Humanity?" *Politics and the Life Sciences* 28, no. 2 (2009): 28.

411 Walker also mobilizes evolutionary biology to make the case for these moral capacities being hardwired. For example, chimpanzees demonstrate a sense of justice through reciprocal exchanges and aggressive behaviors when those exchanges go unfulfilled. Likewise, chimpanzees have been observed extending nurturance and protection to not just kin but also other unrelated chimps.

reason, Walker contends, that we cannot use methods such as pre-implantation genetic diagnosis, somatic and germ-line genetic engineering, or the addition of artificial chromosomes to cultivate personality traits like Walker's preferred virtues of truthfulness, justice, and caring.<sup>412</sup> While the idea of programming virtue into subjects seems to run counter to traditional Aristotelian models of virtue ethics in which virtue is cultivated through habit and demonstrated through choice, Walker emphasizes that the hope of the Genetic Virtue Program is "not to make persons virtuous but to make them better equipped to *learn* how to be virtuous."<sup>413</sup> Walker also acknowledges that a centralized project along the lines of the Genetic Virtue Program is highly implausible in liberal democracies. He nevertheless insists that it is "ethically advisable" and appeals to a now familiar libertarian model in which parents could (and should) use genetic virtue technologies to enhance their offspring.

Models of virtue-engineering tend to mobilize sentimentalist accounts of morality in which emotions or sentiments, as opposed to reasoned principles and individual will, are the principal drivers of action. Just as virtues are equated with enduring psychological traits, emotions are equated with mental states and neurological processes. We can find a clear expression of this in philosopher Thomas Douglas's proposal for "negative moral enhancement" which, rather than increasing moral capacities, reduces certain "uncontroversially bad" counter-moral emotions such as racial bias and violent aggression. Thomas argues that we can possess a rational or intellectual understanding of how we ought to act but still lack the emotional motivation to follow through on those actions. It follows that biomedical means should be used to reduce the underlying causes for

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412 Walker, however, clarifies that the Genetic Virtue Project should be understood as a supplement to traditional means of moral cultivation such as socialization and education since environment also has a role (of undetermined importance) in virtue-formation.

413 Mark Walker, "Genetic Virtue," 39.

morally wrong behavior (i.e., counter-moral emotions) rather than just relying on traditional means of moral cultivation like education that target the reasoning process alone. Rather than a transformation of our human nature, Douglas encourages us to see this as a suppression of our “brute selves,” which would free our “true” or “authentic” selves to have and act upon good motives, i.e., to be our best selves.<sup>414</sup> While Douglas is providing a sentimentalist account for what motivates our actions, then, he is also proposing that we become our ‘best selves’ when we suppress or bring our emotions in line with our rational, self-determined beliefs; only when the body is completely subjected to the power of the mind can we become truly virtuous beings.

Bioethicist James Hughes offers a more holistic model of virtue engineering in which character development depends upon the modulation of multiple, interdependent virtues rather than the improvement of a single trait such as empathy or intelligence. In particular, Hughes proposes a “minimal” model of moral enhancement focused on the improvement of four basic capacities that demonstrate some correspondence to neurogenetic and neurochemical causes: 1) *self-control*: restraint, conscientiousness, and temperance; 2) *niceness*: agreeableness, extraversion, empathy, and fairness; 3) *intelligence*: open-mindedness, curiosity, love of learning, and prudence; and 4) *positivity*: (lack of) neuroticism, emotional self-regulation, positivity, bravery, and humor.<sup>415</sup> The targeting and moderation of these four interrelated capacities – which correlate to the four cardinal virtues of Plato and Aquinas (temperance, justice, prudence, and courage) – is intended to both respond to criticisms that MBE does not offer a holistic enough picture of moral subject-formation and provide a comprehensive virtue-ethics based approach.<sup>416</sup>

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414 Douglas, “Moral Enhancement,” 240.

415 James J. Hughes, “Moral Enhancement Requires Multiple Virtues: Toward a Posthuman Model of Character Development,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 1 (2015): 86-95.

416 Bioethicist Fabrice Jotterand, for example, argues that, “the way human beings make moral decisions requires the interaction of a complex network of emotional, cognitive, and motivational processes that cannot be reduced just to moral emotions or technological control (*moral capacity*) but also to practical reasoning (i.e., the source of *moral*

We can also, however, understand Hughes as engaged in a project of universalization, of normalizing both the targets for moral enhancement and the practice of enhancement itself as structural characteristics of human culture. For example, Hughes explains that, “the ability to exercise self-control, in particular in relation to vices such as anger, intoxication, and sensual pleasure has been in a virtue in almost every system of moral thought, from Greek philosophy and the Abrahamic faiths to Hinduism and Buddhism, and Confucianism and Taoism.”<sup>417</sup> Such claims can be found repeated for each of his ideal virtues. Rather than just using the rhetoric of universalism to claim that these virtues are pre- or trans-cultural and therefore inherent in our biological and psychological structures, Hughes is, in effect, establishing a minimal moral commonsensism or virtue-based consensus.<sup>418</sup>

As we saw in Chapter One, the belief that there are common moral principles – autonomy, justice, non-maleficence, and beneficence – toward which all people in a given community are predisposed, has been one of the guiding frameworks of bioethics since the field’s inception in the 1970s.<sup>419</sup> In proposing a virtue ethics-based approach, Hughes is shifting the traditional bioethical focus from moral principles and ends to moral character and personality traits. Like Douglas, he is contending not just that there are certain forms of behavior that we can ‘uncontroversially’ agree

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content).” Fabrice Jotterand, “‘Virtue Engineering’ and Moral Agency: Will Post-Humans Still Need the Virtues?” *AJOB Neuroscience* 2, no. 4 (2011): 7.

Philosophers Nicholas Agar and John Harris take this even further in contending that “piecemeal” improvements of individual traits could upset the delicate balance of moral decision-making and end up ‘de-enhancing’ subjects. Nicholas Agar, “Moral Bioenhancement and the Utilitarian Catastrophe,” *Cambridge Quarterly of Healthcare Ethics* 24, no. 1 (2015): 37-47. Sarah Chan and John Harris, “Moral Enhancement and Pro-Social Behaviour,” *Journal of Medical Ethics* 37, no. 3 (2011): 130-131.

417 Hughes, “Moral Enhancement Requires Multiple Virtues,” 89.

418 Philosopher John Shook describes “commonsensism” in this context as the appeal to “primary moral factors simple enough for broad comprehension and everyday application.” John R. Shook, “Neuroethics and the Possible Types of Moral Enhancement,” *AJOB Neuroscience* 3, no. 4 (2012): 5.

419 The references to these principles are so wide in bioethics that a full citation is not possible. As we saw in Chapter One though, the first and most canonical text where these principles were elaborated is: Tom L. Beauchamp, *Principles of Biomedical Ethics* (New York: Oxford University Press, 1979).

on as ethical and unethical but also that we ought to pursue these at the underlying level of personality traits and, even further beneath that, their bio- and neuro-logical causes. From this perspective, modern psychiatry’s project to “map the methods for diagnosing character flaws, and to determine the appropriate behavioral and chemical interventions to bring individuals lacking in self-control, empathy, intelligence, or positivity closer to the norm” is little different from those of a wide historical and cultural range of virtue-based moral traditions.<sup>420</sup>

For Hughes, this seems to include the liberal democratic project itself. He suggests that, if explicitly self-chosen, MBE would conform to the Western virtues of happiness and freedom by enabling individuals to choose the moral traits they consider valuable and increase their own capacities for embodying those traits.<sup>421</sup> Straddling the line between liberalism and libertarianism, Hughes goes so far as to suggest that moral enhancement can increase the citizenry potential of a given democratic state, enabling citizens to better pursue their self-chosen moral codes and increasing individual responsibility and accountability. While this view takes for granted what Hughes calls “the liberal personality” (based on psychology’s Big 5 Personality Traits)<sup>422</sup> as a regulative ideal, the more important implication for our purposes is that, what makes moral enhancement reasonable and desirable, is that it is good for, and indeed an extension of, the democratic state and its attendant liberal values.

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420 Hughes, “Moral Enhancement Requires Multiple Virtues,” 92.

421 James Hughes, *Citizen Cyborg: Why Democratic Societies Must Respond to the Redesigned Human of the Future* (Boulder, CO: Westview Press, 2004).

422 The “Big 5 Personality Traits” are a theoretical framework used by psychologists to diagnose the “personality” of individual subjects. Each of the five traits – extraversion, agreeableness, openness, conscientiousness, and neuroticism – represents a continuum between two extremes. While both the labels of the traits and the framework itself are contested, theoretical articulations of the big 5 have been operating in psychology since the mid-twentieth century. More recent studies have focused on showing both the empirical validity and genetic heritability of these traits. Craig Macdonald, Miles Bore, and Dun Munro, “Values in action scale and the Big 5: An empirical indication of structure,” *Journal of Research in Personality* 42, no. 4 (August 2008): 787–799. Kerry L. Jang, John Livesly, and Phillip A. Vernon, “Heritability of the Big Five Personality Dimensions and Their Facets: A Twin Study,” *Journal of Personality* 64, no. 3 (1996): 577–592.

#### 4.4 Rational Enhancement

Models of enhancement that focus on reason and judgment rather than behavior and virtue tend to come from more skeptical views of the MBE project. Bioethicist John Harris, an otherwise staunch proponent of human enhancement, argues that biotechnological techniques that target specific moral emotions or behaviors rather than general cognitive capacities are illegitimate forms of moral enhancement; for morality can only be properly understood in terms of rationality and autonomy.<sup>423</sup> Mimicking the Kantian tradition of ethics, Harris understands humans as possessing the unique capacity to scrutinize their own motives; to identify their motivations for action and to evaluate whether those motives should be endorsed or rejected. Ethical expertise, he explains, is not “being better at being good,” but “being better at knowing the good and understanding what is likely to conduce to the good.”<sup>424</sup> In turn, the space between knowing and doing the good is that of freedom. Morality, properly understood, is an exercise of free will, an explicit choice based on internal reasoning. For there to be moral action at all, there must be a choice between right and wrong and we must possess “the freedom to fall.” Psychological and genetic interventions that influence behavior prior to self-conscious judgment therefore threaten to undermine the freedom to be moral in the first place.

Harris is not just mounting a general defense of freedom here; rather he is explaining that behavior- and virtue-based models of MBE demonstrate a fundamental category mistake. If morality is rooted in self-conscious cognition, and direct modulation of emotions diminishes or eliminates the need for cognition in the moral decision-making process, then “tinkering with the

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423 John Harris, *How to Be Good: The Possibility of Moral Enhancement* (Oxford: Oxford University Press, 2016). John Harris, “Moral Enhancement and Freedom,” *Bioethics* 25, no. 2 (2011): 102-111. John Harris, “Moral Progress and Moral Enhancement,” *Bioethics* 27, no. 5 (2013): 285-290.

424 Harris, “Moral Enhancement and Freedom,” 104.

emotions is not a form of moral enhancement at all. It is more like the threat of punishment: it may make immoral behavior less likely, but it does not enhance morality.”<sup>425</sup> Bioethicist Farbrice Jotterand explains this problem in terms of the difference between “character traits” and “having character.” Whereas the former refers to the enduring behaviors that could be controlled through modulating emotion, the latter describes “a person’s moral strength to establish a set of behaviors deemed adequate in projected circumstances. It qualifies one’s moral agency and presupposes one’s capacity of self-determination. Agency (reasons, motives, intentions) and actions constitute the two elements that refer to *having character*.”<sup>426</sup> To confer moral worth upon an agent’s actions, those actions must be both deliberate and deliberative – a self-conscious response to the universal question ‘What is the good?’ and the particular question ‘What is my good?’ For Jotterand and Harris, direct modulation of emotions and behaviors does not afford individuals the capacities (namely, agency) to produce moral *content* and therefore offers no basis on which we can evaluate whether an agent’s actions merit moral praise.

It is unsurprising, then, that Harris, like most critics of MBE, favors traditional, deliberative means of increasing moral conformity that have already been ‘proven effective’ such as a “sophisticated understanding of cause and effect,” “self-education, wide reading and engagement with the world,” universal education, parental example, peer pressure, an effective and fair legal system, responsible policing, and social welfare provisions.<sup>427</sup> Harris does, however, offer a tepid endorsement for MBE in the form of chemical or biological interventions that improve general cognitive capacities such as conceptual or logical understanding and the reasoning process itself.

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425 John Harris, “‘Ethics is for Bad Guys!’ Putting the ‘Moral’ into Moral Enhancement,” *Bioethics* 27, no. 3 (2013): 3-4.

426 Jotterand, “‘Virtue Engineering’ and Moral Agency,” 8.

427 Harris, “Moral Enhancement and Freedom,” 104.

Insofar as morality is based in our rational faculties, there is no reason that cognitive enhancements (e.g., in perception, attention, understanding, and memory) could not function as *de facto* moral enhancements.<sup>428</sup>

This tepid endorsement gains clearer articulation in bioethicist Owen Schaefer's proposal for "indirect" moral bioenhancement. Whereas direct moral enhancements are designed to bring someone's beliefs, motives, or actions in line with what the enhancer believes is correct, indirect moral enhancements are designed to make people more reliably produce morally correct beliefs, motives, or actions without specifying their content. Targets for indirect moral enhancements might include: 1) logical understanding, i.e., the ability to make proper logical inferences and deductions, spot contradictions in one's own beliefs and those of others, and formulate arguments to highlight the true point of connection between interlocutors; and 2) conceptual understanding, i.e., apprehending what Descartes called "clear and distinct perceptions" or self-sufficient ideas. Schaefer's argument assumes a more practical bent than Harris': an enhancement that comes preloaded with positions on moral correctness is coercive, forcing compliance with a set of moral norms determined by an external agent. For MBE to be legitimate, the argument goes, it must improve our capacities to reason out our own moral precepts and enable greater possibilities for inter-personal moral deliberation.<sup>429</sup>

#### **4.5 Secularization and/as Disenchantment**

From the beginning of the chapter I have suggested that we can read the debate's more familiar lexicon of "evolution," "progress" "improvement," "modern," and "civilization" in terms

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428 For more on cognitive enhancement, see: Nick Bostrom and Anders Sandberg, "Cognitive Enhancement: Methods, Ethics, Regulatory Challenges," *Science and Engineering Ethics* 15, no.3 (2009): 311-341.

429 G. Owen Schaefer, "Direct vs. Indirect Moral Enhancement," *Kennedy Institute of Ethics Journal* 25, no. 3 (2015): 261-289.

of secularization. While the association between traditional narratives of secularization and these various markers of gradual historical increase might seem obvious to scholars of religion, the relationship seems to be either unapparent or unremarkable to bioethicists. Indeed, while these models of MBE have been criticized from a number of perspectives, there has been little to no acknowledgement of the underlying social and historical narratives operating within them.<sup>430</sup> In contrast, I want to suggest that this connection *is* remarkable insofar as philosophies of ideal secularization operate as meta-narratives that structure the discourse on MBE and afford representations of enhanced futures as both reasonable and desirable. If the coherence of the secularization thesis has been dismantled *ad nauseum* in religious studies, the task of understanding where and how it still operates in particular discursive spaces and what the consequences of its operation are remains a task of critical importance for the field.

But we need to be careful not to treat the meaning of “secularization” as self-evident here. However monolithic such a master narrative appears, not all descriptions of secularization – even those that take it to be an objective historical or sociological description and an inevitable, global process – are the same. When I speak of a ‘classic’ or ‘traditional’ secularization thesis in this chapter, then, I have in mind German sociologist Max Weber’s influential “disenchantment” thesis

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430 The three main lines criticisms of MBE from within bioethics are that such a project would be inegalitarian, non-pluralistic, and reductionist.

Bioethicist Robert Sparrow, for example, argues that such interventions would be subject to an unequal economic market in which first access is given to the rich and powerful. This would, in turn, even further increase the inegalitarian nature of moral-political influence in the socio-economically disparate U.S. Robert Sparrow, “Egalitarianism and Moral Bioenhancement,” *American Journal of Bioethics* 14, no. 4 (2014): 20-28.

Bioethicist Michael Hauskeller contends that, “Whether or not we regard a particular change in a person’s moral outlook as an enhancement depends entirely on the moral framework we embrace.” Michael Hauskeller, “The Art of Misunderstanding Critics,” *Cambridge Quarterly of Healthcare* 25, no. 1 (2016): 158

Bioethicist Birgit Beck explains explains that “*A fortiori*, it could be argued that a possible influence on morality via an alteration of brain states and neuronal chemistry has to be considered as doubtful, at the least. It might simply be a *category mistake* to assume that morality depends on, it is, least of all, constituted by single individuals’ mental states.” Birgit Beck, “Conceptual and Practical Problems of Moral Enhancement” *Bioethics* 29, no. 4 (2015): 238.

in particular. In his 1917 lecture *Science as a Vocation*, Weber posited that the predominance of social rationalization and scientific empiricism means that all phenomena can now, in principle, be “mastered” through reference to calculation rather than spiritual or supernatural forces.<sup>431</sup> As a result, religious belief and “traditional authority” have been (or are in the process of being) devalued as descriptive and normative mechanisms in the modern world.

Jason Josephson-Storm clarifies this notion of disenchantment in delineating four constitutive characteristics across Weber’s corpus: 1) *metaphysical realism*: the belief that the world exists as such and does not represent some other or deeper real; 2) *ontological homogeneity*: the belief that there are no truly extramundane objects or people; 3) *value nihilism*: the excision of value from the world of fact; and 4) *epistemic overconfidence*: the belief that everything can be known by means of intellectual abstraction.<sup>432</sup> Together, these overlapping metaphysical, ontological, normative, and epistemological commitments form the given conditions of ‘the’ modern worldview and signal that ‘the world’ has become disenchanted.

For Weber, this state of disenchantment is propelled by epistemic and institutional processes of “rationalization” that organize individual and social life. We can see the principal forms of rationalization driving and structuring the move toward disenchantment as: 1) *instrumental*: practical decision-making based on the evaluation of means and ends; 2) *theoretical*: mastery of reality by means of increasingly precise and abstract concepts; and 3) *formal*: determining actions based on previous (institutional) procedures and precedents.<sup>433</sup> In Weber’s

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431 Max Weber, “Science as a Vocation” in *Essays in Sociology*, eds. and trans. H.H. Gerth and C. Wright Mills (New York: Oxford University Press, 1946), 129-156.

432 Jason A. Josephson-Storm, *The Myth of Disenchantment: Magic, Modernity, and the Birth of the Human Sciences*, (Chicago: Chicago University Press, 2017), 269-301.

433 It should be noted that Weber sometimes identifies other forms of rationalization than, or uses different labels to describe, the three forms mentioned above. I believe that instrumental, theoretical, and formal rationality, however, speak to some of the most consistent themes of Weber’s description of modernization and secularization across his corpus. For useful overviews of Weber’s understanding of “rationalization,” see: Bert N. Adams and R.A. Sydie,

reading, these forms of rationalization are not unique to secular, Western modernity;<sup>434</sup> disenchantment, however, begins to take effect when instrumental, theoretical, and formal reason assume the role of unquestioned ultimate ends and values. Like most master narratives of secularization then, the disenchantment thesis assumes an end point, an epochal rupture in which at some point societies became (or will become) substantively different from their pre-modern forebears – i.e., a period in which a disenchanted ‘modernity’ comes into effect.

In the most straightforward sense, Weber’s thesis can be read as a descriptive one, which attempts to locate and demonstrate the fundamental characteristics, as well as the historical and sociological roots, of the modern social condition. Unlike most of the established models of secularization that came before him, however, Weber’s disenchantment thesis took a critical stance. He went on to insist that: “Science is meaningless because it gives no answer to our question, the only question important for us: ‘What shall we do and how shall we live?’”<sup>435</sup> Building on Hume’s classical *is-ought* distinction, Weber forwarded a form of value nihilism: science produces facts rather than values and, the more we privilege the production of knowledge concerning what *is*, the less theoretical space there is to locate meaning, purpose, or values, i.e., what *ought* to be. “The

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“Social Action and Social Complexity and Form,” in *Classical Sociological Theory* (Thousand Oaks, CA. : Pine Forge Press, 2002), 169-196. Colin Campbell, “Weber, Rationalisation, and Religious Evolution in the Modern Era,” in *Theorising Religion: Classical and Contemporary Debates*, ed. James A. Beckford, John Walliss (London: Routledge, 2006), 19-31. Cyril Hedoin, “Weber and Veblen on the Rationalization Processes,” *Journal of Economic Issues* 43, no. 1 (2009): 167-187. Simon Locke, *Re-crafting Rationalization: Enchanted Science and Mundane Mysteries* (London: Routledge, 2011), 33-52. Stephen Kalber, “The Rationalization of Action in Max Weber’s Sociology of Religion,” *Sociological Theory* 8, no. 1 (1990): 58-84.

434 We can understand this in two senses. First, Weber was adamant that the modern Western condition owed a strong genealogical debt to Protestantism, and in particular, Calvinism. Second, his works on pre-modern and non-Western religions do not demonstrate an absence of rationalism so much as less extreme or different instantiations. Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, trans. Talcott Parsons (New York: Scribner, 1958). Max Weber, *The Religion of China: Confucianism and Taoism*, trans. and ed., Hans H. Gerth (New York: The Free Press, 1951). Max Weber, *Ancient Judaism*, trans. and ed., Hans H. Gerth and Don Martindale (New York: The Free Press, 1952). Max Weber, *The Religion of India: The Sociology of Hinduism and Buddhism*, trans. and ed., Hans H. Gerth and Don Martindale (Glencoe, IL: The Free Press, 1958).

435 Weber, “Science as a Vocation,” 139.

metaphysical needs of the human mind,” he later explained, “are driven not by material need but by an inner compulsion to understand the world as a meaningful cosmos and to take up a position toward it.”<sup>436</sup> Indeed, the mechanism of modern physics suggests that, “if these natural sciences lead to anything in this way, they are apt to make the belief that there is such a thing as the ‘meaning’ of the universe die out at its very roots.”<sup>437</sup> Through this critique, Weber turned classical models of modernization on their head to posit that the beliefs and processes driving modernization could, in important respects, effect regress rather than progress.

With this framework in mind, we can return to the aforementioned models of MBE in order to understand how narrative themes and motifs of disenchantment resonate in the literature. We will see that part of what makes the MBE discourse such a compelling site of analysis is not just that proponents recapitulate some of the basic premises of modernization-as-disenchantment, but also *invert* Weber’s critical framing in claiming that the world is not yet disenchanted enough and that morality can and *ought* to be subsumed to techno-science.

#### **4.6 Disenchanted Behavior**

Persson and Savulescu’s model of behavioral enhancement provides a clear parallel to the disenchantment thesis insofar as it is, in effect, a critique of modernization. In the first place, it assumes that societies have modernized through the mutual developments of liberalism, capitalism, and science, and, furthermore, that this is a process with a natural and unstoppable momentum. Indeed, moral enhancement is appealed to as an ethical *obligation*, rather than just one ethical choice among others, because the rationalizing processes of modernization are self-sufficient and irreversible. This is most evident in their framing of social and historical development in terms of

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436 Max Weber, *The Sociology of Religion*, trans. Ephraim Fischhoff (Boston: Beacon Press, 1963), 117.

437 Weber, “Science as a Vocation,” 144.

technological determinism. Persson and Savulescu, for example, describe “human cultural development” across the last 40,000 years in terms of a gradual accumulation of (factual) knowledge and as driven by the development of more and more advanced communication technologies from oral to written to electronic.<sup>438</sup>

Scientific knowledge and technological power, however, are not just the principal causes of cultural development, but also the principal *content*. For example, the authors cite Moore’s Law – the statistical trend of computing power doubling every two years – as both the preeminent example of the current accumulation of knowledge and as a promise of its continuation.<sup>439</sup> More to the point, the most important consequences of cultural development are not social or cultural changes *per se* but rather an increase in technological powers: to effect harms (or benefits) at an unprecedented historical magnitude. From biological and chemical warfare to weapons of mass destruction to anthropogenic climate change, instrumental and theoretical rationalization have reached a tipping point in which cultural development threatens species extinction, in which progress becomes (the ultimate) regress of “making worthwhile life *forever* impossible on this planet.”<sup>440</sup>

While the authors often cite the threat of aberrant individuals, the problem is just as much a systemic one. It is not just that the modernization provides increasing destructive power and, therefore, more inherent risk, but also that our modern institutions are value-neutral or value-negligent. Indeed, the authors might be most infamous for their claim that current liberal democracies are “in danger of being too liberal.”<sup>441</sup> In striving for “ideological neutrality” and

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438 Persson and Savulescu, “The Perils of Cognitive Enhancement,” 163-64.

439 Persson and Savulescu, “The Perils of Cognitive Enhancement,” 166.

440 Persson and Savulescu, *Unfit for the Future*, 46.

441 Persson and Savulescu, *Unfit for the Future*, 99.

“negative rights,” liberal democracies both lack the capacities to regulate growing technological power and fail to privilege (welfarist) beneficence as an ultimate end or value. Furthermore, even when scientific, economic, or political projects recognize beneficence as an end, there is either a failure to recognize the moral role of omissions or a dearth of motivation to act upon those ends. Most important, there has been a profound absence of consideration for the long-term consequences of techno-scientific development; benefit is enacted as something spatially and temporally immediate. We can understand the authors as identifying a kind of formal rationalization here in which the structural logics and ends of science, capitalism, and democracy become self-perpetuating, forming the given and unquestioned institutional precedents for modern social life. The resulting situation strikes a similar tone to Weber’s value nihilism: our principles for ethical evaluation become intransigent so that freedoms and knowledge are *de facto* equated with historical progress rather than risk or harm.

For Persson and Savulescu, however, the forces of modernization are not the principal culprits in creating our current grim situation. Exponential increases in technological power exacerbate the threat, raising it from local to global, but the real problem is our myopic biologies and psychologies. The authors again and again stress that, “human beings are not by nature equipped with a moral psychology that empowers them to cope with the moral problems that these new conditions of life create.”<sup>442</sup> Due to evolving in small, close-knit communities with primitive technologies, we simply lack the biological and psychological capacities (i.e., sufficient capacities for altruism and justice) to either create or enforce regulative frameworks that can manage the threat of our new technological powers. If not always framed so apocalyptically, this premise is a recurrent one among proponents of MBE. While the progressive moral gains made through

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442 Persson and Savulescu, *Unfit for the Future*, 1.

religion, philosophy, and other non-scientific worldviews have been, for the most part, qualitative and worthwhile, no amount of moral education can re-program our genes or rewire our brains to overcome the hard limits nature has imposed on moral behavior. Insofar as “the human species has been essentially the same in biological and genetic respect for at least 40,000 years, that is, while the main part of the unparalleled human cultural development has taken place,” the project of modernization was doomed to fail from the start, and modernity, as an ideal moral order, destined to remain elsewhere and elsewhen.<sup>443</sup> In other words, when theoretical rationalization is taken to its logical conclusion and human nature becomes subject to complete scientific representation, the modernization of the human subject collapses in on itself by revealing the limits of individual and collective autonomy. Or at least this would be the case if our biologies and psychologies were destined to remain static.

If the problem of myopic morality is biological in nature, it follows that the solution cannot (just) be a reevaluation of cultural values or a reorganization of social institutions in accordance with pre- or non-modern beliefs; it must come from science itself. On one hand, we can use genetic, neurological, and psychological descriptions of our evolutionary adaptations and character traits to identify the problem, myopic moral capacities and their genetic or neurological correlates. On the other hand, we can use biotechnologies such as pharmaceuticals, neural implants, or genetic engineering to solve the problem by, for example, modulating oxytocin, serotonin, and dopamine production to increase individuals’ capacities for altruism and justice. While the goals of their project are global or ‘species-level’ in nature, Persson and Savulescu are, like most theorists of MBE, subscribing to a bottom-up model of social transformation. If we begin with increasing

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443 Persson and Savulescu, “The Perils of Cognitive Enhancement,”163.

individuals' moral capacities at the biological level, we can expect beneficial reorganization of political, economic, and other social institutions to follow.

I want to suggest that, for these authors, the world is not disenchanted enough. If recourse to magic has been subtracted, recourse to religion, education, and politics remains an issue; it is only when reliance on all unscientific means is exorcised and autonomy itself is theoretically and instrumentally rationalized that we can expect to fulfill the aspirational and utopian goal of a law-governed, moral social order (i.e., where all actors function as cogs in a global God Machine). This means not just accepting scientific abstraction as the principal means to understand and intervene in moral subject-formation, but also that individuals must cede their morphological freedom (the right to maintain or modify one's own body) in service of the greater good. Persson and Savulescu are able to make these demands of their readers through placing their audience within an unfinished historical narrative of secularization in which 1) catastrophic risk grows exponentially with the pace of technological development and 2) the reader is both complicit in creating this situation and has a vested interest in avoiding the ultimate harm. And while an authentic disenchanted modernity remains elsewhere or elsewhere in this apocalyptic scenario, it is still, with some judicious biotechnological intervention, the teleological destination of global history.

#### **4.7 Disenchanted Virtue**

Hughes' model of virtue engineering offers a no less interesting case study for thinking about MBE and secularization given his longstanding interest in the relationship between religion and human enhancement. Earlier in the chapter, we saw that Hughes folds ethical traditions from different times and places into a universal virtue ethics in which self-control, niceness, intelligence, and positivity function as commonsense moral character traits. He also repurposes this universalistic rhetoric to argue for MBE (and enhancement in general) as a structural feature of

human nature and historical progress. Here we can return to a pertinent quote from Chapter Two in which Hughes recapitulates a classical narrative of secularization.

As soon as hominids developed the capacity for abstract thought, they began to imagine ways that their life could be radically improved. They developed medicines and magical practices to improve health and wisdom. They developed religious worldviews that posited times and places without toil, conflict, or injustice, a more perfect world where they would be free of their vicissitudes....With the emergence of the European Enlightenment in the 1700, however, these aspirations found expression in the belief that a new world could and would be built on foundations of reason, science, and technology. All people would be united in an egalitarian commonwealth, freed by machines from poverty and the necessity of toil, from disease and even death by scientific medicine, and ennobled by heights of civilizational achievement.<sup>444</sup>

This world-historical narrative is intended to communicate an enduring human essence: humans have *always* been organisms directed toward the goal of self-improvement and bioenhancement, including MBE, is therefore an expression of human nature and a continuation of the project of civilization itself. While magical and religious metaphysics might be misguided, then, ‘magic’ and ‘religion’ express desires and ends – better health, longer life, more enjoyment, greater wisdom, and more moral principles – that are both essentially human and at the heart of the project of modernization. In this sense, “civilization is moral enhancement” and moral biotechnologies are part and parcel of the process of “humanizing ourselves.”<sup>445</sup>

Unlike magical, religious, and other unscientific means, however, MBE – as the product of a long secularization transition to practical reason – promises to finally fulfill these essentially human desires. It is through the use of, for example, pharmaceuticals and gene therapies to increase dopamine reception in the central nervous system (and with it self-control, pleasure, cognition,

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444 James Hughes, “The Politics of Transhumanism and Techno-Millennial Imagination, 1626-2030,” *Zygon* 47, no. 4 (2012): 757-758.

445 James Hughes, “The Benefits and Risks of Virtue Engineering,” (presentation at Moral Brain Conference, NYU, New York, NY, March 30-April 1, 2012).

and conscientiousness) that we will ‘actually’ radically ‘improve’ our lives and afford a “rich and rare level of flourishing.”<sup>446</sup> Hughes goes so far as to suggest that:

“neuroscience will offer us all the possibility of becoming the better people that we want to be...making concrete age-old religious question about what it means to be a good person...Our growing understanding of the brain and how it generates empathy, self-control, moral judgment and even spiritual transcendence suggests that we will increasingly be able to identify and treat not just psychopathy, but ordinary moral and spiritual weakness.”<sup>447</sup>

MBE should, therefore, be seen as merely the next step on a natural continuum of trans-cultural development from magic to religion to science.

In Hughes’ model of secularization, however, the institution of moral enhancement need not necessitate the retreat of religion *per se*. For example, as a former Buddhist monk, he explains that, “from a Buddhist perspective, the growing ability to control our behavior will be an opportunity to suppress unskillful impulses and behaviors, and enhance our practice of virtues” such as generosity, renunciation, patience, concentration, self-reflection, and wisdom.<sup>448</sup> The fluid Buddhist conception of the self, he suggests, both permits and encourages the use of cognitive enhancement technologies as a principal means of self-transformation toward Awakening. Furthermore, the “Buddhist goal of a more engaged, compassionate, form of eudaemonic happiness will become increasingly relevant as an alternative to the growing temptation of wireheading and chemical bliss. Buddhism can offer a model of cognitive enhancement that points past the sand traps of liberation.”<sup>449</sup> While Hughes does not make such normative contentions

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446 Hughes, “Moral Enhancement Requires Multiple Virtues,” 92. See also: James Hughes, “Using Neurotechnologies to Develop Virtues: a Buddhist Approach to Cognitive Enhancement,” *Accountability in Research* 20, no. 1 (2013): 27-41.

447 James Hughes, “Morality in a Pill?” *Institute for Ethics and Emerging Technologies* (2012), <https://ieet.org/index.php/IEET2/print/6625>

448 Hughes, “Using Neurotechnologies to Develop Virtues,” 37.

449 Hughes, “Using Neurotechnologies to Develop Virtues,” 38.

about other religious worldviews, he elsewhere suggests transhumanism can be read as a form of “techno-millennialism” that recapitulates Christian eschatological goals in (more practical) humanistic and techno-scientific terms.<sup>450</sup>

To the scholar of religion, however, the notion of religion operating here appears as both uncritical and reductionist. While much ink has been spilled demonstrating that we should not accept the conflict between religion and science as a historical or categorical given,<sup>451</sup> the view espoused here – that religion is a homogenous institution organized around universal human ends, and, furthermore, that religious practitioners would or ought to be open to secular, scientific means to accomplish those ends – is at best idealized and at worst naïve. Even within the discursive confines of the larger enhancement debate, we find a number of theologians and religious practitioners (Catholic and Protestant in particular) who insist that human enhancement does not accord with their religious principles and that means are no less important than ends.<sup>452</sup> More to the point, this positive rendering of religion champions theoretical and instrumental rationalization. Means are subsumed to non-particular ends that can best be realized through the techno-scientific

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450 Hughes, “The Politics of Transhumanism,” 757.

451 See, for example: Peter Harrison, *The Territories of Science and Religion* (Chicago: University of Chicago, 2015). Jeremy Stolow, ed., *Deus in Machina: Religion, Technology, and the Things in Between* (New York: Fordham University Press, 2013). Peter Harrison, ed., *The Cambridge Companion to Science and Religion* (Oxford: University of Oxford, 2010).

452 As we saw in Chapter Two, theologically conservative opponents of enhancement subscribe to a “stewardship” theology, which, based on Genesis 1, recognizes that humans are given “dominion” over God’s creations. “Dominion” here, however, is not interpreted in terms of dominance, but rather the call to protect, care for, and live in harmony with God’s creations. Furthermore, while humans are made in the image of God (*imago dei*), they are not given dominion over one another; proper dominion over humanity belongs to God alone. Nigel M. de S. Cameron and Amy Michelle DeBaets, “Germline Gene Modification and the Human Condition Before God,” in *Design and Destiny: Jewish and Christian Perspective on Human Germline Modification*, ed. Ronald Cole-Turner (Cambridge, MA: MIT Press, 2008), 93-116.

Mainline Protestant theologian Ronald Cole-Turner contends that, “some future pill might accomplish the same effects as religious practice; but to suggest that it achieves the same ends as religion is to misunderstand religion, for the practice of religion is not about achieving ends but about a right relationship with that which is ultimate. Ronald Cole-Turner, “Do Means Matter?: Evaluating Technologies of Human Enhancement,” *Institute for Philosophy and Public Policy* 18, no. 4 (1998): 9.

practices of bio-technological intervention. Cast as a form of proto-science, religion, like pre-modern magic, offers us no qualitative purchase outside of the scientific worldview.

Much like with religion, Hughes is also interested in demonstrating that human enhancement should be seen as compatible with, and an extension of, the liberal democratic tradition. Opposition to human enhancement tends to center on its radical quality: that a ‘biotech age’ of designer people would signal an end to human nature as such and with it our grounding moral ideals and political rights.<sup>453</sup> For Hughes, however, narration normalizes moral enhancement so that it is seen as an extension of, rather than a threat to, familiar liberal values and ends. We can understand this in three interrelated senses. First, Hughes is making the now familiar bioliberal argument that individuals’ rights to modify their selves and their offspring are (or ought to be) protected in liberal democracies. The very freedoms supposedly under threat – the negative rights of the individual citizen – make enhancement ethically and legally *permissible*. Second, he is suggesting that MBE, much like other forms of enhancement, could extend those freedoms by enabling individuals to overcome otherwise hard biological limits that prevent them from acting according to their interests. MBE, in this case, would allow individuals to better conform their behavior to their own values (i.e., to fulfill their self-determined purposes in life), which would, in turn, afford greater happiness and flourishing.

Third, virtue engineering could make us better citizens and aid the democratic process as a whole. For example, in describing how drugs or gene therapies could be used to increase our “emotional intelligence,” he explains that, “our cognitive capacity to understand the consequences

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453 For these kinds of arguments against enhancement, see: Leon R. Kass, *Life, Liberty, and the Defense of Dignity: The Challenge for Bioethics* (San Francisco: Encounter Books, 2004). Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* (New York: Farrar, Straus and Giroux, 2007). George J. Annas, *American Bioethics: Crossing Human Rights and Health Law Boundaries* (New York: Oxford University Press, 2005).

of our behavior for others is key to being a responsible and compassionate person”<sup>454</sup> and that increasing our empathic capacities would, therefore, increase our abilities to act as “fully self-governing and responsible citizens.”<sup>455</sup> In terms similar to Persson and Savulescu’s God Machine, he postulates that, once we have “onboard expert systems watching and advising our behavior...We might then all be able to consistently reason with the clarity of philosophers and the selfless compassion of Gandhi or Martin Luther King.”<sup>456</sup> In other words, MBE does not just increase personal responsibility, but also the very standards of responsibility against which persons can be held accountable.

Through these claims, Hughes is building on his narrative assertion that MBE is in accord with ‘traditional’ magical and religious ends. Enhancement *is* modern; after all, the modern is nothing more than the progressive realization of the traditional. But just as it does not signal a radical departure from the distant past it also does not signal one from the present. Rather than undermining our cherished political values and rights, initiating a post-modern rupture, MBE embodies and increases them; it is the next progressive, civilizational means through which we can “raise the bar” for civic, moral, and political responsibility at a societal level. To be the most effective citizens we can, and for the democratic process to ‘get it right’, we ought to use whatever means available to enhance our virtuous character traits and moral reasoning. Liberal democratization, much like civilization on the whole, remains incomplete here, and actualizing the project of modernity necessitates we become nothing less than “citizen cyborgs.”

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454 James Hughes, “The Struggle for a Smarter World,” *Futures* 39, no. 8 (2007): 951.

455 Hughes, *Citizen Cyborg*, 250.

456 Hughes, “The Struggle for a Smarter World,” 952.

#### **4.8 Disenchanted Rationality**

It is less clear where supporters of rationalist enhancement like Harris or Schaefer fit into this scheme. Given their concerns with protecting the interior spaces of the mind (i.e., the capacities for individual reason and freedom) from techno-scientific control, we could read them as proposing something similar to Weber's original disenchantment thesis in which the rationalist tendencies of modernization create a form of value-nihilism. Without the autonomy to reason out our own motives and to choose to act upon them, we lose the ability to be moral as such. The suggestion that reason itself could be enhanced, thus protecting and even growing our moral freedoms – in particular, our capacities for generating our own moral content – however, should give us pause.

In a somewhat paradoxical twist, indirect moral enhancements target moral content through their refusal to specify or determine that content in advance. General cognitive enhancements do not just protect individuals' abilities to produce content in this model, but also provide the capacities to create *morally better* content. It is not clear exactly what this would look like outside of more logically consistent or empirically informed positions, but that is, of course, the point: our current capacities to make moral judgments are restricted by our natural, limited cognitive powers. By increasing our brains' capacities for storing and processing information, we could grow and improve moral discourse itself rather than just behavioral conformity. In contrast to Weber's value nihilism, this suggests that theoretical rationalization is in fact the next major step in value-creation and moral progress.

#### **4.9 The Same Old Secularization Thesis?**

To this point, it should start to be apparent that proponents of MBE take up and operationalize some of the fundamental premises of a secularization master narrative and, in

particular, Weber's disenchantment thesis. There is little doubt among these thinkers that secularization – understood to be a monolithic, global process of human progress that both reflects and actualizes common moral ends – is in fact an objective description of our evolving state of affairs. Like we saw in Taylor's description of the "immanent frame," secular modes of knowledge-production claim to 'slough off' religious illusions to reveal (scientific) truths about self and world. This metaphysical realism takes the form of not just a general scientific materialism but also a rampant biological reductionism. The constitutive features of morality – whether those are agency and reason, sentiments and virtues, or motives and behaviors – can all be reduced to, and understood as external manifestations of, their genetic and neurological correlates. This further implies an ontological homogeneity in which there are no truly extramundane objects or people; magic and religion might appeal to legitimate, universal human *ends*, but spells and prayers are not valid *means* for achieving them, for they do not operate internal to an empirical, secular universe. In tandem, these premises represent a supreme epistemic overconfidence: there is no part of our reality, including and especially the inner workings of the human mind, that cannot be known through intellectual (namely, scientific) abstraction. It thus with great confidence that proponents of MBE claim that we can (or soon will be able to), for the first time in human history, manipulate the *actual* causes of moral thought and action, rather than cultivating morality through indirect social means and rough representative abstractions.

In the last chapter, however, I argued that secularisms are multiple, diverse, and contextual phenomena, i.e., in-formation processes rather than fully actualized features of the world. Examining formations of the secular, therefore, requires attending to the differences in secular discourses and their material instantiations. This is no less true of discourses *of* secularism. The theories that purport to describe secularism in objective terms operate internal to the very history,

or rather histories, that they attempt to narrate. Just as there are *secularisms*, there are *secularization theses*. In this case, we are invited to critically examine the particular, immanent “secularism of a secular people,” albeit one grouped more by textual communication than organizational or communal alliances.<sup>457</sup> I have thus chosen Weber as a point of departure for this chapter not just because his disenchantment thesis is such a common frame of reference for theoretical work on secularism, but also because, through juxtaposition, it allows us to highlight novel and important differences in the narrative work of proponents of MBE.

While advocates of MBE might seem to present a familiar teleological narrative of human progress, we can nevertheless identify two important differences. First, if secularism is a relational concept defined through opposition to religion, religion is not alone in its oppositional status here. Secular education and democratic political governance are grouped with (rather than against) religion as ‘traditional’ social means of indirect (and ineffective) moral cultivation. The result is that *all* non-scientific epistemologies and instrumentalities are treated as mere steps on a progressive, teleological continuum of world-historical development. The ideal secular here, then, is not represented as a neutral, pluralist immanent frame in which science and culture, facts and values, operate in discrete spheres. Rather, the ideal secular is a time and space in which biological sciences are the preeminent means to understand and intervene in moral and cultural life.

Second, despite a firm reliance on established Western ethical traditions, the appeals to moral enhancement here functions less as self-glorification and more as self-critique. This, however, possesses little resemblance to the Weberian critique that we have become too scientific and instrumental for our own good. Rather, in paradoxical fashion, advances in biological sciences have revealed just how unadvanced we purported moderns are. We now know that we are

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457 Joseph Blankholm, “Secularism and Secular People,” *Public Culture* 30, no. 2 (2018): 246.

genetically and neurologically programmed for certain ‘counter-moral’ modes of behavior, emotion, and reason. The solution, it follows, is not a retreat from science and instrumentalism but a complete commitment to it, all the way down to the level of biotechnologically modifying our individual bodies. The ideal secular, the authentic modern, then, is far from fully actualized in this narrative; it is precisely what ‘we’ – this assumed historical collective engaged in a collaborative project of social organization – still need to achieve.

If scholarship on MBE from outside of bioethics is quite limited, there is nevertheless a growing body of literature on likeminded posthuman visions that, building off of Weber, characterize them in terms of “re-enchantment.”<sup>458</sup> These counter-narratives contend that techno-science has begun to “re-enchant” the world for techno-enthusiasts providing meaning, purpose, and values, or at least awe and wonder, to the very world it disenchanted in the first place. Anthropologist Abou Farman, for example, contends that “informatic cosmologies” such as the Technological Singularity re-enchant the universe through ascribing it unity and purpose.<sup>459</sup> However apt of a description the re-enchantment thesis might provide, it nevertheless, like the original disenchantment thesis, still principally concerns whether or not disenchantment is an accurate empirical description of the condition of modern subjects.

In contrast, I am interested in how the narratives of “re-enchanting” discourses – historical, cosmological, or otherwise – operate as regulative ideals. In this instance, we are invited to think

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458 For examples of this kind of literature, see: Robert Geraci, *Apocalyptic AI: Visions of Heaven in Robotics, Artificial Intelligence, and Virtual Reality* (New York: Oxford University Press, 2010). Mohammad Yaqub Chaudhary, “Augment Reality, Artificial Intelligence, and the Re-Enchantment of the World,” *Zygon* 54, no. 2 (2019): 454-478. Alexandra Sherlock, “Larger Than Life: Digital Resurrection and the Re-Enchantment of Society,” *The Information Society* 29, no. 3 (2013): 164-176. Raymond Lee, “The Re-Enchantment of Time: Death and Alternative Temporality,” *Time and Society* 18, no. 2-3 (2009): 387-408.

459 Informatic cosmologies” are scientific descriptions of the physical universe based on theories of increasing information complexity or “intelligence.” Abou Farman, “Re-Enchantment Cosmologies: Mastery and Obsolescence in an Intelligent Universe,” *Anthropological Quarterly* 85, no. 4 (2012): 1069-1088. Abou Farman, “Secular Immortal: Transformation,” PhD Diss., The City University of New York, 2012.

about how the particular version of the secularization thesis that operates in the MBE discourse is *powerful*, i.e., the sense in which it possesses capacities to make claims about self and world seem both true and normative.<sup>460</sup> In this regard, we can understand master narratives of secularization as forms of “constitutive rhetoric,” providing a collective identity for the addressed audience, constructing that audience as a subject in history, and demanding that subjects act in accordance with their identities to bring about a particular future.<sup>461</sup> In the case of the MBE debate, the reader is assigned an identity as a member of a universal moral community, situated in a global history in which secularization remains an ideal but unfinished project, and instructed to embrace biotechnological interventions as the exclusive means to bring that project to completion. Even more than particular ethical arguments from utilitarianism, virtue ethics, and deontology, we can understand this narrative framing as the principal discursive means through which the otherwise ‘radical’ project of MBE is presented to readers as both *reasonable* and *desirable*.

#### 4.10 From Disenchantment to Danger?

The aforementioned literature on re-enchantment also presents a second and related drawback. The fundamental desire for critical distance and objective description can discourage critique on the part of its theorists. We are invited to see *that* there are new forms of enchanted modern life but not necessarily how those forms might be problematic (or, for that matter, instructive). In other words, such analyses, with some important exceptions, attempt to uphold the

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460 This idea of power draws on Michel Foucault, who defines power as the “ubiquitous” and “nonsubjective” strategies, mechanisms, and techniques, which, often functioning beneath the level of discursive explicitness, constitute relationships of force. These strategies, mechanisms, and techniques both provide the conditions for explicit truth claims and supply discourses with their normative force. Discourses, in turn, reify the epistemic and material power relations that afford them. In this sense, discourse can be seen as “both an instrument and effect of power...discourse transmits and produces power.” Michel Foucault, *The History of Sexuality, Vol. 1: An Introduction*, trans. Robert Hurley (New York: Vintage Books, 1990), 92-102.

461 Raymie E. McKerrow, “Constitutive Rhetorics,” in *Encyclopedia of Rhetoric*, ed. Thomas O. Sloane (Oxford: Oxford University Press, 2001), 616. James Boyd White, *Heracles’ Bow: Essays on the Rhetoric and Poetics of Law* (Madison, WI: University of Wisconsin Press, 1985). Maurice Charland, “Constitutive Rhetoric: The Case of the ‘Peuple Québécois’,” *Quarterly Journal of Speech* 73, no. 2 (1987): 133-150.

very disciplinary distinction between fact and value that their subjects so deliberately transgress.<sup>462</sup> On the other hand, critiques of MBE from within bioethics have almost exclusively focused on its negative potential were it to become implemented, with little attention given to how its discursive inscriptions are consequential in the present. Indeed, there is a growing amount of scientific research and institutional activities funded in the name of MBE and these imaginings express beliefs about human nature that operate widely in fields such as genetics, evolutionary biology, psychology, and neuroscience.<sup>463</sup> In conclusion, then, I want to highlight some of the most problematic (and instructive) elements of the particular secularization narrative that operates in the MBE debate.

The clearest problem stems from the universalism structured into its world-historical narrative of moral progress. For proponents of MBE, different cultures and communities are assumed to be operating within a common teleological unfolding of history and morality. While some social groups might ‘lag’ behind others in terms of secularization, it is nevertheless assumed that all peoples are (or ought to be) traversing the same path of Enlightenment towards the same eventual end: bioenhancement.<sup>464</sup> While most advocates are careful to make minimal and conservative claims about what moral enhancement would consist in (e.g., targeting character traits

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462 For example, literature on “enchanted materialism,” in which theorists seek to recover or discover alternate animating ontologies that reject the modern trend of de-spiritualizing and de-animating matter is much more critical in character. See, for example: Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010). Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007). Eduardo Kohn, *How Forests Think: Toward an Anthropology Beyond the Human* (Berkeley: University of California Press, 2013).

463 For an overview of the scientific theories that MBE draws on as well some of the current MBE projects under development, see: Harris Wiseman, *The Myth of the Moral Brain: The Limits of Moral Enhancement* (Cambridge, M.A.: M.I.T. Press, 2016).

464 Cultural anthropologist Johannes Fabian demonstrates and problematizes the structural, secular assumption that whereas Western anthropologists inhabit the modern present, their non-Western subjects inhabit the pre-modern past. While his work is a reflexive critique of the discipline of anthropology, it nevertheless speaks to a more pervasive teleological temporality that structures master narratives of secularization. Johannes Fabian, *Time and the Other: How Anthropology Makes Its Object* (New York: Columbia University Press, 2014).

such as altruism and justice or reforming behaviors such as murder, rape and torture), there is still a tacit paternalism in assuming the existence of, and seeking to implement, a consensus moral framework. World-historical narratives of moral progress afford these authors and texts the marker of ‘the human’ and, as a result, the privileged position of speaking for the past, present, and future of the species.

While moral consensus might seem like a laudable goal, we must remember that consensus also functions as a mechanism of power, marginalizing those moral life plans that do not conform to commonsensism. When narrativized as a global human project, models of MBE conceal the question of structural power: *who* gets to determine which moral frameworks are universal and legitimate for guiding the project of enhancement? This is exemplified by the fact that the authors of these texts – so often white, European and American men for whom classical theories of modernization and secularization seem commonsensical or self-evident – fail to acknowledge their own positioning. How is it that the canonical traditions of utilitarianism, virtue ethics, and deontology seem to form the entire spectrum of available meta-ethical perspectives in this discourse? Indeed, even when other ethical or ontological traditions are gestured toward (e.g., Buddhism), it is part of a process of conceptual translation in which otherness is reduced to sameness.

We can find an even more glaring instance of this unselfconsciousness when, in their God Machine thought experiment, Persson and Savulescu suggest that we would settle the controversy of what constitutes “grossly immoral action” by deciding that the God Machine should prevent all “acts which would have resulted in imprisonment of a person,” as if the existing judicial and carceral systems represent a satisfactory moral standard for all people and a reliable representation of any given community’s interests. While the authors halfheartedly acknowledge that this

standard is merely a placeholder, its presence speaks to the structural difficulties of drawing substantive and ‘uncontroversial’ red lines between moral and immoral behaviors, emotions, and motivations. We must therefore be wary of the discursive erasure of alternative perspectives on ethics and human nature; and, if we take the possibility of MBE seriously, their erasure as such.

If the universalization characteristic of this world-historical narrative seems familiar, it is important to stress that it is, in this case, afforded through biological reductionism in particular, i.e., self-sufficient bio- and neuro-logical explanations of human moral development at both the individual and social level. The selective citation of theories from genetics, evolutionary biology, psychology, and neuroscience provides a common and ‘objective’ ground according to which it becomes sensible to speak of humans as a singular agent – a species – with moral defects and aspirations that are consistent across individual members. When moral subject-formation is ‘naturalized’ in this way, commonsensism becomes the authorized, *de facto* approach to bioethics. We might quibble over which principles and ends are or ought to be privileged, but there is little doubt that consensus principles and ends exist and are merely awaiting (techno-scientific) revelation and implementation.

This rampant biological reductionism speaks to deeper problems with how moral subject-formation is imagined in the discourse. As scholars of religion have demonstrated, master narratives of secularization tend to posit a teleological “dematerialization” of religion according to which all religious and moral life is reconfigured in terms of individual belief and textual practice rather than communal life, material interaction, and affective experience.<sup>465</sup> The MBE discourse enacts a similar if quite particular form of this de-materialization. While moral subjects

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465 Salley M. Promey, “Introduction,” in *Sensational Religion: Sensory Cultural in Material Practice*, ed. Salley M. Promey, (New Haven: Yale University Press, 2014), 1-21.

here very much have bodies – indeed, we could go so far as to say that they are their bodies – they are not *embodied*.<sup>466</sup> When morality is reduced to bio- and neuro-logical causes, all other mechanisms of moral subject-formation are made irrelevant and the particular spatial and temporal positioning of the subject has little to no bearing on their moral status or development. Specific manifestations of morality are only important insofar as they evidence universal, biological truths and not because cultural context or affective experience have a substantive influence on how individuals or groups develop moral norms.

More than just eliding the relative and contextual nature of moral standards, this framing omits the diverse and complex processes through which moral capacities and worldviews are acquired in the first place. Following the “material turn” in Religious Studies, we ought to take sensation, materiality, habit, experience, and environment seriously as constitutive factors in moral subject-formation.<sup>467</sup> Just as scholars of religion have sought to move beyond belief as the sole container of moral life, so too must theorists of enhancement begin to wrestle with the idea that biological causes (and, for that matter, abstract philosophical concepts) are “one small subset (or feature) of the migrating system of forces running between bodies and worlds.”<sup>468</sup>

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466 This distinction between “body” and “embodiment” draws from N. Katherine Hayles, who argues that Foucault’s framework of “discourse” assigns subjects a body but struggles to account for the constitutive role of their embodied experience within a particular cultural environment. She thus suggests that we should temper such abstract discursive analysis with the cultural analysis of Michel de Certeau’s framework of “habitus.” For Hayles, this is not just a general analytical suggestion but also an important tool in showing how misguided transhumanist and likeminded imaginings of disembodied subjectivity are. N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: Chicago University Press, 1999), 192-221.

467 Some exemplary texts that pursue this line of thinking include: Manuel A. Vazquez, *More than Belief: A Materialist Theory of Religion* (New York: Oxford University Press, 2011). Charles Hirschkind, *The Ethical Soundscape: Cassette Sermons and Islamic Counterpublics* (New York: Columbia University Press, 2006). Colleen McDannell, *Material Christianity: Religion and Popular Culture in America* (New Haven: Yale University Press, 1995). Thomas A. Tweed, *Crossing and Dwelling: A Theory of Religion* (Cambridge, MA: Harvard University Press, 2006). We might also understand the “media turn” in the field, according to which material and technological mediation is a necessary condition of religious life, as a subgenre of this intellectual movement. Matthew Engelke, “Religion and the Media Turn: A Review Essay,” *American Ethnologist* 37, no. 2 (2010): 371-379.

468 Donovan Schafeer, *Religious Affects: Animality, Evolution, and Power* (Durham, NC: Duke University Press, 2015), 34.

To be clear, this does not mean abandoning science as a theoretical resource. For example, recent works such as Donovan Schaefer's *Religious Affects* have sought to incorporate evolutionary biology into critical theory of religion by thinking in terms of the "heterogeneous multiplicity" of animality and "the multidimensional spectrum of richly textured, feeling bodies emerging out of a branching array of deep evolutionary histories."<sup>469</sup> On one hand, Schaefer acknowledges that emotions are "semistable phenomenological forms" that "emerge out of a dynamic evolutionary history...reliably and predictably enough that they resemble an ahistorical essence."<sup>470</sup> On the other hand, emotions such as shame or fear are plasticly reassembled within embodied histories into living particularities – moved, combined, and rearranged in the life span of an organism and invested and distributed in actors, objects, and symbols outside of the individual body. Schaefer thus suggests that, "embodied histories always need to be understood in a double sense, as the accumulation of a complex genotype in deep time and as the cascade of accidents that affect the phenotype during an individual body's life span."<sup>471</sup> Rather than discrete forms, then, biology and culture should be approached as ongoing, simultaneous processes, i.e., as "contiguous and interwoven systems of force moving at different speeds."<sup>472</sup> Schaefer's work demonstrates an instructive desire to move past the binary nature/nurture mentality in both the humanities and hard sciences by thinking through affect and power in terms of 'natureculture'.

To this end, I believe there is actually something quite instructive in how proponents of MBE push the traditional humanistic boundary between fact and value through the use of genetic, evolutionary, psychological, and neurological theories. While we should resist taking up a

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469 Schaefer, *Religious Affects*, 58.

470 Schaefer, *Religious Affects*, 47.

471 Schaefer, *Religious Affects*, 49.

472 Schaefer, *Religious Affects*, 49.

straightforward biological determinism, we can nevertheless acknowledge that descriptive understandings of what *is* necessarily inform prescriptive understandings of what *ought to be*. Insofar as we situate scientific theories as socially and historically determined formations, we (humanities scholars) should not be afraid to engage them in making sense of the world(s) we analyze. There is thus an implicit, if somewhat misguided, recognition in the MBE discourse that ‘factual’ representations of the world can, and often do, act as the basis for making normative claims. The scientific theories that these thinkers invoke, as well as their deliberately narrow framing of them, however, privilege a dubious unidirectional and disembodied model of moral subject-formation. If we are to approach biological sciences as a useful theoretical resource, then, we must look to theories that privilege the complexity rather than simplicity of human nature – a task I will begin to take up in the next chapter.

## Chapter Five

### From Posthumanism to Post-Enhancement

#### 5.1 Postmodern Pessimism or Posthuman Optimism?

To this point, I have claimed that both the bioconservative and bioliberal positions on human enhancement are problematic due to their essentialist historical, philosophical, and scientific characterizations of human nature. If the biotechnological interventions discussed under the rubric of human enhancement are radical, then the models of subjectivity being operationalized are all-too-traditional in their inability to challenge the self-contained, self-determining Man of Reason in both the present and future. I have also, however, suggested that each pole of the discourse provides a compelling building block for rethinking the ethics of biotechnologies. In the bioconservative position, we see an instructive aspiration to think biotechnologies as an ontological problem; enhancement technologies are a discursive occasion to call into question ‘our’ predominant self-understandings. In the bioliberal position, we see a cogent impulse to use emerging scientific thinking as a theoretical resource for bioethical examination; we need not take a ‘two cultures’ approach in which scientific theorization is the other of critical theory. In this chapter, I contend that both of these positive traits are encapsulated in a posthumanist approach to subjectivity, which attempts to reimagine subjectivities for the sustainable grounding of social recognition and relational ethics under the posthuman conditions of info- and bio-technological convergence.<sup>473</sup>

While most self-identified posthumanist literature is bioethical in terms of its subject matter, this mode of critical theory has been structurally excluded from bioethics as a professional and public field. There are numerous reasons for this exclusion, including the fact that ontological

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<sup>473</sup> Rosi Braidotti, *The Posthuman* (Cambridge, UK: Polity Press, 2013). Rosi Braidotti and Maria Hlavajova, ed. *Posthuman Glossary* (London, UK: Bloomsbury Academic, 2018).

work is often seen as disruptive to an intellectual tradition (bioethics) that takes its subject for granted in order to operationalize a ‘practical’ (universally and institutionally applicable) framework of normative ethics (common moral principlism). Ontology and ethics, however, are structurally related; evaluating the actions of a subject always already presumes a coherent understanding of that subject. Concealing questions of subject-formation in order to ask questions of normative ethics can, in turn, lead to not just incoherent but also dangerous ethical approaches. It thus merits asking: how might adopting a posthumanist model of subjectivity change the nature of the human enhancement debate? We will see that a posthumanist approach implies that human subjects are best understood as *relational, embodied, and differential* beings who have never been human in the classical sense of autonomous individualism. Instead, we are always already ‘cyborgs’ who co-evolve with our technologies as a condition of being (or rather becoming) itself. From this perspective, the conceptual framework of human enhancement, which is structurally dependent on essentialist appeals to human nature, is a category mistake.

In Chapter One, I discussed the mid-twentieth century intellectual trend of “postmodern pessimism,” according to which technocracy and rationalization became associated with cultural domination (rather than moral progress) and modernization became a metanarrative or myth (rather than an historical inevitability).<sup>474</sup> I claimed that this trend had a negligible influence on the field of bioethics, the development of which exemplified the process of Weberian formal rationalization.<sup>475</sup> The aforementioned philosophical critiques of techno-science do, however,

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474 Leo Marx, “The Idea of ‘Technology’ and Postmodern Pessimism” in *Does Technology Drive History? The Dilemma of Technological Determinism*, ed. Merritt Roe Smith and Leo Marx (Cambridge, MA: M.I.T. Press, 1994), 237-258.

475 John H. Evans, *Playing God?: Human Genetic Engineering and the Rationalization of Public Bioethical Debate* (Chicago, IL: University of Chicago Press, 2002). John H. Evans, “Science, Bioethics, and Religion,” in *The Cambridge Companion to Science and Religion*, ed. Peter Harrison (Oxford, UK: University of Oxford, 2010), 207-226.

represent a touchstone in the development of the self-identified posthumanist tradition.<sup>476</sup> To understand a posthumanist approach to subjectivity – including how it relates to and differs from a ‘postmodern’ one – then, we must first return to the ‘alienation thesis’ of those mid-twentieth philosophers, best exemplified in the work of Martin Heidegger.

To review, writing in the aftermath of the Second World War, Heidegger re-oriented his once-transhistorical approach to ontology around a critique of modern “techno-science.” To understand how power operates under conditions of radical technologization, we must go beyond a simple “instrumentalist” view of technology in which technologies are mere neutral objects subject to the irrational and unethical ends of individual actors. Instead, Heidegger argued, we must seek the “essence of technology” in ontological terms, i.e., the conception of Being and beings structured into the modern scientific and technological worldview – our operative “metaphysics of calculation” or condition of “Enframing” in which all beings, including the knowing human itself, are always already encountered as subject to objectification and instrumentalization. When this phenomenological lens of encounter is operationalized, humans structurally relate to all beings – not just natural resources and material technologies, but also other human subjects – as “standing-reserves,” i.e., in terms of their potential for human use and domination.<sup>477</sup>

In addition to rejecting instrumentalism and classical views of techno-scientific progress, Heidegger went against the intellectual grain of his historical moment in a second important sense. In the aftermath of the Second World War, Americans and Europeans sought to renew faith in

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476 Francesca Ferrando, *Philosophical Posthumanism* (London, UK: Bloomsbury Academic, 2020), 39-44.

477 Martin Heidegger, “The Age of the World Picture,” in *Off the Beaten Track*, ed. and trans. Julian Young and Kenneth Haynes (Cambridge: Cambridge University, 2002), 57-85. Martin Heidegger, *The Question Concerning Technology and Other Essays*, ed. and trans. William Lovitt (New York: Harper & Row, 1977).

humanism, arguing that the de-humanizing atrocities of the war – from totalitarian regimes to Nazi eugenics to the atomic bomb – were the result of intellectual and political anti-humanism being mobilized – an inversion of the ideal premises of the Enlightenment, democracy, and liberalism. In turn, the dominant political discourses of the postwar moment sought to reinscribe the Kantian notion of humans as autonomous ends-in-themselves through constitutional and institutional languages such as “human rights” and “human dignity,” which still persist and resonate in the Euro-American context.<sup>478</sup>

Heidegger, however, argued that techno-scientific de-humanization was, rather than an inversion of humanism, actually its apotheosis. The premise that the human has a pre-given, privileged ontological status grounded in its capacities for will and reason *inevitably* leads to a calculative worldview and an intuitive ethic of domination. The logical and paradoxical conclusion of humanism is the subject collapsing upon itself as it too becomes simply one more object of human beings’ epistemic and normative “will to power.” Furthermore, this particular representation of “Man” seemed to prevent its own deconstruction. The apparently self-evident and irrefutable characterization of the nature of Man as rational animal – which had dominated the Western onto-theological tradition for more than two millennia – occluded approaching the human being as an existential and ontological question. Humanism was, in other words, a discursive mechanism of concealment in which the question of human “essence” did not need to be asked because its answer was encountered as always already given.<sup>479</sup>

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478 Jean-Pierre Dupuy, *On the Origins of Cognitive Science: The Mechanization of the Mind*, trans. M.B. DeBevoise (Cambridge, MA: M.I.T. Press, 2009), 3-22. Gaymon Bennett, *Technicians of Human Dignity* (New York: Fordham University Press, 2016), 107-133.

479 Martin Heidegger, “Letter on Humanism,” in *Basic Writings*, ed. David Farrell Krell (New York: Harper and Row, 1977), 190-242.

Heidegger's critique of the humanist will to power, however, concluded in paradoxical fashion. The problem with humanism, he insisted, was not that it overvalued humanity, but rather that it did not value humanity highly enough. Reducing the nature of Man to biological or zoological perspectives – the teleological culmination of our modern representational metaphysics – lowered Man to the status of mere animal and concealed 'his' "divine" nature. The difference between humans and animals, however, is not one of mere species or genus. Rather, Heidegger contended, it is *ontological* insofar as human beings are the only kinds of entities who can, and by their very nature do, ask the question of Being itself and who can thus engage in *poietic* "world-forming." The task of 'well-being' moving forward, as well as the essence of Man itself, then, is for him to become a "shepherd of Being" who dwells in the "Clearing" that is existential and ontological questioning. Heidegger, however, offered little in the way of elaborating what constituted such shepherding besides a life more informed by aesthetic and ascetic ideals than classical humanistic education.<sup>480</sup>

I describe his thought process as paradoxical because, in assigning human being a place of radical ontological primacy, Heidegger reinscribed the grounding premises of the very tradition he sought to critique. Existential and ontological dwelling might not lend itself to domination to the same degree as an empirical, techno-scientific worldview, but the goal remains to emancipate human being above – to transcend – the natural world around it. Indeed, this vitalist worldview seems to function much like classical humanism in its deep essentialist ambition to define the human in oppositional and hierarchical terms, i.e., to even further widen the ontological difference between human beings and their others through the description of a unique, pre-given "innermost

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480 Peter Sloterdijk, "Rules for the Human Zoo: A Response to the 'Letter on Humanism,'" *Environment and Planning D: Society and Space* 27 (2009): 12-28.

meaning.”<sup>481</sup> Heidegger is thus exemplary of a philosophical tradition that approached humanistic narratives of progress with a radical skepticism and which treated techno-science as a source of alienation at the level of being itself. To reconcile the alienation that techno-science had caused for ‘the’ human condition, we would, the argument goes, need to reject the de-humanizing ontological premise that humans and technologies are some way, shape, or form of the same kind.<sup>482</sup>

While the theorists who might be identified as doing posthumanist intellectual labor provide a diverse and at times conflicting collection of positions, there are nevertheless common theoretical commitments that make Heidegger a sensible point of genealogical departure. Foremost, as posthumanist philosopher Francesca Ferrando explains, like Heidegger’s approach, “Posthumanism investigates technology as a mode of revealing, thus re-accessing its ontological signification in a scenario where technology had been repeatedly reduced to its technical endeavors.”<sup>483</sup> To be clear, this critique of instrumentalism should not be reduced to a social constructivist analysis of technologies.<sup>484</sup> It is not just that technologies are “political” – i.e., always already enmeshed in the social conditions of their production<sup>485</sup> – but that technologies are

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481 Roberto Esposito, “Politics and Human Nature,” *Angelaki: Journal of Theoretical Humanities* 16, no. 3 (2011): 77-84.

482 Some of the other most influential postwar critics of techno-science from the Continental tradition include Hannah Arendt, Jacques Ellul, Paul Tillich, and Theodor Adorno. See, for example: Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1958). Jacques Ellul, *The Technological Society*, trans. John Wilkinson (New York: Vintage Books, 1964). Paul Tillich, *The Spiritual Situation in Our Technical Society*, ed. Thomas J. Mark (Macon, GA: Mercer University Press, 1988). Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment: Philosophical Fragments*, translated Jephcott Edmund (Stanford, CA: Stanford University, 2002).

483 Ferrando, *Philosophical Posthumanism*, 44.

484 For social constructivists of technology, technologies are embedded within and mediate human social life; but rather than subscribing to a straightforward technological determinism, constructivist contend that humans shape technologies just as much as the inverse through ‘interpretation’. Donald MacKenzie and Judy Wajcman, ed. *The Social Shaping of Technology* (New York: Open University, 1999).

485 Besides Bruno Latour, who I believe would be miscast as a constructivist, the most influential text in the social construction of technology tradition is Langdon Winner’s “Do Artifacts Have Politics?” In this article, Winner contends that technical objects and systems are not politically neutral but lend themselves to particular institutionalized

also structurally related to the “the whole spectrum of ontological intra-acting within the frame of existence.”<sup>486</sup> Scientific theories and material technologies are not mere theoretical or practical instruments; rather they tell us something about, and are structurally related to, what it is to be human.

Mediated through contributions from feminist theory, however, critical posthumanists depart from Heidegger in two important senses. First, posthumanists reject the nostalgic, essentialist solution of returning to (or discovering) a more ‘authentic’ self; not just because we are past the historical point of no return, but because no such essential self has ever existed. Instead, these kinds of anthropocentric approaches should be dismantled through the deconstruction of the very dualisms – self/other, human/technology, natural/artificial – that allow the human to be set apart in the first place. This brings us to the second point of departure. While, following Michel Foucault and Donna Haraway, posthumanist theorists have been (rightly) critical of the often unquestioned and unequal power relations effected by techno-science, “the way Posthumanism engages in technology might leave space for other possibilities” than the antagonism characteristic of the alienation thesis.<sup>487</sup> Herein lies not just the difference between posthumanism and Heidegger’s position but also the difference between posthumanism and works that are more typically identified as postmodern.<sup>488</sup> Posthumanism approaches techno-science and subject-

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patterns of power and authority. Langdon Winner, “Do Artifacts Have Politics?” *Daedalus* 109, no. 1 (1980): 121-138.

486 Ferrando, *Philosophical Posthumanism*, 44.

487 Ferrando, *Philosophical Posthumanism*, 42.

488 Here I have in mind the poststructuralist and deconstructionist traditions best exemplified in the corpus of Jacques Derrida and his direct predecessors. While language is the most common focus in this genre, postmodern texts do often focus on techno-science, and one might argue that posthumanism falls under the broader postmodern intellectual umbrella. In my taxonomy, however, there are two additional criteria necessary for texts to be labeled “posthumanist”: 1) techno-science is centered as an object of inquiry; and 2) techno-science is treated as a constructive intellectual resource. Mark C. Taylor, ed. *Deconstruction in Context: Literature and Philosophy* (Chicago: Chicago University Press, 1986).

formation as structurally related; we cannot seriously talk about what it means to be a subject, and certainly not in this historical moment, without centering both scientific theories and material technologies in our ontological and ethical inquiries. By “centered” I do not just mean being a focus, for this was true of Heidegger as well. Rather, I mean being a productive intellectual resource for – rather than the anthesis of or incidental to – critical theorization.

I have now suggested on numerous occasions that emergent information and biological sciences challenge the humanist subject of bioethics. What kinds of challenges do such scientific paradigms pose? In next part of this chapter, I examine three structurally related scientific paradigms – autopoiesis, extended cognition, and complex coevolution – that call into question the longstanding categorical binaries – self/other, human/technology, natural/artificial – that ground the bioethical subject thus far excavated in this project. We will, however, see that “challenge,” is a precarious word in this case. For while a wide range of scientific theories conflict with the implicit boundary work of the enhancement debate, the full implications of that theorization have rarely made their way into the discursive field of bioethics proper.

## **5.2 Cybernetics and the Informatic Self**

Since the mid-twentieth century, the predominant epistemic paradigm in the biological sciences has been that of information, i.e., reading the nature and behavior of organisms in terms of communication systems. In Chapter One, I suggested that the introduction of information theory into the biological sciences afforded a molecular way of knowing according to which the human subject – a self-regulating transmission system in which messages, data, or codes are transcribed and translated – is always already open to biotechnological intervention. To better understand this molecular paradigm, we need to return to the first information discipline, cybernetics, and the specific conceptual frameworks, homeostasis and autopoiesis, responsible for encoding the human

subject as an informatic self. While cybernetics would fall into disrepute as a science by the 1980s, its core insight – that information could be used to understand the nature of both machines and organisms – became the dominant conceptual framework in fields ranging from molecular biology to cognitive science. Just as important, each one of the biotechnological projects in which theorists of human enhancements are invested – cryonics, artificial intelligence, genetic engineering, engineered senescence, brain-machine interfaces, nanotechnology, and whole-brain simulation – depends upon some version of this basic understanding.<sup>489</sup> It is not an exaggeration to say that cybernetics initiated what has since become known as the “age of information.”<sup>490</sup>

Like so many histories of technology, this narrative begins in the context of wartime development. As enemy aircraft bombers increased in speed and maneuverability during the course of World War II, advances in anti-aircraft weaponry, particularly field artillery and missile defense, were required to combat them. More specifically, military scientists were tasked with devising mechanisms for real-time ballistics and prediction. Whereas the former required determining how to fire a shell so that it exploded at a specific point in space and time, the latter required determining where that point would be in relation to the enemy aircraft. Between 1940 and 1945, the National Research Defense Committee under Warren Weaver funded more than eighty academic projects with the purpose of developing practical wartime technologies. One of the smallest of these subsidies went to MIT mathematician Norbert Wiener, who, with his chief

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489 Mihail C. Roco and William Sims Bainbridge, ed. *Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology and Cognitive Science* (Boston, MA: Kluwer Academic Publishers, 2003).

490 Historian James Beniger makes a persuasive case that we should understand the information revolution as beginning in second half of the nineteenth-century. Industrial technologies created new demands for social and economic control, which led to new technological forms of information communication and management, which led to new demands for social and economic control – an exponential feedback loop that continues into the present. While Beniger is right to locate the importance of the Industrial Revolution in terms of positivist history, I am most interested in when the scientific *discourse* of information became culturally authorized. James Beniger, *The Control Revolution: Technological and Economic Origins of the Information Society* (Cambridge: Harvard University, 1989).

engineer Julian Bigelow, developed a “predictor” which used statistical methods to determine the future trajectory of an aircraft based on its location and movement. Although it never reached the stage of practical application, it was in the theoretical development of this predictor that Wiener formulated the core ideas of cybernetics, which he would later define in his 1948 best-selling book, *Cybernetics or, Control and Communication in the Animal and Machine*, as the “science of control and communication.”<sup>491</sup>

One of the central theoretical innovations of the predictor was imagining the pilot, the aircraft, and the anti-aircraft instrument as “servomechanisms,” which could be modeled mathematically as part of the same physical system. Servomechanisms are automated mechanical apparatuses that use negative feedback to regulate their own behavior.<sup>492</sup> This framework was further developed when Wiener and Bigelow began collaborating with Dr. Arturo Rosenblueth, a professor of physiology at the University of Mexico. This collaboration culminated in one of the founding documents of cybernetics, a 1943 paper entitled “Behavior, Purpose, and Teleology,” which established the behaviorist model grounding cybernetic analysis and introduced “purpose” and “teleology” into the scientific lexicon.<sup>493</sup> Based on the methodological behaviorism or “classical conditioning” popularized by Ivan Pavlov, Wiener used a “black-box” method, which focused on the relationship between the observable (sensory) information input and the output, or “behavior,” that resulted. The behaviorist method omits the (unobservable) internal structure and organization of the object, focusing instead on the relations between object and environment.

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491 Cybernetics – based on the Greek κυβερνητική (kybernetike), meaning governance – gets its name from one of earliest examples of the servomechanism, the governor used to control speed in early industrial steam engines. Norbert Wiener, *Cybernetics or, Control and Communication in the Animal and Machine* (Cambridge, MA: M.I.T. Press, 2013).

492 Wiener, *Cybernetics*, 11-12.

493 Arturo Rosenblueth et. al, “Behavior, Purpose and Teleology”

While the behaviorist approach was well established (if contested) in psychology and physiology in the mid-twentieth century, coupling it to the concept of information was novel.

Information is a concept with multiple, contested meanings in the history of science and should not, especially in cybernetics' case, be conflated with the common understanding of the word as simply data or meaning. Engineer Claude Shannon is credited with formulating information theory in his 1948 paper, "The Mathematical Theory of Communication." Here Shannon defined information as an abstract language for understanding communications problems, specifically for deriving the technical conditions necessary for the delivery of messages from a source (sender) through a channel to a destination (receiver). He insisted that information was a technical communications problem that should be understood independent of meaning or semantic content. Information is instead a measure of choice within a set of possibilities and thus a function of probabilities. The most fundamental form of information is a bit, which represents the choice between two alternatives, 0 or 1. As the number of choices increases so do the possibilities for transmitting information. Information thus functions as an inverse measure of probability. The more probable a message is, the less information it contains; the less probable a message is, the more information it contains. This can be understood in terms of redundancy. When a message is expected or already known, it contains no new information. The flip side of this is that without any redundancy there are no constraints on the possibilities for communicating a message, resulting in uncertainty or noise. The technical solution to the communication of information thus lies in determining the necessary amount of redundancy. There must be enough redundancy to control

the probability of the message being received but not so much redundancy that no new information is transmitted.<sup>494</sup>

Wiener, who developed a similar theory of information at the same time as Shannon, drew more decisively from physics. For Wiener, the idea of information is grounded in Willard Gibbs' model of a probabilistic universe. In contradistinction to the cause-and-effect determinism of Newtonian mechanics, Gibbs' model understands physical states as probable outcomes – one possible state among others – that can be measured as “decisions” using statistical mechanics. As Wiener explains, “the measure of this probability is called entropy, and the characteristic tendency of entropy is to increase. As entropy increases, the universe, and all closed systems in the universe, tend naturally to deteriorate and lose their distinctiveness, to move from the least to the most probable state, from a state of organization and differentiation in which distinctions and forms exist, to a state of chaos and sameness.”<sup>495</sup> There are, however, “local enclaves” such as organisms “whose direction seems opposed to that of the universe at large and in which there is a limited and temporary tendency for organization to increase.”<sup>496</sup> Information is the measure of this *negative entropy*, i.e. the mathematical recording (logarithm) of a decision between probable alternatives in which the greater number of possible decisions exists, the greater amount of information there is.

Wiener defined this process of negative entropy as “homeostasis,” i.e., the achievement of a state of equilibrium through purposeful feedback. “The term purposeful,” he and Rosenblueth explained, “is meant to denote that the act or behavior may be interpreted as directed to the

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494 Claude Shannon, “A Mathematical Theory of Communication,” *Bell System Technical Journal* 27 (1948): 379-423. Claude Shannon and Warren Weaver, *The Mathematical Theory of Communication* (Urbana, IL: University of Illinois Press, 1949).

495 Wiener, *Cybernetics*, 12.

496 Wiener, *Cybernetics*, 12.

attainment of a goal” – in this case, homeostasis.<sup>497</sup> Feedback, on the other hand, “is a method of controlling a system by reinserting into it the result of its past performance.”<sup>498</sup> Feedback occurs when a system uses sensors to receive information about actual past performance instead of merely expected performance and, in turn, uses that information to determine future performance. In the cybernetic model, environmental data are fed back into a system as input and the system purposefully (not to be confused with intentionally) affects the environment as output towards the end of homeostasis – a relationship governed by the transmission of information. As Wiener and Rosenblueth note on multiple occasions, this is analogous to the behavior of machines such as target seeking-mechanisms, and, as a result, reveals “that a uniform behavioristic analysis is applicable to both machines and organisms, regardless of the complexity of the behavior.”<sup>499</sup> Cybernetics is thus the science of *control* and *communication* because it presupposes that the purpose of both machines and organisms is to control their self and environment through the communication of information.

In this analysis, however, information is more than just a measure; it is a mathematical language for describing patterns that inhere in objects themselves. Through their mathematical modeling, cyberneticists abstracted information so that it functioned as if it was prior to and more fundamental than the medium that instantiated it. Modern materialism, Wiener insisted, must appreciate that “Information is information, not matter or energy.”<sup>500</sup> Likewise, “It is the pattern maintained by this homeostasis,” he contended, “which is the touchstone of our personal

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497 Wiener, *Cybernetics*, 18.

498 Norbert Wiener, *The Human Use of Human Beings: Cybernetics and Society* (New York: Da Capo Press, 1988), 61.

499 Rosenblueth et. al, “Behavior, Purpose and Teleology,” 22.

500 Wiener, *Cybernetics*, 132.

identity.”<sup>501</sup> As John Durham Peters explains, “information functions as its own operational architectonic type of instruction, not as the stuff of sensory phantoms, cognitive qualia or empiricist observation: information is what organizes a natural world of matter and energy, the correlative of organization itself.”<sup>502</sup> Information is that which not only describes the behavior of objects but also *determines* it. In making this claim, Wiener casts information as a kind of mathematical *logos*, according to which reality itself is structured by the organizing principle of information feedback. As philosopher Jean-Pierre Dupuy notes, this represented a theoretical inversion in which “nature is taken to imitate the very model by which man tries to imitate it.”<sup>503</sup> This information-based (meta)physics upended the familiar (humanist) ontological distinction between organisms and machines, humans and computers. For Wiener and the rest of his cybernetic cohort, there was no form of organization, animate or inanimate, which could not be understood as essentially a communications system, maintained through the transmission of probabilistic signals. In the mildest terms, digital machines afford us with an accurate and quantifiable epistemic framework for understanding human nature. In the starkest terms, humans *are* digital machines.

Cybernetic analysis matured into its ‘second wave’ with Chilean biologists Francisco Varela and Humberto Maturana’s conceptual framework of “autopoiesis.”<sup>504</sup> To understand their epistemological contribution, however, we must return to cognitive scientist Jerome Lettvin’s

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501 Wiener, *Cybernetics*, 96.

502 John Durham Peters and Benjamin Peters, “Norbert Wiener as Pragmatist,” *Empedocles: European Journal for the Philosophy of Communication* 7, no. 2 (2016): 168.

503 Dupuy, *On the Origins of Cognitive Science*, 30.

504 Humberto Maturana and Francisco Varela, *Autopoiesis and Cognition: The Realization of the Living* (Dordrecht: Reidel Publishing Company, 1972).

seminal 1959 paper “What the Frog’s Eye Tells the Frog’s Brain.”<sup>505</sup> In experimenting on their amphibious subject, Lettvin’s team placed microelectrodes in the frog’s visual cortex to measure the strength of neural responses to different stimuli. From the connected brain, the experimenters discovered that whereas small objects in fast, erratic motion produced maximum response, large, slow-moving objects produced little or no response. As N. Katherine Hayles explains, this experiment “shows that the [frog’s] eye speaks to the brain in a language already highly organized and interpreted instead of transmitting some more or less accurate copy of the distribution of light upon the receptors...The results implied that the frog’s perceptual system does not so much register reality as *construct* it.”<sup>506</sup> It seemed that, after two centuries, Immanuel Kant’s schema of synthetic *a priori*s – in which manifold sensory data are organized according to internal, structural categories of understanding as a condition of appearing to consciousness – had finally found empirical backing.<sup>507</sup>

Varela and Maturana were quick to extrapolate on the conclusions of this experiment, positing that the existence of all living creatures could be characterized “*only though interactive processes determined solely by the organism’s own organization.*”<sup>508</sup> Rejecting the objectivist tendencies of behaviorism, the authors explained the fundamental premises of autopoiesis or “self-making” as:

An autopoietic machine is a machine organized (defined as a unity) as a network of processes of production (transformation and destruction) of components which: (i)

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505 Jeremy Lettvin et. al, “What the Frog’s Eye Tells the Frog’s Brain” *Proceedings of the IRE* 47, no. 11 (1959): 1940-1951.

506 N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. (Chicago: University of Chicago Press, 1999), 135.

507 Kant’s schema of synthetic *a priori*s sought to reconcile the epistemic opposition between rationalism and empiricism. Kant contended that, in spite of the variance of individual experience, we could still make universal knowledge claims because experience conforms to certain in-built categories of understanding (e.g., causality, necessity) in the mind as a condition of its possibility. Immanuel Kant, *Critique of Pure Reason*, trans. Marcus Weigelt (London: Penguin Classics), 2007.

508 Hayles, *How We Became Posthuman*, 136.

through their interactions and transformations continuously regenerate and realize the network of processes (relations) that produced them; and (ii) constitute it (the machine) as a concrete unity in space in which they (the components) exist by specifying the topological domain of its realization as such a network."<sup>509</sup>

“Their key insight” in this, Hayles explains, “was to realize that if the action of the nervous system is determined by its organization, the result is a circular, self-reflexive dynamic. A living system’s organization cause certain products to be produced, for example, nucleic acids. These products in turn produce the organization characteristic of the living system.”<sup>510</sup> Varela and Maturana had taken Wiener’s cybernetic analysis to its logical extreme; the organism does not just control itself and its environment, it actually constructs itself and, at least in an experiential sense, its environment. While Wiener’s homeostat might behave cybernetically in that it regulates itself in response to its external stimuli, it does not produce the components that produce its organization and is therefore *not* an autopoietic machine.

This theorization is reminiscent of Kant in another sense: his belief in self-determination, or autonomy, as the defining characteristic of human subjectivity. On one hand, Varela and Maturana, like Wiener, challenged this belief by extending self-determination to all organisms and even (theoretical) machines. The scientists contended that, if all living systems could be characterized as autopoietic, then any physical system that could be characterized as autopoietic could also be said to be living. Life and autopoiesis are coextensive with one another.<sup>511</sup> On the other hand, the biologists reinscribed the self-contained nature of subjectivity characteristic of the humanist philosophical tradition. “Autopoietic machines,” the scientists claimed, “are *unities*” that “specify their own boundaries in the process of self-production.”<sup>512</sup>

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509 Maturana and Varela, *Autopoiesis and Cognition*, 78.

510 Hayles, *How We Became Posthuman*, 136.

511 Maturana and Varela, *Autopoiesis and Cognition*, 82.

512 Maturana and Varela, *Autopoiesis and Cognition*, 71.

Varela and Maturana further addressed the issue of boundaries through the question: what happens when one autopoietic processes is subordinated to another? This was answered with their somewhat underdeveloped, hierarchical concept of “allopoiesis,” which states that there are secondary (allopoietic) processes in which the goal is something other than reproducing self-organization and which affords subordination of one system to another. Likewise, the scientists acknowledged that the autonomy of autopoietic systems necessarily takes place in the context of structural coupling between different systems. Self-making is not subjectivist or solipsistic so much as *relational* (or at least positional).<sup>513</sup> Nevertheless, the authors failed to fully develop the implications of systemic coupling and thus did not provide adequate answers to the questions of where one system begins and ends and how different systems inter- or intra-act. For all its subversive elements, autopoietic theory still depended on and validated the organizational closure of systems as an, or even *the*, structural feature of reality.

The sporadic parallels I have introduced between cybernetic analysis and Kantian metaphysics might seem odd to the reader. Putting these two in conversation, however, makes more sense when we acknowledge that Kant was one of the first theorists to provide a definition for the word “organism” in his 1790 *Critique of Judgment*:

In such a product of nature, just as each part exists only *as a result* of all the rest, so we must also think of each part as existing *for the sake* of the other and of the whole, i.e., as an instrument (organ)...But that is not enough...we must think of each part as an organ that *produces* the other parts (so that each reciprocally produces the other)...Only if a product meets that condition, and only because of this, will it be both an *organized* and *self-organizing* being, which therefore can be called a *natural purpose*.<sup>514</sup>

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513 Maturana and Varela, *Autopoiesis and Cognition*, x-xxvi.

514 Immanuel Kant, *Critique of Judgment*, trans. Werner S. Pluhar (Indianapolis, IN: Hackett, 1987), 253.

This formulation anticipates the frameworks of homeostasis and autopoiesis, treating those living things found in nature as both self-directed and self-organizing: individual parts cannot be understood outside of the purpose of maintaining the whole and the whole cannot be understood outside of the functions of its parts; the organisms is its own means and ends. There are important caveats to note here. For example, Kant was providing a *heuristic* for understanding nature, “a *maxim* for judging the intrinsic purposiveness of organized beings,” which “is regulative and not constitutive.”<sup>515</sup> As subjective beings, we have no unmediated access to the *noumenal* ‘thing-in-itself’. Nevertheless, as physicist Evelyn Fox Keller argues, Kant, in effect, named the agenda for the modern biological sciences: “The obvious task for biology was to understand the character of this special kind of organization or self-organization. At the close of the 18th century and the dawn of the 19th it was evident – to Kant, as to his contemporaries – that neither blind chance no mere mechanism, nor certainly no machine that was then available, could suffice.”<sup>516</sup>

This genealogical connection between one of the fathers of classical humanism and one of the founding paradigms of the modern biological sciences is more than just an incidental historical fact. If not causal, Kant is at least demonstrative of certain important features of the nascent information sciences – features that also structure the human enhancement debate. Like the organism itself, this definition cannot be understood independent of the whole of Kant’s philosophical project. As Keller explains, “An organism is a body that, by virtue of its peculiar and particular organization, is made into a “self” which...achieves autonomy.”<sup>517</sup> The self-organization of the organism is intended to provide an analogue to humans’ capacities for self-determination but without undermining humans’ unique abilities to understand and act in

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515 Kant, *Critique of Judgment*, 256-259.

516 Evelyn Fox Keller, “Ecosystems, Organisms, and Machines” *BioScience* 55, no. 12 (2005): 1070.

517 Evelyn Fox Keller, “Ecosystems, Organisms, and Machines,” 1070.

accordance with the moral law. Indeed, this schema of aesthetic judgment encloses different organisms, including the human self, according to familiar classifications in the Great Chain of Being and thus does little to challenge the classical distinctions between humans and their others. Kant's organic model of life was not intended to be non- or anti-humanistic. In fact, just the opposite; as part of Kant's larger corpus, it represents an important moment in the formation and closure of the modern, individualistic subject in which the natural and cultural are (ostensibly) reconciled through the formulation of their identity and difference.<sup>518</sup>

It should not be entirely surprising then, that retreating into humanist rhetoric is a persistent theme in the intellectual history of cybernetics. This is most evident in Wiener's public-facing writings, which attempted to translate cybernetic theory into social analysis and even normative ethics. His most prominent foil in these writings was his collaborator John von Neumann, whose famous socio-economic model of "game theory" was "based on the assumption that each player, at every stage, in view of the information then available to him, plays in accordance with a completely intelligent policy... [a] game as played between perfectly intelligent, perfectly ruthless operators."<sup>519</sup> To resist this de-humanizing characterization, Wiener contended that humans were

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518 Mark C. Taylor argues that nineteenth-century German Idealist Georg Wilhelm Friedrich Hegel can be seen as an intellectual bridge between Kant's model of the organism and more recent biological theories of autopoiesis and complexity. In Hegel's famous model of Spirit, Being is a totalizing world-historical process of self-actualization in which the (objective) world becomes conscious of itself vis-a-vis (subjective) human understanding. Through repeated processes of dialectical reconciliation, oppositions between nature and culture, self and other, are subsumed into more complex unities, culminating in the emergence of a single Spirit in which human beings operate like nodes in a network. Unlike in Kant's model of the organism, where 'inner teleology' is a mere heuristic, self-organization is a (or rather *the*) structural feature of reality for Hegel. Mark C. Taylor, *The Moment of Complexity: Emerging Network Culture* (Chicago: University of Chicago Press, 2001). Georg Wilhelm Friedrich Hegel, *The Phenomenology of Spirit*, trans. A.V. Miller (Oxford, UK: Oxford University Press, 1977).

519 Wiener, *Cybernetics*, 159. While von Neumann was a part of the founding cybernetic cohort, he and Wiener had a contentious personal and intellectual relationship. Whereas Wiener protested government-sponsored work, von Neumann remained a top military scientist. This disagreement was exemplified in game theory, which not only de-humanized people theoretically, but was actually applied in military strategy. For a complete explanation of game theory see: John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior* (Princeton: Princeton University, 1944). For more on the relationship between von Neumann and Wiener see: Steve Heims, *John von Neumann and Norbert Wiener: From Mathematics to Technologies of Life and Death* (Cambridge, M.A.: M.I.T. Press, 1982).

capable of acting as ruthless operators, but also possessed the capacity for self-determination, to, in a sense, transcend nature through obedience to the moral law. This position was elaborated in his final major text, *God & Golem, Inc.* (1962), which mobilized a generic Judeo-Christian language of “religion” to warn against the future of automation. Here Wiener explained that all acts of creation could be dissolved in a common economy of information exchange and that we could, therefore, draw no hard ontological distinctions between the “creative activity” of God, man, and machine. If creation is a matter of information exchange, then humans are in a powerful, even divine, position – for, like God, we can create other creative beings in the form of self-learning and self-reproducing automata.<sup>520</sup>

But just as quickly as Wiener dissolves the distinctions between God, man, and machine, he reasserts them. He claims that no matter how learned or reproductive, machines were bound to act like the ruthless operators of Von Neuman’s game theory; in turn, he presciently predicts that humans would continually outsource their autonomy to intelligent machines, diminishing their potential to intervene in automated processes and therefore to take ethical responsibility. While Wiener’s concerns proved valid, the most important feature of his position for our purposes is his final decision to reassert the distinctive place of the human subject within an informatic ontology. Humans, in his analysis, are unique by virtue of having autonomous powers and ethical awareness, and we must not threaten that position by ‘playing God’ or becoming “gadget worshippers.”

N. Katherine Hayles rightly criticizes the disembodiment of cybernetics’ informatic subject for the extent to which it erases the corporeal and contextual nature of human being. “To the extent that the [cybernetic] posthuman constructs embodiment as the instantiation of

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<sup>520</sup> Norbert Wiener, *God & Golem, Inc.: A Comment on Certain Points where Cybernetics Impinges on Religion* (Cambridge: MIT Press, 1964).

thought/information,” she contends, “it continues the liberal tradition rather than disrupts it.”<sup>521</sup> To this, I would add that we must also emphasize the paradoxical ontological boundary work it accomplished. Cyberneticists failed to pursue the full ontological implications of homeostatic and autopoietic theory by continually closing off the system of the self. The subject described in the predictor project is not the pilot but the hybrid system of the pilot, the airplane, and the anti-aircraft instrument. Nevertheless, Wiener and most of his contemporaries took the self-determined and self-contained nature of the individual for granted. In other words, the informatic self might be disembodied, but the pattern that makes it up remains stable and sealed.

Cyberneticists did not invent a new model of subjectivity then so much as transcribe and translate an epistemology of “depth” whereby the bits of information that compose the self – genes, neurons, or other components – remain contained inside and underneath the clearly defined exterior of the skin or the skull. Michel Foucault explains that, beginning in the late-eighteenth century with theories of “anatomical lesions,” new medical ways of seeing and knowing the body gradually relocated illness within a three-dimensional anatomy and shifted the focus of medical inquiry away from disease as an agent and towards the individual body and its constitutive organs.<sup>522</sup> This re-localization of illness was coextensive with what Foucault terms the “clinical gaze” according to which medical knowledge-production became organized around the goal of

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521 Hayles, *How We Became Posthuman*, 5.

522 Speaking on the ontological conditions for the emergence of modern biology, Foucault writes: “The differences proliferate on the surface, but deep down they fade, merge, and mingle, as they approach the great, mysterious invisible focal unity, from which the multiple seems to derive ... Life is no longer that which can be distinguished in a more or less certain fashion from the mechanical; it is that in which all the possible distinctions between living beings have their basis.” Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, trans. A.M. Sheridan Smith (New York: Routledge, 1989), 269. Turning to medicine in particular, he writes: “Disease is no longer a bundle of characters disseminated here and there over the surface of the body and linked together by statistically observable concomitances and successions.... It is no longer a pathological species inserting itself into the body wherever possible; it is the body itself that has become ill.” Michel Foucault, *The Birth of the Clinic: An Archeology of Medical Perception*, trans. A.M. Sheridan Smith (New York: Pantheon Books, 1973), 136.

seeing through corporal tissue in order to diagnose and treat the hidden cause underneath.

Posthumanist philosopher Tamar Sharon elaborates on this medico-epistemological shift:

The modern clinical body hereafter became a bounded living organism, made up of functionally connected components (such as organs and tissues) and internal systems and processes (such as feedbacks, rhythms, and circulations), an organic and functional unity that is at constant risk of disruption by disease.<sup>523</sup>

While much ado has been made about discursive disruptions to this paradigm,<sup>524</sup> it remains pervasive even in a world transcribed and translated into the language of information; albeit with genes and neurons now substituting for tissue and organs. If humans possess a novel structural potential to be ‘freed’ from their physical bodies or enter in odd couplings with their technologies in the discourse of human enhancement, a/the essential self remains intact, at least for the time being. The system closes in upon itself and the task of dismantling subjectivity is made into a material project and perpetually deferred into an imminent biotechnological future.

The most profound effect of this systemic closure has been the discursive proliferation of genetic determinism and the resulting over-emphasis on gene-editing in the discourse of human enhancement.<sup>525</sup> As we saw in Chapter One, since James Watson and Francis Crick discovered the double-helix structure of DNA in 1950, biomedicine has been framed in terms of “geneticization,” which reduces individuals and even identities to their constitutive DNA codes. Within this way of

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523 Tamar Sharon, *Human Nature in an Age of Biotechnology: The Case for Mediated Posthumanism* (New York: Springer, 2013), 115.

524 Numerous critical theorists have argued that the epistemic paradigm shift to information has resulted in a corresponding ontological transformation in which biomedical theories of exchange have replaced those of depth. Philosopher Tamar Sharon and sociologist Nikolas Rose, for example, describe this as the transition from “molar” to “molecular” biological models. As I have attempted to show throughout this project though, this discursive shift is far from complete, and ontologies of depth remain entangled with (and indeed, buried underneath) genetic and neurological descriptions in bioethics. Sharon, *Human Nature in an Age of Biotechnology*, 113-134. Nikolas Rose, *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century* (Princeton, NJ: Princeton University Press, 2007).

525 John H. Evans, *The Human Gene-Editing Debate* (New York: Oxford University Press, 2020).

knowing, genes appear to be responsible for, and thus can act as a comprehensive basis to explain, all of human behavior.<sup>526</sup> This emphasis on causal determination can be traced all the way back to Crick's 1958 "Central Dogma" of molecular biology, which insisted on the unidirectional causality of genes and repudiated the idea of substantive influences from external factors.<sup>527</sup> First-wave molecular genomics might have adopted the conceptual framework of information, but, in doing so, it omitted the in-built principle of feedback and further closed the information loop of self-determination upon the self. While unidirectional 'gene-for' models of causation have been upended through the development of epigenetics and the introduction of complexity theory into molecular biology,<sup>528</sup> the damage appears to be done. Genetic determinism has, even with professional bioethics, affirmed an image of subject-formation as a structurally closed process in which technologies only 'modify' the self when penetrating beneath the boundary of the skin or skull directly and intentionally.

### **5.3 From Symbolic AI to Neural Networks**

Where, however, does the self end and the other begin? What marks the boundary between 'my' body and the technologies I 'use'? Through this intellectual-historical examination of cybernetics, I have been calling into the question the boundedness of the informatic self. While the earliest forms of information-based theorization seemed to deconstruct some of the basic principles of metaphysical individualism by coupling organisms and technologies in complex networks of information exchange, cyberneticists and their contemporaries retreated into humanist

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526 Inmaculada Melo-Martin, "When is Biology Destiny? Biological Determinism and Social Responsibility," *Philosophy of Science* 70, no. 5 (2003): 1184-1194.

527 Evelyn Fox Keller, *Refiguring Life: Metaphors of Twentieth Century Biology* (New York: Columbia University Press, 1995).

528 Evelyn Fox Keller, *Making Sense of Life* (Cambridge, MA: Harvard University Press, 2002), 199-265.

models of self-determination and structurally related epistemologies of depth. As philosopher of religion Mark C. Taylor demonstrates though, these boundaries are now being deconstructed at the material level through the co-evolving and co-emergent Internet of Things and Internet of Bodies.

The Internet of Things is an expanding and evolving network of “smart” objects – phones, computers, televisions, home assistants, wearable devices, etc. – embedded with sensors and software that allow for the exchange of data with other devices and systems over the Internet. Whether through the use of an Alexa home assistant, a Fitbit smartwatch, an app on an iPhone, or the HTTP Cookies on a website, we are all now nodes in a growing Panoptic network of information exchange in which self-learning artificial intelligence algorithms record, predict, and even determine our consumer behavior.

What is emerging through the Internet of Things is a world of *ambient intelligence* created by smart devices equipped with sensors and transmitters to send data to each other and to users whether or not they want it. This environment is thoroughly interactive – machines influence people, and people consciously and unconsciously influence machines. In these networks, intelligence is no longer limited to brains and minds, or even to computational machines, but is rather distributed in smart things. In this way, our everyday world is already becoming more intelligent and is increasingly capable of quasi-cognitive processes. This is creating an environment of *ubiquitous computing*.<sup>529</sup>

If similar concerns about “cyber profiling” and the gradual outsourcing of our autonomous powers to machines are well-worn,<sup>530</sup> Taylor insists that we are entering into a new stage in our “intervolution” with smart technologies, the Internet of Bodies. This is most apparent through the integration of medical and prosthetic devices into the Internet of Things. As Taylor explains, “While most of these instruments were originally designed for military law enforcement and commercial reasons, their most important functions are being adapted for medical purposes that

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529 Mark C. Taylor, *Intervolution: Smart Bodies Smart Things*, 103.

530 Richard T. Ford, “Save the Robots: Cyber-Profiling and Your So-Called Life,” *Stanford Law Review* 52, no. 5 (2000): 1573-1584.

are increasingly important for the treatment of diseases like diabetes.”<sup>531</sup> When one, for example, outsources the management of their insulin levels to a smart artificial pancreas – an automated insulin delivery system that opens the loop of information feedback to also feed data into and receive data from the Internet of Things – a boundary appears to be crossed. The corporeal, biological processes that were once internal to the threshold of the skin or skull are directly and intentionally coupled with (already-networked) technologies; the human appears to become a hybrid, cyborg, or posthuman.

For some theorists of enhancement, this phenomenon and others like it represent the *first* structural transformation of human nature. Until the advent of recent (or imminent) biotechnological interventions, the self has remained a hermetically sealed (and normatively good) system – an idea which we have seen has legacy that is no less scientific than humanistic. While we must not push aside the highly particular features of our technological and historical moment – one in which the degree of our biotechnological integration is increasing exponentially – I want to suggest that the proliferation of information technologies, and the scientific theories upon which they depend, also speak to a more structural or systemic characteristic of subject-formation: the “leakiness” of the self.<sup>532</sup> Since first-wave cybernetics, the closure of the informatic self has been challenged across the biological sciences as the familiar boundaries of self/other, human/technology, and natural/artificial have been put under not just material but also *theoretical* pressure. Rather than reinscribing the bioethical focus on genomics – which is the result of a

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<sup>531</sup> Taylor, *Intervolution*, 135.

<sup>532</sup> I use the term ‘leakiness’ as a gesture towards feminist philosopher Margrit Shildrick’s idea of “leaky bodies.” Shildrick demonstrates how the ‘leaks’ and ‘flows’ of the female subject have been used to deny women agency and embodiment in the history of western medicine. In a reparative move, however, she contends that the indeterminacy of the feminine subject, properly understood, can contribute to the ethical enterprise of insisting on material and ontological heterogeneity. Margrit Shildrick, *Leaky Bodies and Boundaries: Feminism, Postmodernism, and (Bio)ethics* (New York: Routledge, 1997).

misguided genetic determinism and which does not necessarily speak to the most urgent forms of bio-intervention – we can best think through this leakiness using the lens of cognitive science, artificial intelligence, and what has been called “extended cognition.”

We can also trace a far more direct genealogical thread from cybernetics to the fields of cognitive science and artificial intelligence than molecular genomics. For this, we must return to one of the founding documents of cybernetics, neurophysiologist Warren McCulloch’s 1943 “A Logical Calculus of the Ideas Immanent in Nervous Activity.” McCulloch theorized that the activity of the brain could be conceptualized as a neural network in which neurons fired according to an “all-or-none” binary logic, i.e. active (firing) or at rest (in repose), in order to determine mental states and behavior.<sup>533</sup> Like Wiener’s model, this network also followed the logic of feedback, or “circular causality,” so that “the nervous net provides the law of necessary connection whereby one can compute from the description of any state that of the succeeding state.”<sup>534</sup> Unlike Wiener’s model though, McCulloch’s functional approach treated the circulation of information as a physical, structural process based in the brain; the “machine” was a “logico-mathematical being embodied in the matter of the organism.”<sup>535</sup> From these premises, McCulloch concluded that the “mind,” which includes “existential operations” such as “memories, general ideas, and even Spinozistic consciousness,” can be understood through a statistical (computational) analysis of nervous activity and the construction of hypothetical models (networks).<sup>536</sup> The self is located in (or at least an epiphenomenon of) the brain, and the brain is a physical neural network.

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533 Warren S. McCulloch and Walter Pitts, “A Logical Calculus of the Idea Immanent in Nervous Activity,” *Bulletin of Mathematical Biophysics* 5 (1943): 115-133.

534 McCulloch and Pitts, “A Logical Calculus,” 115.

535 Dupuy, *On the Origins of Cognitive Science*, 50.

536 Warren S. McCulloch, “Mysterium Iniquitatis of Sinful Man Aspiring into the Place of God,” *The Scientific Monthly* 80, no. 1 (1955): 36.

This model, which would come to be called “connectionism,” was further fleshed out in neurophysiologist Donald Hebb’s 1949 *The Origin of Behavior*.<sup>537</sup> Hebb contended that processing new information modifies synaptic connections, changing the physical wiring of the brain. In this model of “Hebbian learning,” the firing of a neuron either creates or reinforces the strength of a synaptic connection and increases the probability of neurons firing under similar circumstances. To quote Hebb’s Law, “Neurons that fire together wire together.” Over time, patterns of firing reconfigure the brain’s physical network of synaptic connections allowing for information to be stored and processed in new and different ways, i.e., learning. Through assigning numerical values or “weights” to the thresholds for synaptic firing, it was eventually theorized that neural networks were quantifiable and therefore could be mimicked as the basis for self-learning artificial intelligence.

This neural network model, however, was not fully appreciated for some time in the co-evolving fields of cognitive science and artificial intelligence. Two of the most seminal texts in machine learning – Allen Newell, J.C. Shaw, and Herbert A. Simon’s 1958 “Elements of a Theory of Human Problem Solving” and Marvin Minsky and Seymour Papert’s 1969 *Perceptrons: Introduction to Computational Geometry* – either ignored or repudiated the neural network model in favor of symbolic AI.<sup>538</sup> As the name suggests, symbolic AI approaches problem-solving as a matter of symbolic or linguistic (i.e., human-readable) representations. In this top-down model, logical rules or procedures are first input into machines and then data are processed according to those rules or procedures. The adoption of symbolic AI, however, produced minimal practical

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537 Donald Hebb, *The Organization of Behavior: A Neuropsychological Theory* (New York: Wiley & Sons, 1949). See also: Donald Hebb, "Distinctive Features of Learning in the Higher Animal," in *Brain Mechanisms and Learning: A Symposium*, ed. J. F. Delafresnaye, (Oxford: Blackwell Scientific Publications, 1961), 37-52.

538 Allen Newell, J.C. Shaw, and Herbert A. Simon, “Elements of a Theory of Human Problem Solving,” *Psychological Review* 65, no. 3 (1958): 151-166. Marvin Minsky and Seymour Papert, *Perceptrons: An Introduction to Computational Geometry* (Cambridge, MA: M.I.T. Press, 1969).

gains for machine learning, and historians of technology would come to call the period between 1974 and 1980 the “winter of artificial intelligence.”<sup>539</sup>

If top-down symbol manipulation was unable to reproduce human-level intelligence, then it stood to reason that human intelligence might not be a matter of symbol manipulation, i.e., of inner representations, in the first place. The 1980s thus saw neural network models return to a predominant position through the work of computer scientists such as Geoffrey Hinton, Yann LeCun, and Yoshua Bengio. In these artificial neural networks or “deep learning” algorithms, which have only become computationally viable in the past two decades, information-processing is a bottom-up structure. Rather than beginning with a logical rule or procedure, the network begins with a goal or problem to solve (e.g., to recognize human faces). It is then fed huge quantities of data which it analyzes in a recursive process until it can find a pattern that leads to the best (i.e., most accurate or most efficient) solution. In the case of recognizing a human face, the network is fed huge quantities of random images and then uses a process of trial and error to identify some images as human faces and others as not human faces. In a method known as “backpropagation,” successes are reinforced using weighted numeric values that mirror the firing of neurons and the network readjusts its weighting system to correct for errors. In the past two decades, these “unsupervised” deep learning models have become the norm across machine learning platforms and reciprocally afforded the development of the Internet of Things. Distributed across almost

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539 Daniel Crevier, *AI: The Tumultuous History of the Search for Artificial Intelligence* (New York: Basic Books, 1993).

countless sensory nodes in exponentially growing networks of information feedback, self-learning machines both mimic and reconfigure human mental phenomena.<sup>540</sup>

#### **5.4 Extending Boundaries**

As we have seen, the history of the information and biological sciences is a positive feedback loop in which theories of digital machines inform theories of human biology which inform theories of digital machines which inform theories of human biology and so on and so forth. If most of the deep-learning intelligences that constitute the Internet of Things are based on human neural networks, and if these intelligences are distributed across multiple physical media, is it not also worth questioning whether human intelligence is *already* a distributed process? This is precisely the question cognitive scientists and philosophers of mind have sought to answer through the Hypothesis of Extended Cognition and its attendant arguments.<sup>541</sup>

The Hypothesis of Extended Cognition (HEC) claims that human cognitive states and processes do not reside exclusively in the brain or even the body, but also extend ‘outside’ to include objects in their environment. From clocks to calendars to notebooks to smartphones, there are no shortage of technologies – meant in the broadest sense of use-oriented material objects – that mediate everyday human life. Following the principle of feedback, these technologies shape our thinking and behavior, and we in turn modify these technologies to shape our future thinking and behavior. This kind of dependence is exceedingly obvious in some cases. For example, one might use a paper notebook or audio recorder to store the information from an academic lecture that would otherwise be too difficult to remember. Empirical studies in psychology, however,

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540 For an overview of breakthroughs in the field of Artificial Intelligence, see: Jeff Hawkins, *On Intelligence: How a New Understanding of the Brain Will Lead to the Creation of Truly Intelligent Machines* (New York: Times Books, 2004).

541 Miranda Anderson, Douglas Cairns, Mark Sprevak, and Michael Wheeler, ed., *A History of Distributed Cognition* (Edinburgh: Edinburgh University Press, 2018).

demonstrate that this technological dependence runs far deeper than such obvious cases. For example, even during an undemanding task like copying patterns made of colored puzzle pieces, test subjects off-loaded cognitive labor to both other parts of the body (e.g., visual and haptic organs) and external objects (e.g., physical puzzle pieces).<sup>542</sup> Whether it is a child using their fingers to count the days of the week or an academic using a written notation system to remember their thoughts, examples of this kind of cognitive outsourcing abound. The implication of this structural dependence is that Cartesian “brain in a vat” models of cognition are incoherent “because the normal brain depends crucially on sensorimotor interactions with the external world for developing its internal representations.”<sup>543</sup> In short, “intelligent” thoughts and behaviors often (if not always) result from “two-way” interactions between brains, bodies, and environments.<sup>544</sup>

HEC, however, goes beyond this somewhat straightforward observation. The brain in this formulation does not just *interact* with its environment to produce thought and behavior; rather those environmental processes *are* just as much “cognitive” or “intelligent” as their neural interlocutors. To be clear, this is not just a heuristic to gain an analytical advantage. Rather, it is a “physicalist,” empirical claim about the distributed nature of cognition. In his groundbreaking work in the Artificial Intelligence Laboratory at the Massachusetts Institute of Technology, roboticist Rodney Brooks challenged symbolic AI approaches by theorizing intelligence as a fully embodied process. The field’s hitherto focus on representational problem solving had black-boxed dynamic sensory and spatial interactions with material environments, which, Brooks argued, are

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542 Dana H. Ballard et. al, “Deictic Codes for the Embodiment of Cognition,” *Behavior and Brain Sciences* 20 (1997): 723-767.

543 Ballard et. al, “Deictic Codes for the Embodiment of Cognition,” 763.

544 Edwin Hutchins, *Cognition in the Wild* (Cambridge, MA: M.I.T. Press), 1995. Daniel Dennett, *Kinds of Minds* (New York: Basic Books, 1996).

“intimately tied up with the representation of the world used by an intelligent system.”<sup>545</sup> Brooks instead claimed that we must follow the same trajectory as human evolution in developing artificial intelligences; artificial intelligence systems should begin with locomotion and simple interactions and then “incrementally” work their way up to more complex levels of abstraction. Like connectionist approaches, this is a bottom-up model of learning in which the input of data precedes rule making. In this model of “subsumption architecture”, however, intelligence systems – at least “complete” intelligence systems that resemble the human variant in their capacities to navigate a material world – require being “let loose in the real world with real sensing and real action.”<sup>546</sup> For Brooks, the presumed difference between “central” and “peripheral” systems is erroneous; sensory organs are no less integral to information processing than the brain, and embodied interactions with the environment are no less integral to the development of intelligence than the formulation of abstract representations.

HEC, however, is not just physical in the sense that it treats cognition as a fully embodied process. Rather, it also theorizes that the physical location of cognition (or at least its epiphenomenal basis) is the *intra*-active, material space of (information) exchange between brain, body, and environment. The most prolific version of HEC is the functionalist model theorized by philosophers of mind Andy Clark and David Chalmers. The philosophical framework of functionalism posits that the functional role of a physical state or process determines whether that state or process counts as ‘cognitive’. In applying this to HEC, the philosophers contend that, in many cases, “the human organism is linked with an external entity in a two-way interaction, creating a *coupled system* that can be seen as a cognitive system in its own right.”<sup>547</sup> To support

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545 Rodney A. Brooks, “Intelligence Without Representation” *Artificial Intelligence* 47, no. 1-3 (1991): 143.

546 Brooks, “Intelligence Without Representation,” 140.

547 Andy Clark and David Chalmers, “The Extended Mind,” *Analysis* 58, no. 1 (1998): 8.

this argument, the authors use the following thought experiment: Inga is a healthy person with a ‘normal-functioning’ memory. One day, she hears about an interesting exhibit at the Museum of Modern Art (MoMA) from a friend. Inga recalls that the MoMA is located on 53rd Street, and then sets off to see the exhibit. In contrast, Otto suffers from a mild case of Alzheimer’s disease and always writes down important information in his notebook so he can store and retrieve it. On the same day, Otto hears about the MoMA exhibit, retrieves the address from his notebook, and heads to the museum.

According to Clark and Chalmers, Inga and Otto both possess a belief that the MoMA is on 53rd Street and their cognitive processes are therefore *functionally* equivalent. Otto’s belief and the cognitive processes associated with storing and recalling it, however, extend outside of Otto’s brain to include his notebook. While this thought experiment is problematic for a number of *prima facie* reasons – namely, its gross mischaracterization of Alzheimer’s disease and its unintentional implication that cognitive extension is an exceptional rather than normal phenomenon – its moral is still cogent. “The moral is that when it comes to belief, there is nothing sacred about skull and skin. What makes some information count as a belief is the role it plays, and there is no reason why the relevant role can be played only from inside the body.”<sup>548</sup>

The logical dependence on functionalism, however, leaves HEC in a precarious position insofar as external processes must mirror internal ones to be considered cognitive. With this in mind, the second wave of HEC arguments have shifted away from functionalist approaches and towards an emphasis on ‘complementarity’.<sup>549</sup> According to this view, it does not matter whether external states and processes are functionally similar to internal ones. What matters is that there is

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548 Clark and Chalmers, “The Extended Mind,” 14.

549 Richard Menary, ed. *The Extended Mind* (Cambridge, MA: MIT Press, 2010).

structural, reciprocal integration between brains, bodies and environment. As philosopher of mind Richard Menary surmises, “this is to think of a cognitive process as hybrid, straddling both brain and bodily manipulation of environmental vehicles” in a “continuous looping causal interaction.”<sup>550</sup> In terms reminiscent of Wiener’s “servomechanism,” the brain, body, and environment are modeled as a single system whose elements cannot be disentangled in the performance (or analysis) of specific cognitive tasks. From this perspective, Otto’s notebook is not cognitive because it serves the same function as Inga’s memory; rather, it is cognitive because it is systemically and inextricably integrated with his brain in the formation of his belief about the museum’s location.

What does HEC mean for the boundedness of the self? While a complementarian approach proves more compelling than a functionalist one, it is Clark and Chalmers who best address this question.

What, finally, of the self? Does the extended mind imply an extended self? It seems so. Most of us already accept that the self outstrips the boundaries of consciousness; my dispositional beliefs, for example, constitute in some deep sense part of the who I am. If so, then these boundaries may also fall beyond the skin. The information of Otto’s notebook, for example, is a central part of his identity as a cognitive agent. What this comes to is that Otto *himself* is best regarded as an extended system, a coupling of biological organism and external resources.<sup>551</sup>

Cognition, which includes both conscious and unconscious processes that constitute self-making, is a distributed process that takes place in and through interactions with material environments, and especially couplings with individual technologies. While critics are right to note that HEC can lead to “cognitive bloat”<sup>552</sup> – i.e., absurdly high levels of extension – the most important point for our purposes is that subject-formation is an *embodied* and *relational* process. Even in the absence

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550 Menary, *The Extended Mind*, 228.

551 Clark and Chalmers, “The Extended Mind,” 18.

552 Mark Sprevak, “Extended Cognition and Functionalism,” *The Journal of Philosophy* 106, no. 9 (2009): 503–527.

of concrete determinations of exactly where systemic couplings begin and end, we can still acknowledge that the self leaks out from – or better yet, was never contained within – the boundaries of the skin or skull.

### 5.5 Co-Evolving Complexity

The mundane example of Otto’s notebook is useful because it points to the fact that cognitive extension is not a novel techno-scientific phenomenon; rather, the material extension of the self into its environment is a *structural* feature of subjectivity. This in-built ‘hybridity’ is most clearly demonstrated by the science that deals in macro-narratives: evolutionary biology and, in particular, the framework of “coevolution.” Coevolution is most commonly defined as “the process in which populations of different species evolve repeatedly in response to each other.”<sup>553</sup> First developed to describe why flowers seem designed for the specific species of insects that pollinate them, the framework of coevolution approaches evolutionary history in terms of reciprocity and continual change.<sup>554</sup> Population A causes population B to evolve, the new version of population B causes population A to evolve, and so on and so forth. Historian Edmund Russel explains that “evolution” should not be confused with “natural selection” in this case. Whereas natural selection refers to ‘non-human’ mechanisms that lead to the survival of *individuals* with different traits *within* generations, evolution refers “to all changes in the frequencies of inherited traits of populations over generations.”<sup>555</sup> While natural selection is one mechanism that can lead to evolution through the incremental development of new species, not all evolution is the result of natural selection and not all evolution requires species-level changes. Herein lies the core insight

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553 Edmund Russell, “Coevolutionary History,” *American Historical Review* 119, no. 5 (2014): 1515.

554 Paul R. Ehrlich and Peter H. Raven, “Butterflies and Plants: A Study in Coevolution,” *Evolution* 18, no. 4 (1964): 586–608.

555 Russell, “Coevolutionary History,” 1516.

of co-evolution: “People are as capable as any other species of affecting evolution” and evolution must therefore be situated in (not outside of) history.<sup>556</sup>

The case of malaria disease provides an apt example of coevolution and the need to situate it in history. Following the Second World War, the proliferation of new insecticides to kill malaria-carrying mosquitos and pharmaceuticals to kill malaria plasmodia seemed to spell the end of the disease. The World Health Organization’s eradication project made impressive progress until mosquitos and plasmodia evolved resistances to the insecticides and pharmaceuticals. The WHO was soon forced to abandon the project and, by the year 2000, roughly two million people were dying annually of malaria. Such a dramatic example points to the growing scope of human selection. As a result of carbon emissions and genetic engineering, among other causal factors, evolutionary biologists now contend that we are living in the midst of an anthropogenic “evolution explosion.” Most commonly termed the “Anthropocene,” humans are changing environments at a global level so as to affect the conditions in which virtually all organisms evolve.<sup>557</sup>

Most prescient for our purposes, the framework of co-evolution has evolved to focus not just on reciprocal relationships between different species but also reciprocal relationships between biological and cultural phenomena. In step with the widespread emphasis on molecular genomics, this strain of coevolution theory has focused on the codependence of genes and social organization, arguing that, “cultures create novel environments that lead to new pressures from natural or social selection on genes.”<sup>558</sup> Keeping with our focus on extended cognition, however, there are a growing number of anthropological studies that focus on the coevolution of brains, tools, and

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556 Russell, “Coevolutionary History,” 1516.

557 Bruce D. Smith and Melinda A. Zeder, “The Onset of the Anthropocene” *Anthropocene* 4 (2013): 8-13.

558 Peter J. Richerson, Robert Boyd, and Joseph Henrich, “Gene-Culture Coevolution in the Age of Genomics,” *Proceedings of the National Academy of Sciences* 107, no. 2 (2010) 8985-8992.

environments. For example, Stanley H. Ambrose contends that, based on the bioarcheological record of the last 300,000 years, we have good reason to believe that “constructive memory” – i.e., the executive function of planning and imagining the future based in the anterior frontal lobe – coevolved with composite-tool manufacture.

Making a composite tool, for example, a stone-tipped spear or a hafted stone axe, requires collecting and preparing several kinds of components composed of different raw materials that may be obtained at different times and in different places. The final assembly of the functional artifact may occur much later, and some materials may be kept in reserve for maintenance and repair of composite tools. Composite-tool manufacture in the [European Middle Paleolithic] and [African Middle Stone Age] thus marks an order-of-magnitude increase in technological complexity compared with the single-component tools of the Lower Paleolithic. In comparison with Lower Paleolithic and Early Stone Age humans, [European Middle Paleolithic] hominids must have had much more need for the constructive memory and planning faculties of the anterior frontal lobes.<sup>559</sup>

Composite-tool use stimulated prefrontal activity and activated neurological pathways essential for “working memory” and homologous to syntactic speech. Indeed, Ambrose goes on to argue that composite-artifact manufacturing and grammatical speech also coevolved and that “the most fundamental changes” in transitioning to “modern human behavior” involved the neurologically related “capacities for planned use of the landscape, resources, and social relationships.”<sup>560</sup> From this macrohistorical view, the wiring of the human brain, the resources of the environment, the building and use of material tools, and the development of social organization exist in a positive, coevolutionary feedback loop.

Information-based theories of self-organization and macro-narratives of biological coevolution meet in the framework of *complex adaptive systems*. In 1950, Ludwig von Bertalanffy publishes an article, “The Theory of Open Systems in Physics and Biology,” that eventually gave

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559 Stanley H. Ambrose, “Coevolution of Composite-Tool Technology, Constructive Memory, and Language: Implications for the Evolution of Modern Human Behavior” *Current Anthropology* 51, no. 1 (2010): S139.

560 Ambrose, “Coevolution of Composite-Tool Technology,” 143.

rise to the field of systems theory.<sup>561</sup> Building on the insights of cybernetics, among other disciplines, the biologist claimed that mechanical apparatuses and biological organisms both operate as “systems” or “wholes” that follow the same fundamental principles of organization (e.g., negative feedback). In this case, metaphysical isomorphism both affords and demands the formulation of universal epistemological constructs that cut across the individual sciences.

Like general systems theory, complexity theory attempts to identify the common characteristics and laws of diverse systems. The introduction of the concept of “complexity,” however, challenges the fundamental principles of organization that characterized systemic frameworks such as homeostasis and autopoiesis. In their historical examination of evolution, David Depew and Bruce Weber define complex systems as “systems that have a large number of components that can interact simultaneously in a sufficiently rich number of parallel ways so that the system shows spontaneous self-organization and produces global, emergent structures.”<sup>562</sup> As with homeostasis and autopoiesis, systems are viewed as dynamic (information) networks that follow the principle of self-organization. Self-organization in complex systems, however, is “emergent” and “spontaneous.”

When positive feedback increases the speed of interaction among more and different components, the system eventually reaches a “critical state” or “edge of chaos” between order and disorder. From this tipping point, effects that are disproportionate to their causes begin to emerge; “local” interactions cause non-linear changes in the properties of the system at the “global” level. Imagine a pile of sand on a table to which more sand is added at a constant and slow rate. The sand

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561 Ludwig Von Bertalanffy, “The Theory of Open Systems in Physics and Biology,” *Science* 111, no. 2872 (1950): 23-29.

562 David Depew and Bruce Weber, *Darwinism Evolving: Systems Dynamics and the Genealogy of Natural Selection*, (Cambridge, MA: M.I.T. Press, 1995), 437.

will continue to pile up and, at some point, the addition of a single grain of sand will cause the pile to “avalanche.” While we can know that an avalanche will occur at some point, we find that the same grain of sand can unleash small avalanches, large avalanches, or no avalanches at all; and, just as important, “there is no way to tell whether a particular one will be insignificant or catastrophic.”<sup>563</sup> Thus, complex systems are “emergent” because “the parts do *not* simply sum to give the activity of the whole” and “spontaneous” because both the timing and size of systemic changes are unpredictable.<sup>564</sup>

But what about *adaptive*? To help illustrate the adaptive nature of complex systems we can look to a longtime fascination of complexity theorists, social insects. In a 1992 paper given at a Santa Fe Institute workshop on Artificial Life, “Swarms, Phase Transitions, and Collective Intelligence,” Mark M. Millonas contended that “the action of the swarm on a scale of days, hours, or even minutes manifests a nearly constant flow of emergent phenomena.”<sup>565</sup> Swarms of bees, for example, operate according to a logic that cannot be discerned from the analysis of a single bee. Rather, their complex behavior “is the result of the *interactions between* organisms.”<sup>566</sup> Each individual bee merely responds to the actions of surrounding individuals such that, even without a pilot, bees are able to fly in a stable formation. A sequence of local interactions between components causes the emergence of complex global behavior, or “collective intelligence.”

Swarm intelligence, however, would not be possible without following what Millonas calls the “principle of adaptability.”

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563 Stuart A. Kauffman, *At Home in the Universe: The Search for Laws of Self-Organization and Complexity* (New York: Oxford University Press, 1995), 29.

564 John H. Holland, *Emergence: From Chaos to Order* (Reading, MA: Addison-Wesley, 1998), 14.

565 Mark M. Millonas, “Swarms, Phase Transitions, and Collective Intelligence,” in *Artificial Life III*, ed. Christopher G. Langton (Reading, MA, Addison-Wesley, 1994), 418.

566 Millonas, “Swarms, Phase Transitions, and Collective Intelligence,” 421.

When rewards for changing a behavior mode are likely to be worth the investment in energy, the group should be able to switch. The best response is likely to be a balance between complete order and total chaos, and, therefore, the level of randomness in the group is an important factor. Enough noise will allow a diverse response, while too much will destroy any cooperative behavior.<sup>567</sup>

The adaptive nature of biological systems returns us to the framework of coevolution. Insofar as complex behavior emerges at the edge of chaos between order and disorder or information and noise, complex systems must remain open to, and coevolve with, their environments to maintain themselves. As Kauffman explains, “The very nature of coevolution is to attain this edge of chaos, a web of compromises where each species prospers as well as possible but where none can be sure if its best next step will set off a trickle or a landslide. In this precarious world, avalanches, small and large, sweep the system relentlessly.”<sup>568</sup> Indeed, Kauffman goes on to argue not just that technological coevolution mirrors its biological counterparts, but also that the two processes coevolve with one another. Unlike the earliest information-based theories of self-organization, which paradoxically sealed organisms off from their environments at a metaphysical level, complex adaptive systems theory recognizes openness and, therefore, relationality as a structural condition of systematicity.

Insofar as *homo sapiens sapiens* coevolved with material tools and environments in a complex and adaptive process of self-organization, the leakiness of the self is an originary feature of human nature. Both the physical capacities for cognition and the execution of particular cognitive tasks involves reciprocal, inextricable relations between brain, body, and environment. Furthermore, individual material technologies often play an outsized role in cognition, mediating the systemic feedback between sensation and representation. Given the widespread dependence on

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567 Millonas, “Swarms, Phase Transitions, and Collective Intelligence,” 419.

568 Kauffman, *At Home in the Universe*, 29.

the language of “human nature” in the human enhancement debate, it must be emphasized that, from a *biological* perspective, there is no, and has never been, a self that is ontologically independent of technologies. Rather, human development at both the micro-and macro- levels is best narrated as process of “technogenesis,” i.e., “adaptation, the fit between organisms and their environments recognizing that both sides of the engagement (humans and technologies) are undergoing coordinated transformations.”<sup>569</sup> There will be no historical moment of rupture in which the self first escapes or transcends the body since the self has always leaked beyond the skin and skull through complex, subject-forming processes of material information exchange. We are always already hybrids, cyborgs, and posthumans.

This claim, however, needs some clarification, lest it sound too much like the flattening universalism of the human enhancement discourse I have thus far been criticizing. If the extended nature of cognition points to relationality and embodiment as structural features of subject-formation, it also points to *plasticity*. To quote philosopher Catherine Malabou on the “plastic” brain, “Synaptic development...depends on the synthesis between the spontaneous activity of the nervous system and interaction with the environment.”<sup>570</sup> For example, in his 2008 article, “Is Google Making Us Stupid?”, Nicholas Carr theorized that the digital devices and Internet-stylized content mediating our cognitive process were changing our neurological capacities. Among other evidence, he cited developmental psychologist MaryAnne Wolf’s *Proust and the Squid*, which claims that “we are not only *what* we read...we are *how* we read.”<sup>571</sup> The reading promoted by the

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569 N. Katherine Hayles, *How We Think Digital Media and Contemporary Technogenesis* (Chicago: University of Chicago, 2012), 81.

570 Catherine Malabou, *Morphing Intelligence: From IQ Measurement to Artificial Brains*, trans. Carolyn Shread (New York: Columbia University Press, 2019).

571 Maryanne Wolf, *Proust and the Squid: The Story and Science of the Reading Brain* (New York: Harper Collins, 2007).

Internet prioritizes “efficiency” and “immediacy” above all else and turns us into “mere decoders of information” with limited attention spans and even diminished critical thinking skills.<sup>572</sup> Normative judgments aside, the important thing to note here is that these changes are occurring at the neurological and not just behavioral level. When we learn to read, we form new circuits that connect the neural structures responsible for visualization, language, and conceptualization. As Wolf explains of digital reading, however, “The omnipresence of multiple distractions for attention – and the brain’s own natural attraction to novelty – contribute to a mindset toward reading that seeks to reduce information to its lowest conceptual denominator.”<sup>573</sup> Our neural pathways are in turn “short-circuited” and the brain is gradually reprogrammed so as to not learn or not execute certain available cognitive functions. In this all-too-mundane example of reading digital text on the Internet, the structure of the brain itself is altered through a uniquely modern kind of cognitive extension.

If the species-level rhetoric of coevolution compels us to think in the dichotomous terms of humans and their others, it also offers the theoretical resources to deconstruct those same terms. The moments of rupture and formation that coevolution narratives chart emerge from the hybrid and plastic features of human nature that we saw outlined in autopoiesis, cognitive extension, and complexity theory. Distributed through relationships of information exchange, the hybrid entities we call selves exist in reciprocal relationships of determination with their *particular* material and cultural environments. This is a temporal as well as a spatial claim. As Taylor reminds us, “complex adaptive systems develop over time and, therefore, are historical.”<sup>574</sup> For a system to be

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572 Nicholas Carr, “Is Google Making Us Stupid?: What the Internet Is Doing to Our Brains,” *The Atlantic*, July/August 2008.

573 Maryanne Wolf, “Our ‘Deep Reading’ Brain: Its Digital Evolution Poses Questions,” *Nieman Reports* 64, no. 2 (2010): 8.

574 Taylor, *The Moment of Complexity*, 168.

adaptive, it must both “anticipate” the future and “learn” from the past. The specific and multiple technologies we interact (or rather intra-act) with in and over time matter; these couplings inform how we process (or even construct) self and world. An aphorism of Brooks and likeminded epiphenomenalists applies here: “The world is its own best model.”<sup>575</sup> Selfhood emerges from the “bottom” or “periphery,” i.e., the local, sensory, and material components of human experience. If we are to speak of human nature at all, that is, if we are to speak of some common biological identity, then that identity ought to be grounded in the capacities for difference at least as much as sameness. We are leaky selves who flow out of and back into the skin and skull – looping through our unique environments in the process – as a condition of our being at all.

## 5.6 Posthumanist Parallels

The interventions of these non-humanistic scientific frameworks have been paralleled in numerous ‘posthumanist’ approaches across the humanities and social sciences in the past three decades. In her analysis of this posthumanist literature, Tamar Sharon divides these works into two subgenres: “methodological” posthumanism and “radical” posthumanism. Grounded in the fields of Science and Technology Studies and Philosophy of Technology, methodological posthumanism is “characterized by an attempt to conceptualize analytic frameworks that can better account for the networks and zones of intersections between the human and the non-human.”<sup>576</sup> From “actor-network theory”<sup>577</sup> to “ontological relationality”<sup>578</sup> to “manglings,”<sup>579</sup> these frameworks center non-human entities in an attempt to develop new methods for deriving historical, sociological, and

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575 Ronald C. Arkin, *Behavior-Based Robotics* (Cambridge, MA: MIT Press, 1998), 107.

576 Sharon, *Human Nature in an Age of Biotechnology*, 6.

577 Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (New York: Oxford University Press, 2005).

578 Don Ihde, *Existential Technics* (Albany, NY: SUNY Press, 1983).

579 Andrew Pickering, *The Cybernetic Brain: Sketches of Another Future* (Chicago: University of Chicago, 2010).

phenomenological knowledge. In contrast, radical posthumanism is grounded in feminist studies, cultural theory, and postmodern philosophy, and is “characterized by the view that emerging biotechnologies are contributing to a deconstruction of foundational discourses based in terms like ‘nature’ and ‘human.’”<sup>580</sup> This work goes a step further than its methodological counterpart in taking a normative position; the posthuman is a means of *political* resistance against the (dangerous) meta-narratives of modernity and possesses a liberatory potential moving forward. While Sharon’s genre distinction is useful for cartographical purposes, we will (through select examples) see that it overstates the differences in posthumanist discourse. Methodological and radical posthumanism are constituted through the same grounding theoretical commitment – originary prostheticity – which I contend can help us further develop the notion of human nature emerging in this chapter.

### **5.7 Methodological Posthumanisms**

For methodological posthumanists, classic philosophers’ construal of techno-science as a monolithic and deterministic phenomenon restricts our recognition of how particular human contexts and values shape technologies and vice versa. For example, in criticizing Heidegger’s ontological approach, philosopher Peter Paul-Verbeek contends that, “to say that technologies *spring from* a certain manner of thinking and comporting oneself...does not mean that such a manner of thinking and comporting is the only *allowable consequence* of using technologies.”<sup>581</sup> This statement is representative of the broader “empirical turn” in Science and Technology Studies (STS) that began to take shape in the 1970s and 1980s according to which fieldwork, ethnographic

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580 Sharon, *Human Nature in an Age of Biotechnology*, 6.

581 Peter-Paul Verbeek, *What Things Do: Philosophical Reflections on Technology, Agency and Design*, trans. Robert P. Crease (University Park, PA: Penn State University Press, 2005), 8.

interviews, and archival research gained favor over more text-oriented and theoretical studies.<sup>582</sup> We can understand this empirical turn as a concerted effort to resist classical instrumentalism – i.e., the analysis of technologies as neutral, objective products of human use – but without dematerializing and de-contextualizing those technologies.

The baseline view that emerged in STS is what we might call the social constructivist view of technology: technologies are necessarily shaped by the social processes and biases that bring them into being, and therefore must be analyzed according to the interpretive frameworks of the social actors who develop and use them rather than reduced to inherent properties in the technologies themselves.<sup>583</sup> This, in turn, requires examining concrete technological artifacts and systems in their specific social and historical contexts. It did not, however, take long for this baseline view to come under criticism from within the field of STS. If the constructivist view helps to materialize and contextualize technologies, it still reifies one of the classic problems of instrumentalism: centering the subjective ends of developers and users; human-technology relationships are approached as unidirectional rather than ‘symmetrical’. This criticism is the basis of methodological posthumanism – a discourse no one has influenced more than French social theorist Bruno Latour.

For Latour, “modernization” has been a grand process of epistemic and ontological “purification” according to which the world has been divided into two separate categories of being: sentient, purposeful humans and neutral, inanimate objects – a subjective sphere of culture and an objective sphere of nature.<sup>584</sup> This *a priori* distinction is what makes instrumentalist

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582 Hans Achterhuis, *American Philosophy of Technology: The Empirical Turn* (Bloomington, IN: Indiana University Press, 2001).

583 MacKenzie and Wajcman., *The Social Shaping of Technology*.

584 Bruno Latour, *We Have Never Been Modern* (Cambridge, MA: Harvard University Press, 1993).

understandings of technologies possible in the first place. To counterbalance this worldview, Latour contends that analyses of techno-science ought to be more inclusive and reciprocal; humans and technologies, subject and objects, should both be approached as actors or “actants” that have a “symmetrical” effect on one another. This requires bracketing off our inherited, essentialist conceptions of entities – not just general categorizations such as “subjective” and “objective,” but also hard distinctions between individual entities – in order to focus on how actants engage, connect, and associate in/as socio-material networks.<sup>585</sup>

From the symmetrical perspective, the notion of (technological) mediation is paramount for understanding human action.<sup>586</sup> To illustrate his notion of mediation, Latour analyzes the famous slogan of the Nation Rifle Association (NRA), “Guns don’t kill people; *people* kill people.” Latour asks: in the event of a shooting, what is the role of the gun? Opponents of gun sales take up a “substantivist” account in which the gun transforms an otherwise innocent person into a criminal; without the gun, there is no shooting. The NRA, on the other hand, take up an instrumentalist account in which the gun adds nothing to the action; it is a neutral tool that allows a preexisting human will to be carried out. For Latour, however, neither perspective accounts for the intermingling of human and non-human in the human-gun network that gives rise to the shooting action.

Latour instead proposes a fourfold framework of technological mediation: 1) translation, 2) composition, 3) reversible blackboxing, and 4) delegation. In translation, the subject/object opposition disappears and a new “hybrid” entity composed of both human intention and non-human function emerges; engagement with technologies creates altogether new “programs of

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585 Bruno Latour, *Science in Action* (Cambridge, MA: Harvard University Press, 1987).

586 Bruno Latour, “On Technical Mediation: Philosophy, Sociology, Genealogy” *Common Knowledge* 3, no. 2 (1994): 29-64.

action” for human actors. Composition proceeds from translation insofar as it signifies that all action is a collaborative, networked enterprise; “Action is simply not a property of humans *but an association of actants.*”<sup>587</sup> Reversible blackboxing refers to the fact that ‘users’ are often unaware of the degree to which their actions are mediated – we encounter artifacts as independent entities rather than as part of the networks of manufacturers, materials, distributors, laborers, and so forth involved in their production and maintenance. The inside of the “machine” is “blackboxed” and its network of associations only becomes visible in the event of a breakdown. The final aspect of mediation, “delegation,” claims that techniques transgress the distinction between signs and things; humans can delegate programs of action to artifacts through design and use. In a now-familiar model of feedback, material artifacts can then prescribe certain programs of action for users. In the case of the gun, the person’s association with the gun transforms both person and gun into a new hybrid actant – an “assemblage” – with a “script” that is determined by an invisible network of social connections and movements and the in-built properties of the material object. Thus, ontological status and ethical responsibility ought to be distributed across entities rather than assigned to just the person or the gun.

What is at stake here is not just discovering or recovering the technical details of a historical event or a technological object. Latour is not just being a ‘good historian’ or ‘good sociologist’ in the sense of getting all the facts right. Rather, when we miss all of these modes of mediation, we misunderstand the very nature of humans and technologies; we understand them as self-contained entities when in fact they are assemblages, produced and maintained through complex alliances that are at once technical, theoretical, and social. For Latour, then, there are not distinct spheres

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587 Bruno Latour, *Pandora’s Hope: Essays on the Reality of Science Studies* (Cambridge, MA: Harvard University Press, 1999), 182.

such as culture and nature, and one might argue that there are not even distinct entities; there are just “heterogeneous chains of association that, from time to time, create obligatory passage points.”<sup>588</sup> Indeed, in terms that sound much like the complementarian model of extended cognition, he claims that “relations of humans and non-humans are so intimate, the transactions so many, the mediations so convoluted, that there is no plausible sense in which artifact, corporate body and subject can be distinguished.”<sup>589</sup> Humans and technologies always already exist in (networked) relationships of co-constitution and co-determination, and the only question that matters in an analysis of either is “which associations are stronger and which are weaker?”<sup>590</sup>

While much of methodological posthumanism follows from Latour’s sociological bent, Sharon also identifies a more philosophical strand based in the phenomenological tradition. Developed through the works of Edmund Husserl, Martin Heidegger, and Maurice Merleau-Ponty, phenomenology is the study of the structures of consciousness from the perspective of subjective experience – the in-built modes of awareness and discernment that act as the condition of the possibility of humans’ unique mode of existence. Whether described in terms of “consciousness,”<sup>591</sup> “being-in-the-world,”<sup>592</sup> or “perception,”<sup>593</sup> the phenomenological tradition is relational in that it offers a description of one’s relationship *with* the world rather than a description *of* the world as such. Humans always experience the world around them and that world is only ever made intelligible through our pre-existing modes of perception. In this sense, the

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588 Latour, *Science in Action*, 141.

589 Latour, *Pandora’s Hope*, 197.

590 Latour, *Science in Action*, 141.

591 Husserl, *Ideas*.

592 Martin Heidegger, *Being and Time*, trans. John Macquarrie and Edward Robinson (New York: Harper & Row, 1962).

593 Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Donald A. Landes (London: Routledge, 2012).

phenomenological tradition circumvents the problem of epistemic access to the *noumenal* world through a relational approach. This approach, however, still risks reaffirming the metaphysical subject/object distinction insofar as the world appears to only flow outward from the subject's structures of consciousness.

Posthumanist philosopher Don Ihde attempts to reconcile this subjectivist inclination through his "post-phenomenological" method, which is

(a) ...neither subjectivist nor objectivist, but relational. Its core ontology is an analysis of interrelations between humans and environment (intentionality). (b) It is not introspective, but reflexive in that whatever one "experiences" is derived from, not introspection, but the "what" and "how" of the "external" or environmental context in relation to embodied experience. And (c) all "givens" are merely indices for the genuine work of showing how any particular "given" can become intuited or experienced.<sup>594</sup>

In Ihde's framework, the originary condition of experience is not the subject's perceptive capacities but the *embodied* relationship between the subject and their environment. Technologies are not objects of experience but a means of experience, acting as extensions of our pre-conscious embodiment. For example, eyeglasses mediate one's experience of their world prior to conscious reflection. This embodied relation in turn produces a hermeneutic one: technologies offer a representation of the real that must be interpreted, compelling engagement with linguistic and meaning-oriented capacities while not being present as such. There are multiple forms of hermeneutics that might follow. For example, one might interpret the technology in terms of alterity, i.e., as a "quasi-object" that is ontologically distinct from the conscious self. Inversely, technologies can form "background" relations in which they are interpreted as part of the environment. Regardless of the particular interpretation of self and world that follows, the principle

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594 Don Ihde, "If Phenomenology Is an Albatross, Is Postphenomenology Possible?" in *Chasing Technoscience: Matrix for Reality*, ed. Don Ihde and Evan Selinger (Bloomington, IN: Indiana University Press, 2003), 133.

is the same: material technologies have a structural role in human experience, mediating each person's world both prior to and after it appears to consciousness.<sup>595</sup>

Despite their acute disciplinary differences, Latour and Ihde exemplify the common theme of methodological posthumanism: technological mediation. Whereas Latour develops a method to analyze how technologies bring different kinds of action into being, Ihde develops one to analyze how technologies structure experiential relationships between self and world. Like the initial empirical turn in STS, both frameworks emphasize the need for material specificity; which technologies and environments enact mediation matter for which actions and experiences emerge. "Mediation," however, is an ironic designation in this case since the term traditionally implies a relationship between two distinct entities (as in classic instrumentalism). For Latour, Ihde, and other methodological posthumanists though, technological relationships are so fundamental to acting, perceiving, and interpreting that there is no meaningful sense in which can we distinguish between subjects and objects as entities that relate to and move through the world. Human being is always already technologically relational as a condition of its possibility.

## **5.8 Radical Posthumanisms**

Like methodological posthumanists, radical theorists take up a co-constitutive view of humans and technologies. But whereas methodological posthumanists are developing analytical tools to derive certain kinds of factual or heuristic knowledge, radical posthumanists are also interested in the liberatory potential of human-technology relationships. This is not liberation from the human species' biological finitude as with transhumanism, but liberation from the fixed, essentialist notions of 'human' and 'nature' that have long had a structural relationship to

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595 Don Ihde, *Existential Technic*. Don Ihde, *Technology and the Lifeworld: From Garden to Earth* (Bloomington, IN: Indiana Press, 1990).

theoretical acts of ‘othering’ and material projects of political domination. In this regard, the radical variant of posthumanism takes up one of the basic premises of postmodernism and poststructuralism: the unified, rational subject of modern, Enlightenment humanism depends upon a dangerous and incoherent dialectic logic of reducing plurality and multiplicity to binary oppositions. For posthumanists though, the most important sites of analysis are techno-scientific ones, including the extra-discursive and biological elements of human experience; for herein lies not just the most dangerous manifestations of humanism but also the most potent theoretical resources for political resistance.

If we take Latour to be the progenitor of methodological posthumanism, then his contemporary, feminist and postmodernist theorist Donna Haraway, can be seen as the progenitor of its radical counterpart.<sup>596</sup> For Haraway, humanism has historically depended upon the construction of categorical oppositions, and we “moderns” are witnessing the breakdown of three such crucial *a priori* boundaries: between the animal and the human, between the organism and the machine, and between the physical and non-physical. Haraway did not believe that such a breakdown could be enacted by the political theories of 1980’s feminism and Marxism, which still approached their subjects as quasi-humanist holistic unities. Rather, the agents responsible for this ongoing collapse are information sciences and technologies. Take, for example, the OncoMouse, a transgenic species of mouse engineered to carry an activated oncogene for the purpose of research into breast cancer. More than just being a literal reconfiguration of genetic material, the OncoMouse is also a reconfiguration of biological knowledge, laboratory practice, property law,

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596 The genre of posthumanism has a much longer and more diverse genealogy than I am presenting here. In focusing on Latour and Haraway as “progenitors,” I am identifying especially influential corpuses in which the respective positions of “methodological” and “radical” posthumanism first become recognizable as such.

economic fortunes, and collective and personal hopes and fears.<sup>597</sup> As such, it raises a host of destabilizing questions: can we still speak of ‘natural kinds’ in our posthuman moment of genetic engineering? What crosses and designs count as ‘legitimate’, and for whom? “Who,” Haraway asks, “are my familiars, my siblings, and what kind of livable world are we trying to build?”<sup>598</sup> In a world reduced to bits of information networked in formative processes of exchange, hard ontological distinctions between humans and their others become difficult, if not altogether impossible, to uphold.

In her foundational text, “A Cyborg Manifesto,” Haraway thus introduced the figure of the “cyborg.”<sup>599</sup> The cyborg, she explains, is “a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction,” which is capable of “mapping our social and bodily reality” and acting “as an imaginative resource” for the ‘pleasurable’ and ‘responsible’ construction of boundaries.<sup>600</sup> In addition to being a direct product of cybernetic theory,<sup>601</sup> the cyborg is the ideal symbol for Haraway because it is monstrous – neither fully human nor fully machine – and whose “blasphemous” existence therefore calls into question the humanist myth of wholeness and organicism. The cyborg, however, is not intended to be a “utopian” model of subjectivity insofar as it embraces all those features of human existence – hybridity, contingency,

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597 Kate Soper, “Of OncoMice and FemaleMen: Donna Haraway on Cyborg Ontology” *Women* 10, no. 2 (1999): 172.

598 Donna J. Haraway, *ModestWitness@SecondMillennium.FemaleManMeetsOncoMouse: Feminism and Technoscience* (New York: Routledge, 1997), 51-55.

599 Donna J. Haraway, “A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century” in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge Press, 1991), 149-182.

600 Haraway, “A Cyborg Manifesto,” 149-150.

601 The term “cyborg” - short for cybernetic organism - was first coined by scientists Manfred Cylnes and Nathan Kline in a 1960s journal articles about the possibilities of modifying the human body to meet the requirement of extraterrestrial environments. Manfred E. Cylnes and Nathan S. Kline, “Cyborgs and Space,” *Astronautics* 5, no. 9 (1960): 26-27, 74-76.

ambiguity, and difference – that utopianism, like humanism, seeks to dialectically reconcile. Rather, it offers an alternative “myth” or “ontology” that affords us with non-dualistic and non-oppositional modes of thinking politics and power.

The “ironic” nature of the term “cyborg” – which implies the existence of two distinct entities prior to their coupling – is not lost on Haraway. In spite of her emphasis on the modern moment, there is no historical moment of rupture in which humans are transformed into cyborgs. Rather, from a materialistic perspective at least, humans have always been cyborgs whose embodied existence transgresses their own constructed boundaries. Modern information sciences and technologies do, however, represent a unique discursive occasion to deconstruct *and reconstruct* those boundaries and, in doing so, effect a radical form of inclusive politics based in affinity rather than identity. For Haraway and other radical posthumanists, this is more than just an opportunity. It is an ethical responsibility insofar as information can just as easily be a resource for “domination”; after all, it was developed for the purpose of war and, as we have seen, all too often gets sublated back into humanist ethics. If it is to fulfill its ethical potential, the cyborg – like any imagining of the posthuman – cannot be expected to speak for itself.

This challenge has been taken up through, among other means, the language and logic of “prosthesis.” Prosthetics are traditionally framed in egocentric language as alien objects that can be manipulated for the advantage of the individual or social self – substitutes for, or supplements to, an original unity. Posthumanist theorists such as David Wills, however, contend that it is possible to conceptualize prosthesis beyond identity and autonomy. In his influential work, *Prosthesis*, Wills rereads canonical writers – Virgil, Freud, Derrida, Condor, Roussel, Greenaway, Paré, and Gibson – so as to demonstrate the presence of some kind of prosthetic logic in each of

their corpuses.<sup>602</sup> What really connects these writers, however, is the repeated and violent intrusion of biographical fragments about Wills' father, an amputee with a wooden leg. For Wills, this wooden leg, what he refers to as "paternal paraphernalia," is at once a material artifact, a personal obsession, and a performative literary device.

Building on the deconstructive tradition, this/the prosthesis acts as a mirror of man's attachment to the writing machine and, as such, is intended to speak to the structural incompleteness of discourse. While his father's leg has little to do with the thinkers in question, it haunts the author's reading and writing practices. Wills cannot help but read his historical texts through the lens of his father's leg – something he attempts to communicate, but which he can never communicate as such, to his readers through recollective intrusions that parallel his own digressive thought process. The wooden leg, or the organic one it was supposed to substitute for, are thus present as absences, the kind of extra-discursive addendum that inform, but cannot be sublimated into, all acts of discourse.

Concluding with an unpunctuated quote from Jacques Derrida, the reader is reminded that language is little more than (parenthetical) acts of "translation" that require substitution and supplementation as a condition of their possibility. Reader and writer are connected through information processing, and that mode of processing is one of *différance*, 'the difference and deferral of meaning.'<sup>603</sup> Here, one is reminded of polymath Gregory Bateson's famous definition of information as "a difference that makes a difference."<sup>604</sup> Remember, when a message is too redundant or certain, it becomes noise rather than information. Insofar as communication is

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602 David Wills, *Prosthesis* (Minneapolis, MN: University of Minnesota Press, 2021).

603 Jacques Derrida, "Différance," in *Margins of Philosophy*, trans. Alan Bass (Chicago: Chicago University Press, 1982).

604 Gregory Bateson, *Steps to an Ecology of Mind* (New York: Ballantine Books, 1972).

difference all the way down, there is no original unity of meaning and no possibility of semantic closure to which the writer can refer. Discourse is thus a prosthetic phenomenon in which texts function as amputees that reader, writer, and all manner of unwanted guest prosthetize as a/the condition of meaning-making.

The deconstructive logic of prosthesis gains a clearer connection to the information sciences in French anthropologist Michel Serres's *The Parasite*. The *idée fixe* of the text, the parasite, is also the French word for noise, static, or interference in information theory. Serres takes advantage of the word's semantic multiplicity by reading the idea of noise alongside the more familiar definitions of parasite as a biological organism that preys upon a host or an 'uninvited guest' who charms their way into a free dinner. Moving between the domains of literature and science – fables of rats and diagrams of black boxes – Serres translates parasitism into an asymmetrical model of 'taking without giving' that applies equally to information theory and the history of human relations.<sup>605</sup>

This model of parasitism rejects the oppositional logic of classical information theory, which suggests that there can be either order or disorder, either constructiveness or destructiveness. In contrast, parasitism claims that interruption is a productive force and that order and disorder are therefore relational states. Take, for example, the parable of the poor, starving man who approaches the kitchen door of a restaurant and smells the food inside to help sate his hunger pains. Catching him in the act, a kitchen hand comes out and demands that the uninvited guest pay for the services rendered. In the course of their disagreement, a third man arrives to settle the matter:

Give me a coin, [the third man] said. The wretch did so, frowning. He put the coin down on the sidewalk and with the heel of his made it ring a bit. This noise, he said, giving his decision, is pay enough for the aroma of the tasty dishes...If the coin is

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605 Michel Serres, *The Parasite*, trans. Lawrence R. Schehr (Minneapolis, MN: University of Minnesota Press, 2007).

worth the roast, then the sound of the coin is worth the aroma of the food. And he returned the coin to the passer-by. Justice is done.<sup>606</sup>

The third man, the disruption, makes an exchange between two different forms of order – one where coins are exchanged for food, and another where sounds are exchanged for smells – possible. In transforming the coin into sound, the parasite, i.e., the third man, opens up a channel for a new mode of exchange so that communication becomes possible. The parasite “invents something new...a new logic,” making the exchange into a “diagonal.”<sup>607</sup>

For Serres, there is nothing unusual about this kind of exchange; all systems are “crossed by a network of relations” and all relations are part of parasitic chains that interrupt or parasitize other kinds of relations.<sup>608</sup> However, these parasitic relations are, paradoxically, constructive. In the absence of noise, the universe would be a homogeneous and reversible stasis of balanced exchanges, i.e., total equilibrium. In taking without giving though, the parasite violates an ideal system of equal exchange and introduces an element of irreversibility; duration and history commence. The parasite is thus the “simplest” relation and the “beginning of intersubjectivity. The third is always there...A third exists before the second. A third exists before the other.”<sup>609</sup> The parasite is the difference that makes a difference, the condition of possibility of communication or, in even more general terms, systemic organization.

Serres’s parasite is intended to parasitize the model of complex, adaptive behavior discussed in the prior section. Through its interruption, the parasite effects new forms of complexity in the system. In taking without giving, the parasite interrupts the system’s usual functioning, moving it further from equilibrium, and forces the host to act differently. Like diners deciding what to do

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606 Serres, *The Parasite*, 34-35.

607 Serres, *The Parasite*, 35.

608 Serres, *The Parasite*, 39.

609 Serres, *The Parasite*, 63.

with an uninvited guest who shows up at the door, the host can either incorporate the parasite into the system – accepting the new form of communication the parasite effects – or expel the parasite and transform itself in the process. Herein lies the nature of all living systems: the struggle to incorporate or expel the parasite – to maintain or change in the context of an entropic universe. But even this opposition is a false one; regardless of which ‘decision’ is made, the organization of the system is adapted, or rather adapts itself, in the process. To attempt to return to the past, to yearn for prior states of purity and simplicity, is to deny the complexity that is *necessarily* generated by parasitic relations.

While the topic of biotechnologies might seem to be far removed from Wills’s and Serres’s texts, I want to suggest otherwise. As is so often the case in the deconstructive tradition, what is true for discourse is also true for the subject. In demonstrating that all systems follow the “principles of nonintegrality, detachability, and replacement”<sup>610</sup> both theorists implicitly depend upon and validate a conceptual framework of “originary prostheticity.”<sup>611</sup> French philosopher Bernard Stiegler captures the principle of this framework when he explains that the prosthesis “does not replace what would have been there before it,” nor is it “a mere extension of the human body.” Rather, “it is the constitution of this body qua ‘human.’”<sup>612</sup> For Stiegler and likeminded posthumanists, the human has always evolved through the coupling with the supposedly ‘exterior’ evolution of technological objects; and technologies are therefore the enabling condition of human experience. The human(ist) view of a self-contained and self-determined subject, then, is little

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610 Wills, *Prosthesis*, 71.

611 For more on this term, see: Joanna Zylińska, “The Future is...Monstrous: Prosthetics as Ethics” in *The Cyborg Experiments: The Extensions of the Body in the Media Age*, ed. Joanna Zylińska (London: Continuum, 2002): 214-236.

612 Bernard Stiegler, *Technical and Time, 1: The Fault of Epimetheus* (Stanford, CA: Stanford University Press, 1998), 152-153.

more than the human “forgetting” its own prosthetic nature – concealing the extent to which, like discourse, subjectivity is always prosthetized and parasitized by material artifacts as a condition of its possibility. To quote the famous Australian performance artist Stelarc, “Technology is, and always has been, an appendage of the body;” it is “what defines human being.”<sup>613</sup>

Whether articulated in terms of “assemblages,” “cyborgs,” or some other figuration, originary prostheticity is the ontological commitment that affords posthumanism with its particular mode of divergence from humanism. Through centering techno-science, we come to understand that the categorical distinctions of classical humanist discourse – self/other, human/technology, natural/artificial – through which the self-contained, self-determining Man of Reason has been constructed do not map onto the territory of human being. Rather, as posthumanist theorist Elaine Graham surmises, “To be human is already to be in a web of relationships, where our humanity can only be articulated – iterated – in and through our environment, our tools, our artifacts, and the networks of human and non-human life around us.”<sup>614</sup> There is no “natural,” grounding opposition between humans and technologies – antagonistic or otherwise – that can act as the starting point for (bio)ethical analysis.

### **5.9 Human Enhancement: A Category Mistake**

Thus far I have sought to elaborate a cross-disciplinary, posthumanist view of human nature that calls into question the integrity of the humanist subject. I have emphasized how centering scientific theories and material technologies in ontological analysis leads to a technologically relational view of human being in which subjectivity is constituted through

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613 Paolo Atzori and Kirk A. Woolford, “Extended-Body: Interview with Stelarc,” in *Digital Delirium*, ed. Arther and Marilouise Kroker. New York: St. Martin’s Press, 1997, 198.

614 Elaine Graham, “Post/human conditions” *Theology and Sexuality* 10, no. 2 (2004): 27.

embodied interactions with the material environment and, in particular, technological artifacts. How, though, does taking up this posthumanist framework change our understanding of the human enhancement debate?

Foremost, it challenges the bioconservative framework. In order to represent biotechnologies as a threat to the purity of the self, conservative bioethicists must first assume a prior ontological separation between humans and technologies at the level of the 'natural'. To be human is to be a self hermetically sealed inside the skin and skull with technologies functioning as mere external instruments. This difference is normative as well as ontological; both the intrusion of technologies into biology and the operationalization of a techno-scientific worldview are *antithetical* to human flourishing. Artificiality is a vice. If, however, we treat the human condition as one of ordinary prostheticity, then the conservative position collapses like a house of cards. For there is no essential, pre-technological self for 'enhancements' to desacralize. Technological relation is a condition of possibility for human subjectivity. This does not mean that the development and use of biotechnologies is *a priori* ethical; far from it. *How* the self relates to/with *which* technologies matters; indeed, this might be *the* ethical question moving forward. But it does mean that the technologization of human being is not in itself a valid objection to the development and use of biotechnologies. The structural integration of technologies into self-formation was never a yes/no proposition to begin with.

This would seem to push us towards the bioliberal position; after all, like posthumanism, the bioliberal position holds the basic premise that humans have always coevolved with technologies. For bioliberals, however, this relationship is both humanist and value laden. It is not a relationship of mutual constitution so much as a hierarchical instrumentalism in which technologies operate as external tools that have afforded the enhancement of human self-

determination. This speaks to a deeper essentialism in which the self-contained, self-determining Man of Reason is presumed to be a universal, transhistorical subject; and, as the vehicle of reason and will, techno-science is evidence of, rather than a challenge to, the humanist model of subjectivity. This particular relationship between subject-formation and techno-science is the ground upon which bioliberals claim that technological ‘advancement’ should be seen as a, or even *the*, cause of social, historical, and moral progress.

We have seen that posthumanists agree that human-technology relationships are never neutral; technologies influence, and are influenced by, the social contexts of their design, production, and use. The technologization of the human, however, cannot be reduced to a single normative quality; it is not *necessarily* progressive. Insofar as human being is always already technological, the normative character of human-technology relationships is (potentially) as diverse as human being itself. This is precisely the reason I chose to begin this chapter’s narrative in the context of wartime research, where so much of technological development occurs. Not to imply that we ought to return to a classic instrumentalism where technologies are viewed as mere extensions of human intentions; but to remind the reader of the fact that it takes an astonishing amount of intellectual concealment to reduce technologization to a structurally ethical or unethical process – concealment which, as I hope I have shown in this project, is afforded through the essentialist language of human nature and monolithic representations of science and technology.

For this same reason, adopting a posthumanist perspective problematizes more than just these two particular bioethical positions; it calls into question the entire category of human enhancement. Human enhancement has long been recognized as an imperfect category, a heuristic of convenience. The primary criticisms of it, however, have revolved around the fact that the therapy/enhancement distinction is a moving target based on which technologies are considered

socially acceptable or ‘normalized’ at the time of their ethical evaluation.<sup>615</sup> For example, looking through the archive, one might be surprised to see how much issue the President’s Council of the 2000s took with Adderall and other pharmaceuticals.<sup>616</sup> For these bioethicists, there was little substantive difference between prescription stimulants and human cloning insofar as both were ‘unnatural’ biotechnologies that had the potential to upend normal species-functioning.

The real problem, however, is not the “enhancement” part of the equation but the notion of “human” that it depends upon. Like all humanist figurations, it is constituted through categorical oppositions; in this case, self/other, human/technology, natural/artificial. Such oppositions afford the construction of an essential, universal human whose biological and ethical features are fixed and bounded. Biotechnologies, which penetrate into the anatomical depth of the self, are, in turn, represented as a substantively different kind of technological integration – one which could go beyond instrumental use to modify the self itself. The natural question that follows is: how will biotechnologies modify human nature? Or, in the value laden terms of the enhancement debate: will biotechnologies make us more or less human?

From the posthumanist perspective, however, humans are *relational*, *embodied*, and *differential* beings who always already exist in technological relationships of mutual constitution. There is no essential, universal human whose biological and ethical features are fixed and bounded. To the extent that there is some constant that we can call human nature, it is an emergent, distributed, and variable process of subject-formation that precludes the supposed *a priori* oppositions of self/other, human/technology, and natural/artificial. Insofar as it misidentifies the

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615 Ruth Chadwick, “Therapy, Enhancement and Improvement” in *Medical Enhancement and Posthumanity*, ed. Bert Gordijn and Ruth Chadwick (London: Springer Books, 2008), 25-37.

616 The President’s Council on Bioethics, “Better Children,” in *Beyond Therapy: Biotechnology and the Pursuit of Happiness* (Washington, D.C.: Government Printing Office, 2003).

subject of enhancement, then, human enhancement is a category mistake. Likewise, whether biotechnologies will make us more or less human is not a valid criterion for bioethical evaluation. Technological integration is an ethically variable, contextually specific feature of human ontology and, therefore, cannot by itself function as a normative affirmation or denial of human nature. Biotechnologies cannot make us or more or less human, more or less natural, only *differently* so. How, then, should we think about biotechnologies and the ethics thereof? In the conclusion, I will consider some of the possibilities for, and limitations of, using a critical posthumanist framework for the purpose of bioethical analysis.

## **Conclusion: Enhancing the Debate?**

### **6.1 Human(ist) Enhancement: A Review Of Reasons**

In the course of this dissertation, I have argued that, in spite of the radical, ‘posthuman’ nature of the technologies in question, the human enhancement debate in bioethics is a thoroughly humanist discourse. In the most basic sense, this means that the ‘human’ of ‘human enhancement’ is conceptualized as the self-contained, self-determining ‘Man of Reason’ of the Western Enlightenment tradition. This ideal subject is constituted in essentialist, oppositional, and hierarchical terms. Essentialist in the belief that all humans across space and time share a ‘nature’ defined by the possession of specific traits or capacities; oppositional in the belief that this nature exists in metaphysical contradistinction to other natural kinds; and hierarchical in the belief that this nature affords a privileged ontological status and is, therefore, a normatively good thing. The result is that, regardless of whether one takes up a conservative or liberal stance towards enhancement, the ethical status of biotechnological interventions is reduced to arguments for whether (and how) such interventions will make us more or less human. The enhancement debate thus fails to call into question the coherence of humanness or human nature as an ontological and ethical criterion.

In Chapter One, we saw that the humanist character of the enhancement debate builds on broader historical and intellectual trends within the field of bioethics. On one hand, the field’s emergence can be understood as a process of Weberian formal rationalization in which the discipline was ‘thinned’ and substantive inquiries about ultimate values were excluded from authorized discourse. This was actualized through the formation of common moral principlism: an ethical framework that presumes the existence of universally held moral principles – autonomy, non-maleficence, beneficence, and justice – which bioethicists can identify and channel to govern

the domain of biomedicine. On the other hand, the field's very existence was, in part, a response to the ontological anxiety first produced by postwar information sciences and technologies, i.e., the techno-scientific deconstruction of boundaries between humans and machines and the implied possibility of modifying humans *as if* machines. While common moral principlism provided a pragmatic bulwark for applied bioethics, it did little to reconcile this anxiety. Thus, when genetic engineering and human cloning (re-)emerged as flashpoint controversies in the 1980s and 1990s, a new (complementary) conceptual framework for debating biotechnologies emerged to fill the void: human enhancement.

Defined in contradistinction to medical therapies, the framework of enhancement partitioned off emergent biotechnologies – genetic engineering, psycho-pharmaceuticals, human cloning, brain-machine interfaces, and so forth – as technologies with the unique and novel potential to modify human nature to a substantive degree, i.e., to make subjects ‘inhuman’ or ‘posthuman’. As we saw in Chapter Two, this discourse was quickly assimilated into the biopolitical culture wars of the 1990s with the most prominent positions being constituted along bioconservative and bioliberal lines. Conservatives took up a restrictive position, claiming that modifying human nature would disintegrate *homo sapiens*' species-integrity and with it our privileged ontological status in the Great Chain of Being. Given the humanist foundations of the modern world, the result would be a dystopian collapse of self-identity, moral certitude, and even political rights. In contrast, liberals took up a permissive stance, claiming that biotechnologies could improve our constitutive capacities, making us smarter, healthier, happier, and even more moral. Insofar as we already take these ‘improvements’ to be objective goods, enhancement is simply the (necessary) means to achieve ‘commonsense’ ethical ends.

I also, however, argued that these two positions have far more in common than theorists have been able or willing to recognize; namely, both depend upon and validate humanist premises. While conservatives criticize modern “scientific humanism” for its glorification of techno-scientific knowledge and power, humans’ ontological character, which is grounded in their biological makeup, is the basis of our most important cultural goods – our individual identities, moral principles, and political rights. The goal of bioconservatism is thus to conserve the (purported) purity of human nature, to prevent us from going down the slippery slope towards inhumanness by ‘playing God’ with biotechnologies. Bioliberals criticize this position for being a form of the naturalistic fallacy and contend that our biological makeup is little more than a set of structural limitations upon human flourishing that should be transcended through whatever means possible. The same theorists, however, prove just as dependent on the rhetoric of human nature for making their case, arguing that enhancement is ethical because it is an extension of the virtues – rationality, autonomy, and self-creation – that make us human in the first place. Modifying biology, even to the point of becoming ‘posthuman’, would therefore make us *more* rather than *less* human. For both opponents and proponents of enhancement, then, the extent to which biotechnological interventions align with a pre-existing human nature – one defined in essentialist, oppositional, and hierarchical terms – is the principal determinant of whether such interventions are permissible, desirable, or even obligatory.

This discourse of ‘naturalization’ is more pernicious than it might seem. More than just reinscribing the subject of liberal humanism as a normative ideal, it conceals critical inquiry into the coherence of human nature as an ontological category. We might debate *which* traits constitute human nature, but the existence of a self-contained and self-determining – not to mention universal and transhistorical – subject is never brought into question. In constituting the audience as part of

a humanist collective at a precarious moment of techno-scientific and historical change, the enhancement discourse implies that we are (and always have been) humanist subjects and that the only way this could change would be through radical biotechnological changes at the material level. The non-human, inhuman, and posthuman are always already imagined as temporal or spatial others – an artificial intelligence, a laboratory chimera, an enhanced posthuman – but never as the reader, the person for whom the consequences of biotechnological interventions are at stake. This is why I claim that posthumanist approaches, which de-center the individual subject in their analyses of techno-science, have been excluded from relevant bioethical discourse. The humanist structure of argumentation in the enhancement debate – and indeed, the category of human enhancement itself – precludes, or at least inhibits, the *theoretical* deconstruction (and reconstruction) of the individual subject.

To be clear, the human enhancement debate *has* opened up bioethical discourse to a substantive degree. Prior to the conceptual framework of enhancement, biotechnologies and future-facing inquiries were afforded comparatively little attention in the field of bioethics. Furthermore, as I suggested in Chapter Three and Chapter Four, each pole of the enhancement debate offers something instructive for bioethicists moving forward. The conservative desire for a ‘richer’ bioethics grounded in ‘big picture’ self-examination invites us to question the presumed actors and ends of common moral principlism. Likewise, liberals’ prolific use of genetic, evolutionary, and psychological studies reminds us that techno-science can be a creative resource for, rather than just the object of, bioethical theorization. The real problem, then, is that neither cohort takes their destabilizing ambitions far enough. Big-picture questions are asked and scientific theories are applied, but the end result is the reinscription or ‘reterritorialization’ of familiar

humanist models of subjectivity. The deconstruction of the subject is transformed into a material (rather than theoretical) project and perpetually deferred into an imminent future.

I have, however, suggested that the human enhancement debate is a discursive occasion to de- and re-construct the boundaries of the bioethical subject. Questioning what the human will or ought to become demands an answer to the conceptually prior question of what the human is. Taking up a posthumanist framework, as I did in Chapter Five, demonstrates that the human of classical humanism is not a coherent answer to this question. When we take the information sciences – in our case, theories of autopoiesis, extended cognition, and complex coevolution – to their logical conclusion, familiar ontological fault lines such as self/other, human/technology, and natural/artificial begin to collapse. Humans exist as material networks of information exchange that loop through bodies, artifacts, and environments as a condition of their being. While this phenomenon is changing at an exponential rate via digital networking and bio-interventionism, it is not unique to the information age. Rather, this continuous process of info-material exchange is a meta-framework for all subject-formation. To the extent that we can speak of a common human nature, it is relational, embodied, and differential rather than essentialist, oppositional, and hierarchical. Humans have *always* been cyborgs and therefore *never* been human as such.

## **6.2 The Limitations of Humanist Bioethics**

With this review in place, I want to conclude the dissertation by addressing the exigence – the ‘so what?’ – of this project. In the introduction, I claimed that it would be a mistake to understand ontology and bioethics as distinctive projects. Normative ethics always already presumes a conception of subjectivity or human being. When we claim that a subject ‘ought’ to act in a particular way, we also make implicit claims about that nature of that subject. The nominalist and constructivist traditions allow us to take this claim a step further. Insofar as all

human existence is in some sense discursive, the categories we use to label subjects can either reveal or conceal certain modes of being and acting in the world. *How* we talk about human beings has a tangible effect on what we imagine human beings can and ought to do. The point I mean to make here is a simple but important one. The relationship between ontology and ethics is structural and, therefore, inescapable. When one chooses to ‘do bioethics’ without consideration of ontological categories, one is not taking a neutral or agnostic stance toward ontological problems. Rather, one is making a tacit choice to pick up and operationalize extant categories and ideas. This choice determines the horizon for ethical discourse; in the case of human enhance enhancement, what we imagine to be permissible, desirable, or obligatory.

While this is in some sense true of all ethical discourse, the human enhancement debate represents a unique discursive occasion in at least two senses. First, the enhancement debate, however limited, explicitly invites us to engage with longstanding models of human nature in bioethics. In the Heideggerian tradition, humanism is a discursive means of concealment according to which the conceptual presence of a self-evident, pre-given ‘essence’ inhibits ontological examination.<sup>617</sup> To use language that might have made Heidegger uncomfortable, the humanist subject functions as a black box: a complex piece of equipment with inner workings that are mysterious to the user. Bruno Latour translates this idea into a verb, defining “blackboxing” as:

The way scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not on its internal complexity. Thus, paradoxically, the more science and technology succeed, the more opaque and obscure they become.<sup>618</sup>

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617 Martin Heidegger, “Letter on Humanism,” in *Basic Writings*, ed. David Farrell Krell (New York: Harper and Row, 1977), 190-242.

618 Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge, MA: Harvard University Press, 1999), 304.

I want to suggest that this description is just as true for discursive instruments, what Foucault calls “historical *a priori*,” as technical ones.<sup>619</sup> To quote Donna Haraway, “‘Ideas’ are themselves technologies for pursuing inquiries. It’s not just that ideas are embedded in practices; they *are* technical practices of situated kinds.”<sup>620</sup>

As we saw in Chapter Five, when a machine breaks down, when it is insufficient for resolving the problem at hand, the mediating presence of the black box is made visible and therefore accessible. The enhancement debate is precisely this kind of moment – a response to the breaking down of the bioethical machine (common moral principlism) and the need to re-engineer its inner workings. The framework of human enhancement thus poses a question that bioethics concealed for more than two decades: what is the ‘nature’ of the bioethical subject? This represents a rare and formative occasion within the discipline, a chance to open up a now-visible black box and switch, or even cut, its wiring. And as ‘radical’ posthumanist theorists suggest, the times and spaces in which symbolic boundaries are made “fuzzy” are often the most opportune ones for intervention.<sup>621</sup>

Human enhancement, however, is not just a matter of symbolic boundaries. When I claim that we have always been cyborgs, my intention is not to minimize the transformative power of emergent biotechnologies. Even technologies that are now becoming normalized such as embryo selection, deep learning algorithms, and DNA self-testing kits were almost unimaginable as

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619 Michel Foucault, *The Archeology of Knowledge: And the Discourse on Language*, trans. A.M. Sheridan Smith (New York: Vintage Books, 2010), 126-131.

620 Donna J. Haraway, *Becoming Companion Species* (Minneapolis, MN: University of Minnesota Press, 2008), 282.

621 The term “fuzzy” is taken from Serres’ discussion of the parasite (original French being “flou”), which he draws from the mathematical concept of “fuzzy sets,” i.e., uncertain sets that allow for the gradual, rather than bivalent, assessment of the membership of an element within that set. The sense of “fuzziness” being intellectually and normatively opportune, however, owes more to Haraway, who again and again stresses that the epistemological and ontological blurring of info- and bio-sciences is a means to rethink extant categorical distinctions between self/other and the ethical relations therein. Michel Serres, *The Parasite*, trans. Lawrence R. Schehr (Minneapolis, MN: University of Minnesota Press, 2007), 56-57.

practical realities even a few decades ago.<sup>622</sup> While not precise, predictive models of exponential technological development, or at least computational power, appear to be justified.<sup>623</sup> When theorists of enhancement imagine using genetic engineering, brain-machine interfaces, and psycho-pharmaceuticals to modify cognition, behavior, and lifespan, it is not baseless speculation. Rather, this speculation is important precisely because it is feasible. This speculation, however, is also *powerful*. How we think about techno-scientific futures – the language we use to describe and evaluate them in the present – influences which futures can and will become something more than just historical footnotes. Rethinking the human of human enhancement should therefore be understood more as an ethical demand than a convenient opportunity.

If this helps us understand the original motivations for this project, it still does not address the exigence of its conclusions. Why, for example, does it matter that the human enhancement debate is a ‘humanist’ discourse? The most obvious answer is that humanism has a deeply troubling political history. From the Euro-American colonization of indigenous peoples to the industrial exploitation of local and global environments, an irreconcilable amount of damage has been done in the name of globalist, humanist projects of ‘modernization’, ‘civilization’, and ‘secularization’.<sup>624</sup> Here I am once again referring to humanism as an ideological framework rather than a singular historical movement. The common denominator that ties such projects together is the enshrinement of certain anthropocentric, Western beliefs and values as universal truths and

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622 For more on these respective interventions and their increasing ‘normalcy’, see: Samantha X.Y. Wang, “The Past, Present, and Future of Embryo Selection in *In Vitro* Fertilization,” *Yale Journal of Biology and Medicine* 84, no.4 (2011): 487-490. Wojciech Samek et al., *Explaining AI: Interpreting, Explaining and Visualizing Deep Learning* (Cham: Springer, 2019). Antonio Regalado, “23 and Me,” *MIT Technology Review* 119, no. 4 (2016): 68-69.

623 Here, I have in mind Moore’s law, which predicts that the number of transistors in integrated circuits will continue to double approximately every two years. Gordon E. Moore, “Cramming More Components onto Integrated Circuits,” *Electronics* 28, no. 8 (1965).

624 For this kind of all-inclusive critique, one can look to Zygmunt Bauman’s sociological description of “globalization.” Zygmunt Bauman, *Globalization: The Human Consequences* (New York: Columbia University Press, 1998).

goods, the mass institutionalization of which are required for species-level human progress. This, in turn, affords the exclusion and erasure of ‘others’, whether that be technology, nature, or non-normative persons. There is an almost astonishing dissonance between how humanism is depicted by bioethicists as a pure, aspirational ideal and the well-documented history of humanism’s entanglement with projects of political domination and environmental destruction.<sup>625</sup>

This quite general critique, however, has been made *ad nauseum* by critical theorists and tells us little new or specific about the topic at-hand. The more pertinent point for us is that the operationalization of humanist thinking, and essentialism in particular, results in problematic conceptualizations of biotechnologies and the ethics thereof. Essentialism, which descends from the traditions of Platonic idealism and theological realism, is the belief that things have an inherent and immutable set of characteristics that constitute them as such.<sup>626</sup> The task of scientists and philosophers is therefore to discover those characteristics and their latent expressions. This doctrine is quite familiar to scholars of religion, who have spent recent decades challenging the essentialist assumptions of their field’s forebears. We can understand this entrenched religious essentialism in two senses. First, the belief that “religion” is a fixed thing-in-itself that is expressed in all societies. Particular beliefs and practices might change across time and space, but the basic structure of religion remains stable as a fact of human life. Second, that each religious group, the so-called World Religions, possess structural features that allow us to differentiate and categorize

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625 I have attempted to show throughout this project that, whether phrased in the specific terms of humanism or the more general terms of modernity, both bioconservatives and bioliberals champion the intellectual, material, and political gains of Western nation-states to a profound degree. Even for critical bioliberals like Ingmar Persson and Julian Savulescu, I believe their arguments can best be understood as a call for further modernization along established lines.

626 For a comprehensive description of essentialism and its “muddled” roots in Aristotelian and Platonic logic, see: Bertrand Russell, *History of Western Philosophy* (London: Routledge, 2004), 121-199.

them as such. In either case, the foundational premise is that ideal precedes form, essence precedes existence, and our categories therefore represent the world as it is.<sup>627</sup>

Scholars of religion have challenged this kind of religious essentialism on three instructive fronts. The first challenge is an empirical critique. Attempts to identify the inherent characteristics of religion fail to adequately describe the diversity of religious life on the ground. Through close historical, sociological, and anthropological examination of so-called religious communities, we find that generic categorical markers such as ‘belief’ and ‘practice’ are so capacious that they elide the complexities and specificities of “lived religion.”<sup>628</sup> Likewise, assigning necessary characteristics to particular religions conceals the deep differences that manifest even internal to groups that take up the same self-identification.<sup>629</sup> Insofar as essentialism takes the immutable nature of forms for granted, it is a reductionist approach that produces an ever-widening gap between map and territory.

To this end, many scholars of religion have adopted nominalist and constructivist approaches that treat religion as an “invented” or “imagined” category and not as a thing-in-

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627 For a sense of how the reflexive, linguistic turn has become a norm within the discipline as well as reflections on the religious studies’ historical essentialism, see: Russell T. McCutcheon, *Studying Religion: An Introduction* (New York: Routledge, 2019).

628 While there are no shortage of relevant examples, the term “lived religion” is taken from Robert Orsi, who explains that “rethinking religion as a form of cultural work, the study of lived religion directs attention to institutions *and* persons, texts *and* rituals, practice *and* theology, things *and* ideas - all as media of making and unmaking worlds. This way of approaching religious practice as fundamentally always *in* history and culture is concerned with what people *do* with religious idioms, how they use them, what they make of themselves and their worlds with them, and how in turn people are fundamentally shaped by the worlds they are making as they make these worlds.” This cannot be achieved, the argument goes, without paying close attention to religion as it is narrated and enacted - i.e., how it is or was lived out in particular social and material contexts - by religious practitioners themselves. Robert A. Orsi, *The Madonna of 115th Street: Faith and Community in Italian Harlem, 1880-1950* (New Haven, CT: Yale University Press, 2002), xix.

629 Historical religious scholarship on both sensation and spirituality have been especially attuned to recovering the beliefs and practices of particular communities that have otherwise been marginalized in the homogenization of religious movements and traditions. See, for example: Leigh Eric Schmidt, *Hearing Things: Religion, Illusion, and the American Enlightenment* (Cambridge, MA: Harvard University Press, 2000). Catherine L. Albanese, *A Republic of Mind and Spirit: A Cultural History of American Metaphysical Religion* (New Haven, CT: Yale University Press, 2007).

itself.<sup>630</sup> According to this linguistic turn, religion is not a self-sufficient domain in a world with a pre-determined structure; it is instead a classification that orders an otherwise chaotic or unknowable world for practitioners and analysts alike. Whether we are discussing religion in general or particular religious traditions, we are talking about socially constructed symbols, beliefs, practices, institutions, and so on that operate internal to human history – technologies that were invented at particular times in particular places by particular people and the interpretations and effects of which, therefore, *necessarily* change and multiply. The logical conclusion of this insight has been a reflexive turn in the field, the most basic insight of which is that “the “the social scientific study [of religion] actually reverberates in the religious field, revitalizing and even producing religions.”<sup>631</sup> Religion is not only constructed, it also constructs. Even more than tracing the shifting meanings of “religion” across time and space then, one the main challenges of contemporary religious studies is to understand how our organizing categories – including religion’s supposed constitutive parts (e.g., “belief”) and definitional others (e.g., “secularism”) – operate in the very world(s) they purport to describe.

This epistemological approach reveals a third grounds for critique: normative ethics. Both taking up a pre-determined definition of religion and assigning inherent and immutable characteristics to particular peoples – in this case, different religious groups – has been a longstanding rationalization for discriminatory practices. Tisa Wenger, for example, demonstrates how the legal-moral ideal of ‘religious freedom’ – grounded in a particular Protestant conception of religion – has historically justified oppressive practices against minorities, especially indigenous

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630 I have elsewhere noted that two especially influential works in this reflexive turn are: Jonathan Z. Smith, “Religion, Religions, Religious,” in *Critical Terms for Religious Studies*, ed. Mark C. Taylor (Chicago: University of Chicago Press, 1998), 269-284. Tomoko Masuzawa, *The Invention of World Religion, or, How European Universalism Was Preserved in the Language of Pluralism* (Chicago: University of Chicago Press, 2005).

631 Jason A. Josephson-Storm, *The Myth of Disenchantment: Magic, Modernity, and the Birth of the Human Sciences* (Chicago: Chicago University Press, 2017), 13.

peoples, in the United States. Insofar as only certain kinds of religious life have been deemed ‘authentically’ religious and, therefore, worthy of legal protection, the First Amendment and other forms of ‘religious freedom talk’ have functioned as a means to forward the ends of large-scale cultural and racial assimilation (intersecting with more familiar terms like ‘modernization’ and ‘civilization’). To be clear, this is not a straightforward, unidirectional state of affairs. Wenger identifies religious freedom talk as a site of contestation, which includes minority communities attempting to mobilize the term for their own benefit. But if religious freedom talk ‘transformed’ rather than simply erased or protected Native cultures and beliefs, her conclusion is nevertheless a sobering one: “the dominant strains of American religious freedom talk functioned to bolster racial discrimination and the civilizational hierarchies that sustained it.”<sup>632</sup>

What does this have to do with human enhancement? Similar kinds of essentialism with similar structural dangers are operative in the human enhancement debate. Following the original instinct of common moral principlism, theorists of enhancement attempt to discover and identify the inherent and immutable characteristics of human life. This project is aided by rhetorical practices of ‘naturalization’, which make it seem self-evident that there is in fact a (normative) human essence that precedes and is expressed through human existence. Like religion, the operationalization of an essentialist human nature both conceals and produces difference. On one hand, the claim to certain universal human characteristics and ends reduces difference to identity, concealing the actual diversity of human experiences and values on the ground.<sup>633</sup> As we saw in Chapter Two, both the bioliberal ideal of autonomy and the

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632 Tisa Wenger, *Religious Freedom: The Contested History of an American Ideal* (Chapel Hill, NC: University of North Carolina Press, 2017), 235. See also: Tisa Wenger, *We Have a Religion: The 1920s Pueblo Indian Dance Controversy and American Religious Freedom* (Chapel Hill, NC: University of North Carolina Press, 2009).

633 Here I have in mind Annemarie Mol’s ethnographic work on the disease atherosclerosis in which, through detailed examination of both the medical knowledges and practices used to treat the disease as well as diseased patients’ embodied experiences, she demonstrates that “no object, no body, no disease, is singular. If it is not removed from the

bioconservative ideal of dignity are products of particular Western intellectual genealogies, Kantian and Aristotelian respectively, that attempt to enshrine their values as universal goods. We must therefore ask: What histories and futures, what lived realities, go unwritten in the pages of enhancement texts? And what are the risks of reducing difference to identity in bioethical theory and praxis?

On the other hand, the same essentialist language produces (binary) difference. Strong metaphysical oppositions between humans and technologies reinscribe a classical instrumentalism in which technologies are, or at least should remain, tools that ‘enhance’ human ends, rather than necessarily integral parts of the process of subject-formation. As a result, bioethical futures are framed as either ‘human’ or ‘posthuman’, either biological or technological, and the problem of biotechnological ethics is presented to readers as a straightforward oppositional choice: remain human as ‘we’ have ‘always been’ or become something altogether in- or post-human. Can an either/or ontological choice really capture the complex possibilities for being and acting that biotechnologies will afford? Just as scholars of religion seek to understand the discursive histories and consequences of their organizing categories, so too must bioethicists. The framework of human enhancement itself operates in the world it attempts to describe and influences the future it attempts to predict – sometimes far more subtly and dangerously than the people who use it seem to realize.

If this speaks to the exigence of discussing humanism in bioethics, what about posthumanism? Foremost, I have argued that posthumanist approaches demonstrate the conceptual incoherence of the predominant frameworks in bioethics. Insofar as subject-formation is a complex process of self-organization that extends through and coevolves with material artifacts, it makes

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practices that sustain it, reality is multiple.” Annemarie Mol, *The Body Multiple: Ontology in Medical Practice* (Durham, NC: Duke University Press, 2002), 6.

little sense to speak of biotechnological interventions as ushering in altogether non-human modes of life or to evaluate their ethical merit in terms of making us more or less human. When we take bioethicists' appeals to nature seriously, we, paradoxically, find that the either/or choice between human and posthuman, biological and technological, is invalid to begin with. The conceptual framework of human enhancement is not just reductionist or unethical; it is a category mistake.

Just as important, posthumanism goes beyond the aforementioned constructivist conclusion that all social life is in some sense discursive and, therefore, 'constructed'. Posthumanist philosopher Karen Barad's quantum physics-inspired framework of "agential realism" is instructive in this regard. Barad argues that constructivist approaches can, even unintentionally, forward a top-down relationship between language and materiality and, in so doing, reinscribe metaphysical distinctions between the domains we name as "social," "political" "economic," "natural," "cultural," "technological," and "scientific." For Barad, such thinking produces a traditional "mediation" model of human-apparatus relationships in which there are "two separate entities or realms of practice influencing one another in determinate regions."<sup>634</sup> Just as humans do not 'use' apparatuses in the instrumental sense though, "apparatuses are not external forces that operate on bodies from the outside; rather, apparatuses are material-discursive practices that are inextricable from the bodies that are produced and through which power works its productive effects."<sup>635</sup> Given that "human concepts are embodied" and "apparatuses are discursive practices," there is no prior discourse/material distinction that can act as an originary point of analysis.

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634 Karen Barad, *Meeting The Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007), 231.

635 Barad, *Meeting The Universe Halfway*, 230.

Not unlike the ideas of “assemblage” and “cyborg” we encountered in Chapter Five, Barad argues that we should instead begin from the fundamental metaphysical unit of “entanglement.” Insofar as material entities are always already engaged in, and being reconstituted through, relational activity, subjects and objects only ever “differentially emerge and are iteratively reworked” from prior entanglements.<sup>636</sup> These forms, however, can never become disentangled as such, for, as quantum physics shows us, no entity can exist in a non-relative, non-positional, or non-relational state. “Structures,” social or otherwise, should thus “be understood as material-discursive phenomena that are iteratively (re)produced and (re)configured through ongoing material-discursive intra-actions.”<sup>637</sup> The universe is, in essence, an ever-multiplying set of positive feedback loops, each of which is engaged in continuous processes of self-differentiation. Being, or rather “becoming,” is the (re)production and (re)configuration of entanglements all the way down to – or, in Barad’s case, all the way up from – the quantum scale.

Matter, however, is not just semantic and entangled in Barad’s framework; it is also agential. “*Matter*,” she explains, “*is substance in its intra-active becoming – not a thing but a doing, a congealing of agency.*”<sup>638</sup> When Barad speaks of “agency” though, she is not referring to a unique property of self-willing humans à la classical descriptions of autonomy. Agency, here, refers to the emergence of difference in and through intra-active, material-discursive practices, i.e., changes in entangled phenomena’s ongoing materialization. This idea is more intuitive than Barad’s labyrinthine language would have us believe. Whenever an apparent set of boundaries, a “nodal point,” is produced – for example, when a demographic identity, a scientific theory, or a functional machine comes into existence – entanglements are reconfigured and a new set of

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636 Barad, *Meeting The Universe Halfway*, 239.

637 Barad, *Meeting The Universe Halfway*, 240.

638 Barad, *Meeting The Universe Halfway*, 151.

possibilities is afforded. This boundary work, in which matter materializes as difference, is agency. Matter, which replaces Man as the fundamental unit of action, is thus agential because it is active, causal, and differential.

Barad's framework leaves us with three important conclusions concerning constructivism. First, discourse is never immaterial; insofar as discourse (and, for that matter, power) are only ever a/effected through materialization, matter is a necessary condition of mattering. Texts, machines, institutions and other 'material' forms are not empty containers or neutral instruments for independently formed 'social' or 'ideological' ends. Second, the structures that emerge through discursive-material apparatuses are 'real' but non-essentialist, always already engaged in physical processes of (re)assembly that open new agential possibilities. Finally, then, critical reflexivity does not go far enough as an intellectual praxis. "Particular possibilities for (intra-)acting exist at every moment, and these changing possibilities entail an ethical obligation to intra-act responsibly in the world's becoming, to contest and rework what matters and what is excluded from mattering."<sup>639</sup> There is an ethical demand to differentially reiterate and re-materialize structures of power to effect new entanglements and, with them, new agential possibilities.

To this end, the broad coverage of posthumanism I provide in Chapter Five is supposed to be performative rather than just argumentative. It is intended to remind the reader that there are other theoretical means, including a deep diversity internal to posthumanism, through which we can contest and rework the category of human nature and its relationship to biotechnologies. Categorical binaries such as conservative/liberal, restrictive/permissive, and human/posthuman do not represent the entire spectrum of potential bioethical positions. The work of enhancing this discourse, however, begins at the level of ontology rather than just normative ethics; for, as we

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639 Barad, *Meeting The Universe Halfway*, 235.

have seen, the reductionism and binarism characteristic of the enhancement debate are very much the logical conclusions of taking the all-too-traditional human of human enhancement for granted.

### **6.3 From Theory to Praxis? Noise and Emergence**

“*So what solution do you propose?*” I have lost count of the times I have received some variation of this question after providing the elevator pitch for this dissertation or presenting a related paper at an academic or public conference. This question is equal parts uplifting and demoralizing. On one hand, it implies that I have persuaded the listener that there is a problem: a dissonance between our extant tools for doing bioethics and the ethical quandaries that biotechnological futures present. I have, at least on a surface level, succeeded in communicating the critique portion of the thesis. On the other hand, the listener is still waiting for the other argumentative shoe to drop, and the tacit assumption is that I must have cobbled together some one-size-fits-all footwear that will allow the field of bioethics to take its next big step. To be clear, I do not find this question demoralizing because, as I think most academics would begrudgingly admit, deconstructive work is easier than constructive work. I find it demoralizing because it asks for the same kind of solution as the one I am criticizing – something that can do the same catch-all theoretical and practical labor that the framework of human enhancement purports to do. In short, I have failed to communicate that we need different *kinds* of bioethical solutions and not merely a better version of human enhancement. I therefore want to use this final section to more precisely explain what I hope this project will (and will not) accomplish.

As we saw in Chapters One, Three, and Four, numerous moderate and liberal-leaning bioethicists have bemoaned the emergence of a polarized culture war in their field and the concomitant end of the ‘Great Compromise’ that common moral principlism represented. This discontent should be unsurprising given that the moral authority of bioethics originated from the

premise that there is a pre-existing moral consensus that bioethicists were merely discovering and applying. It follows that the less moral consensus there is within the field of bioethics, the less persuasive the idea of moral consensus as such is. This disaffection has most often been framed as a criticism of ‘politics’ or ‘ideology’ entering into the otherwise neutral, secular space of public bioethics. To the extent we find self-reflexive critiques of the enhancement debate, then, they tend to either call for a ‘return to the norm’ of common moral principlism or for liberals and conservative to find ‘commonsense’ common ground. For these critics, the enhancement debate and its constitutive biopolitical positions are too extreme and therefore demand moderation and purification.

In Chapter Three, I argued that the very idea of a neutral, secular public bioethics was incoherent; secularisms are no less ‘ideological’ than any other worldview. My criticism of this criticism, however, goes even further. Through this project, I mean to demonstrate that the enhancement debate is not extreme enough; we must challenge the common humanist ground of the current discourse and re-examine the bioethical subject itself. Put differently, the problem of the bioethical culture wars is not that there is *too much diversity* insofar as polarization forecloses the possibility of ethical consensus. The problem is that there is *too little diversity*, which leads to highly reductionist and exclusionary understandings of human nature. Wherever possible, the idea of consensus must be complicated and pushed, if not altogether dismantled. However counterintuitive, we must attempt to pollute rather than purify bioethical discourses.

My use of “purify” here draws on posthumanist philosopher Alexis Shotwell’s critique of “purity politics” in environmental ethics. Building on critical theory from environmental, disabilities, and feminist studies, Shotwell defines “purity politics” as any normative mode of thinking that simplifies the complexity of being in the world by aspiring toward re(producing)

completely uncompromised selves or environments. Like the critique of humanism that we have been developing, Shotwell takes particular aim at the interrelated ideas of a fixed, natural order that privileges a pre-given species-integrity and an autonomous individualism that positions individual humans as the exclusive agents of normative ethics. She argues that, however well-intentioned, the aspiration for both a pure self and a pure natural world “shuts down precisely the field of possibility that might allow us to take better collective action against the destruction of the world in all its strange, delightful, impure folic. Purism is a de-collectivizing, de-mobilizing, paradoxical politics of despair.”<sup>640</sup>

We can understand purism as a “politics of despair” in three interrelated senses. First, “Since it is impossible to avoid complicity, we do better to start from an assumption that everyone is implicated in situations we (at least in some way) repudiate.”<sup>641</sup> This is true in the now-familiar mode of social constructivism according to which the practice or performance of social norms reproduces extant, normative models of being and acting in the world. We are also, however, implicated in a more ‘natural’, ontic sense. To be human is to exist in a state of “viscous porosity” or “contaminated diversity” – a deep bodily reliance on, and openness to, our local environments. Whether it is desirable processes like breathing oxygen and metabolizing nutrients or undesirable ones like developing estrogen-responsive cancers and insulin resistances, “a human” is “coconstituted” in an “emergent interplay” between human and nonhuman agents. As Shotwell demonstrates through a number of case studies, this mode of “interdependence” has far reaching implications in our late capitalist world. For example, the long-term smelting of nickel alloy in Sudbury, Ontario has led to toxic acid rain that continues to cause disease and death at the local

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640 Alexis Shotwell, *Against Purity: Living Ethically in Compromised Times* (Minneapolis, MN: University of Minnesota Press, 2016), 9.

641 Shotwell, *Against Purity*, 5.

level. When we heat our homes with products made from nickel alloy smelted in Sudbury – a more common occurrence than we might expect – we are in some sense complicit in this unethical situation.<sup>642</sup> The point here is not to cast blame, at least not on individuals, but to remind the reader that, because we are necessarily interdependent, “we are compromised and have made compromises, and this will continue to be the way we craft the world to come whatever they might turn out to be.”<sup>643</sup> “The metaphysics of purity is,” thus, “a fragile fiction, a conceit under constant but disavowed threat – to affirm a commitment to purity is in one move to glance at the entanglement and constitution, the impurity, of everything and to pretend that things are separate and unconnected.”<sup>644</sup> Purism is a politics of despair because it belies the necessarily impure reality of our situation and thus aspires toward an impossible and impractical end.

Second, the purist conceit of metaphysical individualism mistakenly places the onus of normative ethics on individual persons. This is true for how we conceive of both the means and ends of ethical life. Following the Kantian tradition, ethics is taken up as a project in which goodness is achieved through you or I, *as individuals*, acting in accordance with binding moral principles. In turn, the larger end of ethics is imagined as the production of a pure, moral, individual self.<sup>645</sup> In other words, metaphysical individualism lends itself to a self-centered moral worldview that both inhibits recognizing ethical problems as shared problems and disincentivizes acting collectively to address them. “If,” however, “we see that the social world, and its transformation,

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642 For her use of these terms as well her discussion of nickel alloy smelting, see: Shotwell, *Against Purity*, 77-106.

643 Shotwell, *Against Purity*, 5.

644 Shotwell, *Against Purity*, 16.

645 The choice to invoke Kant here is mine rather than Shotwell’s. While moral perfection was an asymptotic end for Kant, it is important to note that it entailed individuals achieving an ideal balance between obligation and inclination. To be clear, morality here is not ‘selfish’; after all, obligation is about what we owe to others. But it is nevertheless self-interested and self-directed in that it is an individual and internal project of deriving rational maxims in the pursuit of personal moral perfection. This interpretation of Kant’s moral philosophy comes from my own reading of Kant’s *Second Critique*. Immanuel Kant, *Critique of Practical Reason*, trans. Marcus Weigelt (London: Penguin Classics, 2007).

is what matters more than the individual body, which was never individual,” we are invited to approach norms through lenses other than voluntarism.<sup>646</sup> For Shotwell, a longtime environmental activist, this is a personal and pragmatic, rather than just theoretical point. “The point is to *change the world, this world*, and so the point is complicated, compromised, and impossible to conceptualize, let alone achieve alone.”<sup>647</sup> “Individuals” might “catalyze change,” she explains, “but change only happens collectively.”<sup>648</sup>

Third, just as purism can conflate the nature of effective ethical action, it can also misidentify what is ethically problematic in the first place. I mean this less in terms of the aforementioned individualizing of moral problems and more in terms of the specific norms according to which we evaluate the merit of a situation. Let us take another example from Shotwell: studies on the exposure of frogs to the commonly used herbicide Atrazine. Frogs are often used as an “indicator species” to test how particular chemical compounds might affect their human counterparts. While Atrazine was shown to have ‘harmful’ effects on frogs, this harm was frequently described by scientists in terms of feminization and homosexual behavior, vis-a-vis a rise in estrogen levels, which could indicate similar effects in humans from long-term exposure. While these studies were intended to further environmentalist causes, “the subtext of this discourse is that feminization or queerness are harms to be avoided and the reasons to pursue noncontaminated waters and bodies.”<sup>649</sup> The point here is not that ethical concerns about the effects of Atrazine and similar chemical compounds are unfounded; rather, the point is that in choosing to both privilege species-integrity as a necessary good and define that integrity in terms

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<sup>646</sup> Shotwell, *Against Purity*, 157.

<sup>647</sup> Shotwell, *Against Purity*, 196.

<sup>648</sup> Shotwell, *Against Purity*, 163.

<sup>649</sup> Shotwell, *Against Purity*, 93.

of possessing a masculine, straight, and abled body, all deviations – in frogs and humans alike – are implicated as undesirable. Differences from established norms, whether extant or potential, becomes unethical in and of themselves.

Situated in social contexts, science is never value-neutral, and the taxonomic and narrative work ‘naturalization’ enacts can, paradoxically, multiply the kinds of harms it tries to diminish. “The narrative we use to explain the world,” Shotwell explains, “structures what we do in it. So we can ask, what happens if we use *this* narrative to make *these* changes in the world?”<sup>650</sup> In this case, Shotwell argues that there is an ethical demand to “attend more to harms that don’t happen to reinforce already entrenched social stigmas.”<sup>651</sup> Shotwell clarifies that she is not calling for the rejection of normativity as such – after all, norms are necessary features of social life – but rather for the active prioritization of “open normativities,” i.e., “those normativities that prioritize flourishing and tend toward proliferation, not merely replacing one norm with another.”<sup>652</sup> Flourishing here is ambiguously defined as, “well-being at the individual, species, and community level,” which “will continue to be an undecided and in-process norm.”<sup>653</sup> For Shotwell, this (intentionally) capacious judgment about what “deserves a future” depends on two identifiable ethical criteria. First, the normativities we enact must reflect the interdependent nature of being, accounting for the wellbeing of not just individuals and not just humans; when we make our compromises, we must think in terms of “harm distribution.” Second, “norms that flatten complexity” and foreclose the emergence of new or different norms ought to be “rejected.”<sup>654</sup>

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650 Shotwell, *Against Purity*, 101.

651 Shotwell, *Against Purity*, 96.

652 Shotwell, *Against Purity*, 155.

653 Shotwell, *Against Purity*, 155.

654 Shotwell, *Against Purity*, 155-156.

From metaphysical and ethical individualism to the naturalization of extant social norms and stigmas, the human enhancement debate is no less purifying than the examples of environmental ethics Shotwell criticizes. Whether it is the bioconservative glorification of the (purported) human as is or the bioliberal imagining of the enhanced posthuman, the enhancement debate is best understood as a set of conflicting aspirations for a pure, individual self. In terms of what I hope to accomplish then, I hope to show that this particular discourse is a fiction – or rather a confluence of narratives – that simplifies the complexity of being in the world. More specifically, the models of subjectivity we pick up in telling narratives about biotechnologies structurally prioritize some values over others. In the case of the human enhancement debate, we are invited to view the world in essentialist, oppositional, and hierarchical terms – to, however well-intentioned, view life as an individualist and anthropocentric project that closes rather than opens ulterior normativities and reduces biotechnological development to an individual, binary choice.

In invoking a wide range of frameworks of interrelation and interdependence, I do not just mean to demonstrate that the anthropocentric individualism of humanism is ‘wrong’ or ‘harmful’. Rather, the point is that beginning from relationality rather than individuality at the level of ontology can have important implications for how we do (bio)ethics. When we approach subjectivities and actions as distributed, we are also invited to approach our interests and consequences in the same fashion. This means more than just considering who gets left out or marginalized through discourses or practices of human enhancement. It means calling into question whether the improvement of individual capacities (or the individual right to make such decisions) should be the preeminent lens through which we imagine and evaluate biotechnologies in the first place. On one hand, this entails taking seriously the criticism that the principle of autonomy has become disproportionately privileged over the principle of (distributive) justice in

bioethics (or at least in this particular instantiation of bioethical debate).<sup>655</sup> On the other hand, it entails acknowledging – as scholars from animal studies and environmental studies have long demonstrated – that biotechnological research and development also has a profound impact on non-human animals and local and global environments.<sup>656</sup>

In doing so, we can begin to see not just that our ‘individual’ choices resonate outside of their immediate effects, but also that those effects are circular, i.e., fed back into the environments and relations that constitute our existence. Let us take a mundane but profound example of this kind of (biotechnological) feedback: genetically engineered (GE) crops and honey bees. Like any genetically modified organisms (GMO), GE crops are living organisms whose genetic material has been ‘artificially’ manipulated to produce genes that do not occur in nature or through traditional crossbreeding. Most GE crops have been modified for the purpose of tolerating herbicides and pesticides that are regularly used to kill harmful weeds and insects.<sup>657</sup> As weeds have developed resistances to herbicides and insects have developed resistances to pesticides, however, we are beginning to see increased usage of both of these kinds of chemical substances in some contexts – an occurrence afforded by GE crops high genetic tolerance for them.<sup>658</sup> This

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655 See, for example: Daniel Callahan, “Bioethics and the Culture Wars” *Cambridge Quarterly of Healthcare Ethics* 14, no. 4 (2005): 424-431. Ruth Macklin takes a particular version of this stance in arguing her chief focus is “striving for greater social justice within and among societies, and reducing disparities in health, wealth, and other resources among populations in the world.” Sally Satel, “The Limits of Bioethics,” Hoover Institution, Stanford University, February 1, 2010, <https://www.hoover.org/research/limits-bioethics>.

656 See, for example: Gary S. Saylor, John Sanseverino, and Kimberly L. Davis, ed., *Biotechnology in the Sustainable Environment* (New York: Springer, 1997). Richard Twine, *Animals as Biotechnology: Ethics, Sustainability, and Critical Animal Studies* (London: Routledge, 2010).

657 For an overview of the rapid increase in biotech crops and the economic gains, see: International Service for the Acquisition of Agri-Biotech Application, “ISAAA Brief 26-2013: Executive Summary,” accessed July 13, 2021, <https://www.isaaa.org/resources/publications/briefs/46/executivesummary/>.

658 While the increased usage of herbicides is largely an accepted empirical observation, the increased usage of pesticides is a contested data point. My claim that both of their usages have increased comes from two data sets, including USDA surveys: Charles Benbrook, “Impacts of Genetically Engineered Crops on Pesticide Use: The First Thirteen Years,” The Organic Center, accessed July 30, 2021, <https://civileats.com/wp-content/uploads/2009/11/13Years20091112.pdf>. Charles M. Benbrook, “Impacts of Genetically Engineered Crops on Pesticide use in the U.S.: The First Sixteen Years,” *Environmental Sciences Europe* 24, no. 1 (2012): 1-13.

increased usage (in addition to the introduction of altogether new pesticides) is speculated as one potential cause, along with habitat loss and climate change, for a massive decrease in honey bee colonies, especially during overwintering, in the United States.<sup>659</sup> Unfortunately, honey bees are the most numerous and efficient pollinator species in the world, pollinating over 100 crops grown in North America, not to mention contributing to a host of other vital ecosystemic processes. With “colony collapse” occurring at a record and unpredictable rate, experts have warned that the disappearance of honey bees could have “catastrophic” effects for agricultural food supplies, causing both local and global food shortages.<sup>660</sup>

If this seems far afield from the question of human enhancement, that is because it is; it is a reminder that while human evolution is indeed ongoing, it is also collaborative and complex. While I am by no means claiming that bioethics should be simply be reduced to environmental studies, I am suggesting that the stakes of biotechnological research and development – including when directed toward therapies and enhancements for human bodies – are bigger than just the modification of individual genetic codes or neural networks. The cascading effects of biotechnologies resonate and loop through nature-culture-media continuums – a point that is far too easily belied by the humanist framing of the enhancement debate. Beginning from ontological relationality rather than individualism, even just as a heuristic choice, invites us to ask questions beyond the deep immediacy of individual human dignity and flourishing. We do not need literal cognitive enhancements to do this;<sup>661</sup> we need bioethical frameworks that privilege subjectivity as

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659 CCD Steering Committee, “Colony Collapse Disorder Progress Report CCD Steering Committee,” Agricultural Research Service, United States Department of Agriculture, June 2012, <https://permanent.fdlp.gov/gpo16913/files/ccdprogressreport2012.pdf>.

660 Jacob Rowenson, *Fruitless Fall: The Collapse of the Honey Bee and the Coming Agricultural Crisis* (New York: Bloomsbury, 2008).

661 This is a reference to Ingmar Persson and Julian Savulescu’s claims that the ‘immediacy’ of our ethical thinking is the straightforward result of evolutionary and cognitive limitations and, therefore, can only be addressed through

a relational, embodied, and differential phenomenon. We are all compromised and will continue to be so; but the compromises we make need not be grounded in dualistic, anthropocentric worldviews.

Like Shotwell though, I believe the first step towards making this a reality is taking up a stance of ‘againstness’. My primary imperative, then, is “to be against without predicting all the things there are to be for. Being against in this way – having a ‘no’ – involves also the Zapatismo invocation of the possibility of ‘many yesses.’”<sup>662</sup> Just as Shotwell is against purity, I am against human enhancement. Not against the use and development of biotechnologies, at least not as such, but the reproduction of human enhancement as a categorical hermeneutic. Above all, this project is a call to abandon the framework of human enhancement in bioethics and to begin to develop and center non-humanist approaches for our posthuman moment. It is a ‘scream’ of “no!” In the hopes of opening future yesses.

I do not believe this goal can be achieved alone or through pure substitution. In centering posthumanist frameworks, then, I mean to introduce a counterweight – rather than a ready-made framework for applied ethics – that can help us rethink the fundamental values and ends being prioritized in bioethics. I am, to use Serres’ language, a parasite – an uninvited guest channeling noise into the discursive field of bioethics so as to push the system further from its equilibrium and towards a more complex, adaptive reorganization. While we might do well to retain the recognition and dignity associated with the subject position of the humanist human, there is also much to be gained from beginning with ontological relation and the concomitant recognition of

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bio- and neuro-technological intervention. See, for example: Ingmar Persson and Julian Savulescu, *Unfit for the Future: The Need for Moral Enhancement* (Oxford: Oxford University Press, 2012).

<sup>662</sup> Shotwell, *Against Purity*, 19.

interdependence, difference, and embodiment in narrating biotechnological futures or the lack thereof.

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