



Sacred Heart
UNIVERSITY

Sacred Heart University
DigitalCommons@SHU

Master of Arts in Religious Studies (M.A.R.S.
Theses)

Philosophy, Theology and Religious Studies

5-2015

Shepherding Electric Sheep: A Roman Catholic Response to the Emerging Challenge of Transhumanism

Joshua St.Onge
Sacred Heart University

Follow this and additional works at: https://digitalcommons.sacredheart.edu/rel_theses

 Part of the [Biotechnology Commons](#), [Catholic Studies Commons](#), and the [Religious Thought, Theology and Philosophy of Religion Commons](#)

Recommended Citation

St.Onge, Joshua, "Shepherding Electric Sheep: A Roman Catholic Response to the Emerging Challenge of Transhumanism" (2015). *Master of Arts in Religious Studies (M.A.R.S. Theses)*. 27.
https://digitalcommons.sacredheart.edu/rel_theses/27

This Thesis is brought to you for free and open access by the Philosophy, Theology and Religious Studies at DigitalCommons@SHU. It has been accepted for inclusion in Master of Arts in Religious Studies (M.A.R.S. Theses) by an authorized administrator of DigitalCommons@SHU. For more information, please contact ferribyp@sacredheart.edu, lysobeyb@sacredheart.edu.

**SHEPHERDING ELECTRIC SHEEP: A ROMAN CATHOLIC RESPONSE TO THE
EMERGING CHALLENGE OF TRANSHUMANISM**

JOSHUA ST.ONGE

SACRED HEART UNIVERSITY

MAY 2015

**SHEPHERDING ELECTRIC SHEEP: A ROMAN CATHOLIC RESPONSE TO THE
EMERGING CHALLENGE OF TRANSHUMANISM**

By

Joshua St.Onge

Master's Thesis

Submitted to the Faculty of Theology and Religious Studies at

Sacred Heart University

Fairfield, Connecticut

May 2015

This thesis is accepted in partial fulfillment of the requirements for the degree of
Master in Arts of Religious Studies

Onoriode Ekeh, Ph.D.

Assistant Professor of Theology and Religious Studies

Date

Permission for photocopying or microfilming of SHEPHERDING ELECTRIC SHEEP: A ROMAN CATHOLIC RESPONSE TO THE CHALLENGE OF TRANSHUMANISM for the purpose of individual scholarly consultation or reference is hereby granted by the author. This permission is not to be interpreted as affecting publication of this work or otherwise placing it in the public domain, and the author reserves all right of ownership guaranteed under common law protection of unpublished manuscripts.

Joshua St.Onge

Date

DEDICATION

This thesis is dedicated to my family: Brian St.Onge, my father, MaryEllen St.Onge, my mother, and Lauren St.Onge, my sister. Without their love, prayers, and support I would never have finished this work.

ACKNOWLEDGEMENTS

I am deeply grateful to Dr. Onoriode Ekeh, my thesis advisor, for his guidance in this endeavor. His thoughtful consideration of my ideas and his willingness to journey with me through this process helped make this work far better than it would otherwise have been. His example of scholastic mentoring has taught me how to be a better teaching to my own students.

I also thank all the faculty and staff of the Sacred Heart University Theology and Religious Studies department, especially Dr. Brian Stiltner, chair of the department and the gentleman who got my thesis going, Dr. June-Ann Greeley, who initially drew me to the MARS program and whose encouragement kept me going, Leslie Light, who keeps everything in the department going, and all the professors whose classes I was privileged to take.

Additionally, I thank my fellow MARS students in the class of 2015: David, Stacy, and especially Trevor; your presence made the classes we shared even more rewarding.

My colleagues at Notre Dame Catholic High School of Fairfield, especially Principal Christopher Cipriano, were a constant source of encouragement, and for that I am very grateful.

Finally, I thank my family and friends for their support, and I give gratitude and praise to God, with Whom all things are possible. AMDG.

ABSTRACT

Transhumanism is a philosophical, political, and social movement that asserts that human well-being will be dramatically improved through the radical integration of new technologies into the human body and/or through the replacement of the organic human body with a synthetic 'body.' Ray Kurzweil, a dynamic, articulate, and leading transhumanist, offers an anthropological understanding that represents the main strand of transhumanist thought about the human person: humans are patterns of information that can adjust themselves, and overcoming limitations is the defining human characteristic. This anthropology is implicit in many aspects of Western civilization already: law, medicine, and the military are a few examples of where it currently exists. This anthropology is attractive to modern people because of its promise of self-enhancement, but it is dangerous because it objectifies the human person, especially the body. The Roman Catholic Church's anthropology, as explained in the document *Gaudium et spes*, offers a more authentic understanding of the human person, and the Church must act now to share its anthropology with both Catholics and non-Catholics in order to better fulfill its mission.

Shepherding Electric Sheep:
A Roman Catholic Response to the Emerging Challenge of Transhumanism
Joshua St.Onge

Table of Contents

Introduction: A Brave New World.....	9
Chapter One: Transhumanism Today.....	13
Transhumanism on Screen	14
Transhuman Influence	19
Mr. St.Onge's Graduate Thesis Survey Part 2	20
Transhumanism in the Military and Medicine.....	23
Morphological Freedom and Law.....	26
Chapter 2: Ray Kurzweil's Singulitarianism	30
Patternist Anthropology.....	30
Singularity 101: The Law of Accelerating Returns.....	33
Singularity 102: GNR.....	37
Genetics.....	38
Nanotechnology	39
Robotics: AI	41
The Feasibility and Consequences of the Singularity.....	42
Conversations with Ray: Sex	43
Conversations with Ray: God.....	45
Chapter 3: The Second Vatican Council.....	49
Transhumanist Faith.....	49
The Anthropology of the Second Vatican Council	52
Sin	54
Body and Soul.....	56
The Interior Moral Law	58
Freedom	61
Roman Catholic Anthropology in Summary	64
Conclusion: Truly Human Anthropology.....	66
Mr. St.Onge's Graduate Thesis Survey Part 2	73
APPENDIX III: NANOBOTS ADULT SURVEY AND RESULTS	74

Introduction: A Brave New World

In February, 2015, the two houses of parliament of the United Kingdom passed a law that would allow the creation of children with three genetic parents; the law goes into effect in October of 2015.¹ This law was passed to, "permit controversial IVF techniques which are aimed at preventing serious inherited mitochondrial diseases."² It is clear that the law was passed with good intentions. By ensuring that problematic mitochondrial DNA does not get passed from parents to children, doctors can prevent the proliferation of mitochondrial diseases.

But two unprecedented events will occur because of this law. The first is the obvious one: there will soon be human beings alive on this planet with three genetic parents. Granted, the genetic code of mitochondria is not equivalent to the genetic code of a cell's nucleus, but the code does get passed down to subsequent generations, which leads to the second unprecedented event: a human society has sanctioned the genetic modification of its people's germ-line. Humanity is consciously and intentionally taking over the role of natural selection through government policy. The children with three genetic parents will pass their modified mitochondria to their offspring.³

There is the possibility of a far more controversial unprecedented event occurring thanks to biological research: the creation of an IVF technique that will allow the two parents of the embryos created to be of the same sex.⁴ The existence of human beings whose genetic parents are the same sex seems to be the stuff of science fiction. Yet real scientific research suggests

¹ Knapton, Sarah, *Three-parent babies: The House of Lords approves law despite fears children could be born sterile*, *The Telegraph*, February 24th, 2015, web: <http://www.telegraph.co.uk/news/science/science-news/11432058/Three-parent-babies-House-of-Lords-approves-law-despite-fears-children-could-be-sterile.html>

² *Ibid.*

³ If they can have offspring. This may be something we do not learn for another two decades.

⁴ Dovey, Dana, *Stem Cell Breakthrough Opens Door For Two-Dad Babies In As Little As 2 Years*, *Medical Daily*, February 24th, 2015, web: <http://www.medicaldaily.com/stem-cell-breakthrough-opens-door-two-dad-babies-little-2-years-323350>; Link to an abstract of the study referenced by the article: <http://www.ncbi.nlm.nih.gov/pubmed/25543152>

that it is possible. If three-parent children are going to be conceived in the United Kingdom in order to prevent mitochondrial disease, then it is reasonable to suggest that IVF techniques that allow two men or two women to have genetic offspring together could also be legalized as a form of "infertility" treatment.

Such changes to the way human life begins implicitly call into question what it means to be human. Before this point, the 'story' of a human being always started the same way, with one mother and one father. The degree of their involvement in their child's life varied, but that beginning was the same for every human being. In the future, that will not be the case, and so the meaning of being human may change as human origins change. More radical technological advancements promise even more control over the human form itself, thus adding another element to the question of what it means to be human. Indeed, if death itself becomes something that is, or is at least thought to be, preventable, then how might that change the understanding of what it means to be human?

Traditional anthropologies, such as that of the Catholic Church, must respond articulately to the unprecedented events happening in the modern world in order to remain relevant to modern people. Additionally, traditional anthropologies must engage with the new understandings of what it means to be human that are coalescing around the promise of powerful future technologies. In that these technologies would be directly integrated into the human body not as replacements of faltering systems, but as enhancements, further calls into question the meaning of being a human person.

An umbrella term for the various anthropologies that see technology as potentially radically transformational for humans in this way is transhumanism. There are different branches of this philosophical movement, but one that is especially well-developed is

Singulitarianism, a particular movement within transhumanism that has been championed by inventor Ray Kurzweil.

The purpose of this paper is to put Roman Catholic anthropology, particularly that of the Second Vatican Council, into critical dialogue with Ray Kurzweil's Singulitarianism. The main assertion of this paper is that modern Western culture, particularly American culture, is following an anthropological trajectory that will eventually lead it to agreement with Kurzweil's main anthropological points, and that the Roman Catholic Church would do well to recognize this trend and prepare itself for fulfilling its mission in a truly unprecedented future technological and cultural climate even as it critically engages the present culture.

In order to support the above assertion, this paper will be organized into three chapters: the first chapter will offer a definition of transhumanism and examine ways in which modern culture is already expressing certain transhumanist tendencies; the second chapter will explore Ray Kurzweil's Singulitarianism in detail and consider the logical consequences of the anthropology he promotes; the third chapter will contain a critical Roman Catholic response to Kurzweil's anthropology based on the anthropology of the Second Vatican Council.

The above structure has been adopted in order to demonstrate the importance of the task that lays before the Roman Catholic Church. If it is true that, "The joys and the hopes, the griefs and the anxieties of the men of this age... are the joys and hopes, the griefs and anxieties of the followers of Christ,"⁵ then the Church must read the signs of the times appropriately and effectively proclaim its own understanding of the human person so as to assist the world in navigating the advent of potent new technologies that raise anew that fundamental question, 'What does it mean to be human?'

⁵ *Gaudium et Spes*, 1 web: http://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_cons_19651207_gaudium-et-spes_en.html. Further references to this document will be designated by *GS* followed by the section number.

Chapter One: Transhumanism Today

Before modern culture can be examined for transhumanist elements, transhumanism itself must be defined. Rather than impose a definition on the movement, transhumanism should be allowed to speak for itself. A widely agreed upon definition of transhumanism exists on the Transhumanism FAQ, a webpage maintained by Humanity+. Humanity+ describes itself as an organization, "which advocates the ethical use of technology to expand human capacities."⁶ The definition of transhumanism it offers is as follows:

(1) The intellectual and cultural movement that affirms the possibility and desirability of fundamentally improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities.

(2) The study of the ramifications, promises, and potential dangers of technologies that will enable us to overcome fundamental human limitations, and the related study of the ethical matters involved in developing and using such technologies.⁷

The notion of enhancement is clarified in this way: "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. In doing so, we are not limited to traditional humanistic methods, such as education and cultural development. We can also use technological means that will eventually enable us to move beyond what some would think of as 'human'."⁸

In short, transhumanism advocates the improvement of the human body through the use of technology that interfaces with and/or modifies a human being's physical form. It can be distilled to a very simple premise by considering what it means to "eliminate aging" and "enhance human... capabilities." Transhumanism seeks to use technology to make humans more personally powerful than they are now, and effectively immortal. 'Powerful' in this sense means,

⁶ Humanity+ Mission Statement: <http://humanityplus.org/about/mission/>

⁷ Transhumanist FAQ: http://humanityplus.org/philosophy/transhumanist-faq/#answer_19

⁸ *Ibid.*

'able to put one's will into effect more easily.' Transhumanists see technology as a means to transcend mortality and finitude, to achieve a sort of apotheosis.

Of course, the technology of godhood does not currently exist, and even the most optimistic transhumanists (of which Ray Kurzweil is one) do not expect it to be available for at least a few decades. There is no cause to be concerned about superhumans⁹ rampaging down Main Street tomorrow morning. But, is the philosophy of transhumanism 'rampaging' through modern culture? An examination of popular entertainment would suggest that the answer to that question is a resounding, "Yes!"

Transhumanism on Screen

The corpus of Science-Fiction literature is replete with examples of transhumanist thinking.¹⁰ This literature, whether it comes in the form of philosophically serious novels or action-packed comics, has been developed for decades by talented creative thinkers. But only recently, with the utilization of powerful computer technology, has transhumanism been brought to life so convincingly on screen.¹¹ Two exceedingly popular forms of media will be briefly treated here: movies, which continue to dominate the popular culture; and video games, that most modern form of entertainment that lets players enter into and direct the action of the narratives they experience.

⁹ The preferred term for a human who undergoes transhumanist-style enhancement is "posthuman," not superhuman, and a discussion on what that term means to transhumanists can be found here:http://humanityplus.org/philosophy/transhumanist-faq/#answer_20. This discussion begins to deal with many of the "Sci-Fi" elements of transhumanism, and it serves as a good reminder that the belief in effective immortality through technology is characteristic of transhumanist thought.

¹⁰ Aldous Huxley's *Brave New World* is the best example of the sort of dystopia that I believe modern Western Culture is likely to become to a certain degree should current cultural trends continue, but popular dystopian novels recently written for young adult audiences such as *The Hunger Games* and *Divergent* offer some similar possibilities, too.

¹¹ Classic Sci-Fi movies like the original *Star Wars* trilogy certainly brought previously unimaginable sights to modern audiences, but modern Sci-Fi is more reflective of the influence of technology on human beings, and it typically downplays supernatural elements, like The Force, in favor of scientific explanations for mysterious powers. Even *Star Wars* followed this path with the introduction of midi-chlorians as a way to explain the powers of the Sith and the Jedi. Spirituality alone was not sufficient.

The first movie that merits attention is *The Avengers*, a 2012 release from Marvel Entertainment. It currently stands as the third-highest grossing worldwide box office success of all time.¹² The movie tells the tale of a band of super-heroes overcoming their differences and then coming together to defeat an intergalactic threat. Two of the characters, Captain America and Iron Man, gained their powers through explicitly transhuman means.¹³ Captain America was once a scrawny private named Steve Rogers. After being treated with the experimental Super Soldier Serum, he was transformed into a superhuman symbol of American military might. He became stronger, faster, and more adept at combat than any normal human could be, and it was thanks to him that the world was made safe from secret Nazi super-weapons being developed during World War 2.

Captain America's transformation from weakling to warrior extraordinaire was achieved through a radical form of bioengineering. The scientific details may not be perfectly accurate, but the underlying transhumanist point remains: engineering the human organism to create a more powerful body is a good thing, and, in a time of war, it may be a necessary thing. This notion of transhumanism allowing for a more potent military will be considered later, but for now it is important to note that it was radical bioengineering that gave Steve Rogers the power to be a real hero.

Unlike Steve Rogers, Tony Stark was never regarded as pathetic. A genius inventor, Stark eventually created the Iron Man suit. The suit is essentially a set of sophisticated, high-powered plate armor that allows Stark to fly, fire energy blasts from his hands, and withstand tremendous punishment from environmental hazards and super-powered foes. Stark is rightly

¹² Statistics available at <http://www.boxofficemojo.com/alltime/domestic.htm>

¹³ Their stories are depicted in the movies detailing their origins, *Captain America: The First Avenger*, (Marvel Entertainment 2011) and *Iron Man* (Marvel Entertainment 2008) and its sequels. The stories are briefly summarized here for the purpose of identifying the transhumanist elements they contain.

considered one of the most brilliant minds in the Marvel mythos due to his engineering achievements.

But the real secret of the Iron Man suit is not hardware, but software. Stark developed an artificial intelligence, J.A.R.V.I.S., that helps him operate his armor. J.A.R.V.I.S. monitors power levels, assesses threats, and handles communications with other people while Stark operates the Iron Man armor. J.A.R.V.I.S. can even operate the Iron Man armor without Stark being inside if Stark tells it too. Perhaps 'it' is not the right word. In the movies, J.A.R.V.I.S. is presented as character in his own right, dialoging with his creator and sometimes offering humorous comments. He even has a sort of death scene in the third Iron Man movie, where he tells Stark that he needs to rest, and Stark responds by asking him not to leave.¹⁴

J.A.R.V.I.S. is a computer, but he acts like and is treated as a person, albeit one that is a permanent servant of his creator. A facet of transhumanism that is particularly important to Ray Kurzweil is the development of artificial intelligence that, like J.A.R.V.I.S., is indistinguishable from an 'organic' person. Do the Iron Man movies intentionally set out to suggest that artificial intelligences that are essentially persons will some day exist? Probably not, but they can give support to that idea indirectly. It is this indirect support for transhumanism that movies like *The Avengers* can supply to modern culture that could slowly open people to the possibility of technological enhancement of their physical bodies. Again, the goal of transhumanism is to use technology to enhance the human body, perhaps to the point of replacing it, so films that show such efforts in a positive or heroic light could implicitly provide support for transhumanism.

Indeed, two other films deal directly with transhumanist themes. One is a recent release called *Transcendence* and features Johnny Depp as a scientist who achieves one version of

¹⁴ A clip can be viewed here: <https://www.youtube.com/watch?v=KQSLWQxzjjw>

transhumanist ascension by transferring his mind onto the worldwide computer network.¹⁵ Another is called *Chappie*, released on March 6th, 2015, and it investigates the possibility of artificially intelligent robots gaining sentience and demanding human rights.¹⁶ Neither movie had the box office success of the Avengers, but they both explore the consequences of the fulfillment of the transhumanist project in an explicit fashion. It is these films and others like them¹⁷ that will likely shape the way people think about transhumanism in a more serious way, but blockbusters like *The Avengers* will reach a wider audience.¹⁸

Video games can explore transhumanist themes to a greater extent than movies since they can tell their narratives over a longer period of time and are interactive by nature. Players can be exposed to more of the philosophy of transhumanism, and can make choices that reflect their thoughts about transhumanism. Two game series are especially noteworthy in this regard: *Mass Effect* and *Deus Ex*.

*Mass Effect*¹⁹ tells the story of Commander Shepherd, a human who must save the galaxy from a malevolent, artificially-intelligent fleet of starships called the Reapers. Over hundreds of hours of gameplay across three titles, the story of *Mass Effect* leads to a final choice between three possibilities. Commander Shepherd can destroy the Reapers, along with other sentient AIs who have relationships with the Commander. Shepherd can become a super-powerful synthetic intelligence and take control of the Reapers for the benefit of all life in the galaxy. Or Shepherd

¹⁵ A synopsis of the plot is available here: <http://www.imdb.com/title/tt2209764/>. The movie was not a blockbuster, but it deals directly with transhumanist themes.

¹⁶ The trailer lays out the conflict very well: <https://www.youtube.com/watch?v=l6bmTNadhJE>

¹⁷ Another movie with transhumanist themes is James Cameron's *Avatar*, and it may serve as a good model for how a blockbuster film can make transhumanist elements explicitly central to its storyline and cast these elements in a positive light..

¹⁸ Of course, the next Avengers movie is about a homicidal AI that threatens to wipe out humanity, so it would be unfair to suggest that blockbusters cannot deal with transhumanism directly. Unfortunately, that movie will be released too late for consideration in this paper.

¹⁹ As of April 2012, the *Mass Effect* series has sold over 10 million units worldwide. Link: <http://www.vgchartz.com/article/250066/mass-effect-a-sales-history/>

can trigger the fusion of organic and synthetic life throughout the galaxy, thus making the Reapers' mission of destroying organic life obsolete. The game subtly steers the player toward the third choice, though all three endings are similar in their effects on the game world. But the third choice is blatantly transhumanist, as it achieves the integration of organic life with technology in one stroke. Within the context of the game, the most thoroughly transhumanist choice is the one that is presented as the best.²⁰ This implicit advocacy for transhumanism could influence people who play the game, not unlike that of philosophically-oriented works of Sci-Fi literature.

But the game series that makes the development of enhancement technology an essential part of the plot, and thus deals most directly with transhumanism, is *Deus Ex*. While not selling as well as *Mass Effect*,²¹ the most recent game in the *Deus Ex* series, *Human Revolution*, sold over two million units worldwide.²² It tells the story of Adam Jensen, the chief of security at a technology firm that is forcibly augmented after suffering mortal wounds in an attack on his company. Adam is unknowingly the test subject of an experiment that eventually allows all humans to use augmentation without their bodies rejecting the enhancements.²³ The story is very critical of corporations and warns of the dangers that such technology can pose, but it makes it clear that the future is transhumanist, and it seeks to elicit a response from the player about the moral status of human augmentation.

²⁰ I base my assessment of the game's ending on my own playthrough of all three *Mass Effect* titles. A Google search of "mass effect transhumanist ending" suggests that I am not alone in my assessment. Link: <https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=mass%20effect%20transhumanist%20ending>

²¹ The *Deus Ex* series has sold just under 4 million units worldwide. Link: <http://www.vgchartz.com/gamedb/?name=Deus+Ex>

²² *Ibid.*

²³ The name Adam was not chosen on a whim. A hero who comes later in the *Deus Ex* timeline is called JC Denton, with the JC referring to Jesus Christ. The series has always engaged in philosophical storytelling.

Transhuman Influence

The examples of transhumanism in popular culture are important because popular culture influences the way people think about life, including their implicit anthropological assumptions. Yet, while establishing that transhumanism is being explored in popular culture is well and good, that it exists in the culture by no means demonstrates that people are taking any particular stance on transhumanist ideas. What do people really think about the transhumanist proposal that technology should be used to enhance the human body?

The author of this paper conducted two informal surveys to attempt to get a sense of what people, especially young people, think about transhumanism. The first survey was a series of fourteen statements respondents were asked to rank from 1 to 5, with 1 meaning "strongly agree" and 5 meaning "strongly disagree." Two-hundred-and-nine high school freshman and sophomores completed the first survey.²⁴ The second survey went into more detail about a specific transhuman enhancement scenario, and it will be explained in greater detail below.

Some data from the first survey demonstrated an uneasiness with the most radical aspects of transhumanism. Only 19% of respondents strongly agreed or agreed with the statement, "I would permanently replace a healthy body part with technology that does a better job so I could be stronger/faster/smarter, etc.," while over 59% strongly disagreed or disagreed with it. Just over 11% strongly agreed or agreed with the statement, "If there was technology that could make me live forever, but I would have to significantly change or give up my body to use it, I would use it," and 66% of respondents strongly disagreed or disagreed with it. The statement, "If machines in the future demonstrated that they were intellectually equal to humans, they would deserve human rights," garnered only about 10% strong agreement or agreement, while over 59% of respondents strongly disagreed or disagreed with the idea.

²⁴ The students were from Notre Dame Catholic High School in Fairfield, where I teach. They received no grade or other incentive for participating in the survey.

But some of the data suggest a greater openness to transhumanism than may be generally assumed. The statement, "Computers will never be as smart as humans," was supported by just under 25% of those surveyed, and of the those that were open to the possibility of computers being as smart as humans, 31% directly disagreed with the statement. When a similar statement, "Artificial intelligence that is at least as smart as the average human being will exist within 15 years from today," was posed, only 13.8% strongly disagreed or disagreed with it. The overwhelming majority of students were, in principle, open to the possibility of AIs with a human level of 'smartness' coming into being by 2030. Finally, the statement, "I would put microscopic robots in my bloodstream if they were considered safe and they made me healthier," had just over 35% of respondents strongly disagreeing or disagreeing with it, while the majority of students surveyed were at least open to the possibility, with over 28% strongly agreeing or agreeing to have the microscopic robots, or nanobots, implanted.

That final statement mentioned above was the subject of the second survey. This survey was a detailed exploration of the uses of nanobots, and how comfortable students would be with these various uses. This population numbered two-hundred-and-thirty-two freshmen and sophomores and included those students who took the first survey.²⁵ The entire survey is reproduced below:

Mr. St.Onge's Graduate Thesis Survey Part 2

Imagine you had access to one of the technologies mentioned in the previous survey: nanobots. These microscopic robots can replicate themselves and communicate with each other wirelessly. They can be implanted in human beings to serve a variety of functions. They can make you healthier, connect you to an expansive virtual reality network (think of it as a super-internet), and even give you access to an artificially intelligent personal assistant, like Siri, only much, much smarter. These nanobots function like your body's cells in that they fulfill their jobs without you thinking about

²⁵ I chalk up the discrepancy between the numbers to students being absent for the first survey, and that survey being significantly longer than the second one. A few copies of the first survey were returned to me blank.

them, unless you wanted to use the more advanced features as well as the basic ones. The advanced features require you to think to activate them. The basic features will always happen automatically. Below are a series of numbers. Each number has a corresponding statement. Please circle the number that best represents what you would do if you had access to this technology. Remember, only the features that you want to use will be unlocked. The nanobots will not do something you do not want them to do.

0 - I would not put nanobots in my body.

1 - I would put nanobots in my body so that they could help my immune system destroy germs, heal injuries, and eliminate dangerous things like cancer cells. *This feature is basic and would happen automatically.*

2 - I would put nanobots in my body for everything in **1** and so that I could eat as much as I want without ever having negative consequences; the nanobots would eliminate all the excess and harmful particles I consumed. *This feature is basic and would happen automatically.*

3 - I would put nanobots in my body for everything in **1** and so that I could access the virtual reality network with my mind. I understand that this means that the nanobots would be connecting directly with the nerve cells in my brain. *This feature is advanced and would be activated by your thoughts.*

4 - I would put nanobots in my body for everything in **1** and **3** and so that I could access a super-intelligent personal assistant with my mind. I understand that I would be communicating with an artificial intelligence with my thoughts, and I understand that I would have to be able to connect to the virtual reality network so that that artificial intelligence could find information for me and do the things I wanted it to do. *This feature is advanced and would be activated by your thoughts.*

5 - I would put nanobots in my body for everything in **1, 2, 3, and 4.**

About 31.4% of students chose response 0, which corresponds well with data from the first survey. Another 31.4% chose response 1, indicating that they were primarily interested in the health benefits nanobots could offer them. Just over 19.8% of respondents choose 2 as their response, and just over 3% chose 3 as their response. But 2.16% chose 4 and 12.07% chose 5 as their response, indicating that over 14% of respondents were comfortable directly interfacing with an artificial intelligence with their minds. In other words, 14% of respondents were comfortable 'sharing space' with an AI in their bodies. This integration of organic and synthetic intelligence is key to the kind of transhumanism promoted by Ray Kurzweil, as shall be seen in the next chapter. Given that much smaller minorities of the American population recently have

made dramatic impacts on societal norms regarding the meaning of the human body, 14% is not a number that should be ignored.

In order to establish a comparison with an adult population, this survey also was offered to friends and acquaintances of the author of this paper.²⁶ 66 individuals responded, and, while over 93% of these respondents were 21 years of age or older, nearly 75% of respondents were between the ages of 21 and 35. In other words, the respondents were primarily adults, but they were mostly younger adults, so the transhumanist influence of movies and especially video games presumably would be more pronounced.

The adults who took the survey were generally more transhumanist than the students. Only about 21% chose option 0, 33% chose option 1, and over 25% chose option 2. Just over 3% chose option 3, just over 4.5% chose option 4, and just over 12% chose option 5. So opposition to receiving nanobots decreases dramatically when adult and student respondents are compared, and over 16.5% of the adults surveyed chose the most radical augmentation option.

This survey is not meant to be taken as hard evidence of implicit or explicit transhumanism existing in the minds of Americans today. But it does suggest that there is real openness to some of the key ideas presented by transhumanists among significant portions of the American populace, and, perhaps more importantly, it may indicate that there is a belief on the part of enough modern people that such technology can and will come into being in the relatively near future. But what does it say about the philosophical anthropology of people today?

One key statement from the first survey touches on an anthropological point. The statement was, "People should be able to do whatever they want with their bodies." Over 46% of respondents agreed with that statement, and only a little more than 19% disagreed with it. While it is both possible and likely that many of the students who agreed with this statement did not

²⁶ Through surveymonkey.com and Facebook. Link: <https://www.surveymonkey.com/r/29BTBL3>

think through all the ramifications of this notion (especially with regard to transhumanism), the fact that so many agreed with it to any extent is good news for transhumanists. The concept of 'morphological freedom,' is one that directly connects to the idea of this sort of ownership of one's body, and morphological freedom is a principle that has been used by some transhumanists to justify the radical augmentations of the human form that individuals may want to undergo in the future.²⁷ Agreeing that people should be allowed to do whatever they want with their bodies, even if one does not plan to augment oneself, lends support to transhumanists.

Transhumanism in the Military and Medicine

But science-fiction dreams of radically new and different bodies are not yet being realized in the present, so, why highlight the level of implicit transhumanism in attitudes among the young today? The answer is that today's young people are becoming today's and tomorrow's soldiers, and the military is already working hard on bringing transhuman technology to bear on the battlefield.

DARPA, the research arm of the United States military, has formed a branch called the Biological Technologies Office.²⁸ This mission statement of the BTO is as follows:

The mission of the Biological Technologies Office (BTO) is to foster, demonstrate, and transition breakthrough fundamental research, discoveries, and applications that integrate biology, engineering, and computer science for national security. BTO seeks to establish and invest in new communities of scientific interest at the intersection of traditional and emerging disciplines. Its investment portfolio goes far beyond life sciences applications in medicine to include areas of research such as human-machine interfaces, microbes as production platforms, and deep exploration of the impact of evolving ecologies and environments on U.S. readiness and capabilities. BTO's programs operate across a wide range of scales, from individual cells to complex biological systems including mammalian and non-mammalian organisms and the macro- and micro-environments in which they operate.²⁹

Some of the research projects the BTO is working on include: developing "the technologies needed to reliably extract information from the nervous system, and to do so at a scale and rate

²⁷ For a detailed defense of morphological freedom, See Anders Sandberg's essay *Morphological Freedom* in More, Max, and Vita-More, Natasha, eds., *The Transhumanist Reader*, 2013 Wiley-Blackwell, pg 56-64. References to this work will be indicated as Sanders, followed by the page number.

²⁸ Link: http://www.darpa.mil/Our_Work/BTO/

²⁹ *Ibid.*

necessary to control many degree-of-freedom (DOF) machines, such as high-performance prosthetic limbs;"³⁰ manipulating living structures to, "leverage the unparalleled synthetic and functional capabilities of biology to create a revolutionary, biologically-based manufacturing platform to provide access to new materials, capabilities and manufacturing paradigms for the DoD and the Nation;"³¹ and creating a new type of body armor called the Warrior Web that:

is a lightweight, conformal under-suit that is transparent to the user (like a diver's wetsuit). The suit seeks to employ a system (or web) of closed-loop controlled actuation, transmission, and functional structures that protect injury prone areas, focusing on the soft tissues that connect and interface with the skeletal system. Other novel technologies that prevent, reduce, ambulate, and assist with healing of acute and chronic musculoskeletal injuries are also being sought.

In addition to direct injury mitigation, Warrior Web will have the capacity to augment positive work done by the muscles, to reduce the physical burden, by leveraging the web structure to impart joint torque at the ankle, knee, and hip joints. The suit seeks to reduce the metabolic cost of carrying a typical assault load, as well as compensate for the weight of the suit itself, while consuming no more than 100 Watts of electric power from the battery source.³²

The BTO Programs page currently lists a total of 26 such projects.³³

None of these projects are equivalent to a Super Soldier Serum or an Iron Man Armor, but their existence serves as evidence of the military's interest in and openness to transhumanist ideas. These projects have all been deemed worthy of receiving serious attention and funding by the American military, and the potential for civilian applications of military technology is not merely acknowledged, but directly stated as a goal of one of the projects listed above.³⁴ This goal of integrating such technology into civilian life adds a particular urgency to the task of understanding the underlying anthropology of transhumanism. It is not only young people who enter the military who will potentially be exposed to such technology, but also all members of

³⁰ Link: http://www.darpa.mil/Our_Work/BTO/Programs/Reliable_Neural-Interface_Technology_RE_NET.aspx

³¹ Link: http://www.darpa.mil/Our_Work/BTO/Programs/Living_Foundries.aspx

³² Link: http://www.darpa.mil/Our_Work/BTO/Programs/Warrior_Web.aspx

³³ Link: http://www.darpa.mil/Our_Work/BTO/Programs/

³⁴ Living Foundries seems to be a biologically-based, rather than a robotically-based, attempt at creating nanotechnology.

American society. Are Americans ready for Living Foundries? If the technology suddenly came into existence, would the nation be ready to begin a reasoned consideration of it and what it might mean for the present and the future?

Furthermore, what happens when medicine is impacted by these technologies? Potential new fertility treatments have already been mentioned in this paper's introduction, and the questions they raise have only just begun to be treated seriously. When the BTO's RE_NET research enables people to utilize prostheses that are superior organic arms and legs, will surgeons offer to remove perfectly healthy limbs and attach more powerful synthetic versions? Will surgeons be *forced* to offer such surgeries, even if they find them morally repugnant? Or will they be forced never to do such surgeries, even if they want to and believe doing so is the right thing?

Medicine is an avenue through which transhumanist thought may become more mainstream. The first survey included the following statement: "It would be good if there was technology that allowed disabled people to gain or regain normal human abilities that are currently impaired or not present for them." Just under 80% of respondents strongly agreed or agreed with the statement, and only 6.6% strongly disagreed or disagreed. It seems obvious that such technology would be a good thing. But regaining 'normal human abilities' presupposes an ideal of 'normal human function.' Is there such a thing as normal human function, and is it the job of medicine to restore it when it is lost?

The fundamental question of what it means to practice medicine is directly related to what it means to be a human being. Anthropology influences notions of sickness and health. If being human includes X, and a certain condition precludes X, that condition is treated as a

sickness or disability. That condition is seen as something to be treated, healed, and corrected if possible, so that X can be restored to a person.

But a transhumanist view of the human person goes beyond restoring normal biological function to enhancing, or even replacing, normal function. Is this sort of enhancement or augmentation medicine? Who decides if it is or is not, and how is that decision reached? What sort of principles of reason will be used? In short, what anthropology will be normative? An anthropology that sees death as just another problem to solve will sanction a very different type of medicine than an anthropology that sees death as an inevitable part of the human condition.

Morphological Freedom and Law

Medicine, like the rest of American society, is regulated by law. These laws are based on certain anthropological understandings of the human person. Indeed, sometimes one law conflicts with another because the conflicting laws are grounded in conflicting anthropologies. Is the dominant anthropology of American law consistent with the anthropology of transhumanism?

Returning to the concept of morphological freedom, it can be defined as, "an extension of one's right to one's body, not just self-ownership but also the right to modify oneself according to one's desires."³⁵ Anders Sandberg explains that this right ultimately derives from the right to pursue happiness. He argues that the right to pursue happiness requires that one be free from threats of death, thus establishing the right to life, and that the right to freedom comes from the right to life, since one's survival depends on one's ability to act in one's self-interest. One therefore has a right to one's body, because one cannot be free without having true control over one's body. Then, this right to one's body, combined with the previously mentioned rights,

³⁵ Sandberg, 56

results in the right to morphological freedom.³⁶ Sandberg writes, "If my pursuit of happiness requires bodily change - be it dying my hair or changing my sex - then my right to freedom requires a right to morphological freedom."³⁷ That Sandberg draws equivalence between changing the color of one's hair and changing one's gender suggests that he sees any and all morphological change as fundamentally about self-expression.³⁸ That hair dye is essentially temporary and a sex change is meant to be permanent seems not to matter to Sandberg, but should it? Is there really no significant difference between getting one's ears pierced and permanently replacing one's ears with superior auditory technology, for instance?

Setting aside any criticism of this chain of logic, is there any principle in American law that supports it? Yes, there is. Supreme Court Justice Anthony Kennedy, in the majority opinion on the 1992 case *Planned Parenthood vs. Casey*, wrote, "At the heart of liberty is the right to define one's own concept of existence, of meaning, of the universe, and of the mystery of human life. Beliefs about these matters could not define the attributes of personhood were they formed under compulsion of the State."³⁹ This ambiguous phrase gives extreme latitude to transhumanists who wish to redefine the limits of their existence through technology. Any attempt to enshrine the right to morphological freedom in law will be buttressed mightily by Justice Kennedy's words.

³⁶ *Ibid.*, 56-57

³⁷ *Ibid.*, 57

³⁸ Medical procedures such as organ transplants, skin grafts for burn victims, or the attachment of prostheses for people who have lost limbs are not about changing oneself to some new ideal form, but about restoring something that has been lost, so I do not think they can properly be considered exercises of morphological freedom, at least as Sandberg describes it here. He does comment that "Morphological freedom implies the need to redefine concepts of health and illness,"(62) but that is precisely the problem. He sees the "blurring of the lines between curative and augmentative medicine" as compounding the issue. (62) But does the line have to be blurred? Does morphological freedom include a recasting of illness as frustration with limitations generally? That seems radical, but that which is radical is the everyday currency of transhumanist thought.

³⁹ Link: <http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=505&invol=833>

At this point it is useful to think about the social implications of morphological freedom. Sandberg writes, "That individuals have rights does not absolve them from their obligations to each other or the need of each other."⁴⁰ This acknowledgement is welcome, as it tempers fears that pressing for legal recognition of morphological freedom is a radically individualistic concern. But then Sandberg continues, "But these obligations and needs cannot ethically overrule basic rights. No matter what the social circumstances are, it is never acceptable to overrule someone's right to life or morphological freedom."⁴¹ Morphological freedom is a basic right on the level of the right to life. No social circumstance can ever trump the exercise of morphological freedom.⁴² This assertion seems to directly contradict Sandberg's previous statement about individual rights not absolving people's obligations to each other. No social circumstance, no obligation to another person, whether that person is a parent, spouse, or child, can infringe on morphological freedom.

This absolute demand for morphological freedom is an absolute demand for the ability to define oneself as one chooses; it is what Justice Kennedy describes as dwelling in "the heart of liberty." This demand is utterly opposed to any kind of limit, regardless of whether such limits are imposed by outside forces or intrinsic to the human condition. It recognizes self-directed change as the supreme good, and cannot adhere to any objective standard of what is good because doing so involves conformity to a metaphysical limitation. Most importantly, it admits only one sovereign: the individual human will. Other people have no claim on the self deep enough to contest the self's desire to change in whatever way it wants.

⁴⁰ Sandberg in More and Vita-Moore, 58-59

⁴¹ *Ibid.*, 59

⁴² We know this is not true even for the right to life. Police may legitimately use deadly force in certain circumstances. Capital punishment is meted out by the justice system. It appears, though, that Sandberg really is rejecting any limitations on both the right to life and the right to morphological freedom.

But in what sort of anthropology is this demand rooted? What is the foundation on which these claims rest? In the next chapter, Ray Kurzweil will provide an explanation of the anthropology underlying transhumanism.

Chapter 2: Ray Kurzweil's Singulitarianism

This chapter begins with an examination of Ray Kurzweil's anthropology, followed by a detailed exploration of his notion of the Singularity and the steps by which technology will lead human beings to its brink. Finally, this chapter will conclude with a consideration of the consequences of the Singularity should it play out as Kurzweil describes it.

Patternist Anthropology

Ray Kurzweil has established himself as a brilliant technological innovator and competent businessman.⁴³ He has brought potent ideas to the market and has seen those ideas embraced and utilized by consumers everywhere. Adding his technological and business credentials to his outspokenness about Singulitarianism makes him a natural choice for the role of serving as the voice of transhumanism today. While his Singulitarianism is simply one current of thought in the river of transhumanism, his anthropological assumptions represent the thinking that undergirds the whole transhumanist project.

Though he is not a professional philosopher, Kurzweil does clearly present ontological and teleological aspects of his anthropology. The ontology Kurzweil proposes can be summed up in the word, "patternist."⁴⁴ Kurzweil explains patternist anthropology when he writes, "I am principally a pattern, and I can influence the course of the evolution of my pattern. Knowledge is a pattern... and losing knowledge is a profound loss. Thus, losing a person is the ultimate loss."⁴⁵ So for Kurzweil human beings are essentially patterns of knowledge that are self-adjusting. Loss of a person is regarded as the "ultimate loss," which suggests that knowledge is the ultimate good, and that the pattern of knowledge that comprises each human being is unique.

⁴³ Kurzweil's abbreviated biography mentions some of his achievements here: <http://www.kurzweilai.net/ray-kurzweil-biography>

⁴⁴ Kurzweil, Ray, *The Singularity is Near*, Penguin Books 2005, p. 388. All further references to this work will be indicated as *Singularity* followed by the page number(s).

⁴⁵ *Singularity*, 386

If such a pattern of knowledge was not unique, its loss could hardly be considered "the ultimate loss." Thus, ontologically, Kurzweil sees human beings as unique and infinitely precious patterns of knowledge that can affect their own development.⁴⁶

In that case, toward what end are the patterns developing? Kurzweil's teleology is not explained quite so directly as his ontology, but it can be discovered relatively easily. In his commentary on what post-human society will look like, when virtual and actual reality are indistinguishable, and when sentient robots and augmented humans have merged into something that is not physically recognizable as human, Kurzweil says, "'If you wonder what will remain unequivocally human in such a world, it's simply this quality: ours is the species that inherently seeks to extend its physical and mental reach beyond current limitations.'⁴⁷ The human species seeks to extend its "reach," its power, beyond its current limitations. There is humanity's telos. One's purpose is to extend one's personal power, whether that power takes the form of strength, speed, intelligence, or something else, indefinitely.

Combining the ontology and teleology of Kurzweil results in a statement like this one: *A human being is a unique and infinitely valuable self-adjusting pattern of knowledge that perpetually expands the reach of its will through increasing its power.* But there is something problematic about this statement. If the technology Kurzweil and his fellow transhumanists imagines actually comes into existence, there certainly will be ways to duplicate and 'back-up' any pattern of knowledge, no matter how robust. Indeed, doing so is part of the 'immortality' promised by transhumanism.⁴⁸ If patterns of knowledge can be duplicated, their uniqueness, and

⁴⁶ It is important to note that, for Kurzweil, the pattern of knowledge that matters here is the mind, which is instantiated in the brain. DNA is indeed knowledge contained in the body, but it is not part of what Kurzweil values, given his desire to transcend the biological body, as shall be demonstrated later.

⁴⁷ *Singularity*, 9

⁴⁸ Link: http://humanityplus.org/philosophy/transhumanist-faq/#answer_29 Toward the bottom of the section about uploading comes claims about backing up oneself and achieving a lifespan equal to the lifespan of the universe.

therefore their infinite value, no longer exists. Thus it is reasonable to strip away the first portion of the above statement. Furthermore, given that 'transcending limitations' is the central characteristic of humanity, and that such transcendence is meant to facilitate the accomplishment of whatever a person wills, it is possible to identify the central aspect of the self with the will. Therefore it makes sense to reduce the above statement to what is most essential and what best indicates transhumanist anthropology: *a human being is a self-adjusting pattern of knowledge that perpetually expands itself by expanding its power*. This expansion of power is done for the sake of pursuing some good that could not previously be achieved before self-transcendence occurred. It is not seeking power for power's sake, but it still involves equating self-transcendence with the acquisition of greater personal power.

Therefore, the transcendence of self promised by transhumanism is actually an expansion of self. The self must become greater than it was to get what it wants. Since the self is essentially knowledge with a will, and knowledge is a pattern of information⁴⁹, the most efficient way to expand the self is to increase one's own intelligence. Thus it becomes clear why transhumanists are so keen on augmenting the mind through augmenting the body. After all, knowledge does not exist apart from the physical substrate on which it is instantiated. There is no immaterial soul in this worldview. To 'upgrade' the mind, the 'hardware' of the mind must be upgraded. Morphological freedom becomes especially important when such freedom is necessary to achieve the expansion of the self.

Kurzweil's own attitude on this topic mirrors that of his colleagues in its view of the current human body. It can be found here:

Although impressive in many respects, the brain suffers from severe limitations. We use its massive parallelism (one hundred trillion interneuronal connections operating simultaneously) to quickly recognize subtle patterns. But our thinking is extremely slow:

⁴⁹ Kurzweil distinguishes between "mere information" and knowledge on this basis. *Singularity*, 386

the basic neural transactions are several million times slower than contemporary electronic circuits. That makes our physiological bandwidth for processing new information extremely limited compared to the exponential growth of the overall human knowledge base.

Our version 1.0 biological bodies are likewise subject to a myriad of failure modes, not to mention the cumbersome maintenance rituals they require. While human intelligence is sometimes capable of soaring in its creativity and expressiveness, much human thought is derivative, petty, and circumscribed.⁵⁰

Kurzweil shares the view of other transhumanists who are ready to move beyond the "traditional humanistic methods" mentioned in the Transhumanist FAQ to the expansion of human power promised by the Singularity. Kurzweil writes:

The Singularity will allow us to transcend these limitations of our biological bodies and brains. We will gain power over our fates. Our mortality will be in our own hands. We will be able to live as long as we want (a subtly different statement from saying we will live forever). We will fully understand human thinking and will vastly extend and expand its reach. By the end of this century, the nonbiological portion of our intelligence will be trillions of trillions of times more powerful than unaided human intelligence.⁵¹

It is the Singularity that will enable human beings to move from version 1.0 to version 2.0, 3.0, and beyond.

But what does the Singularity actually entail in terms of real technology? Rhapsodic musings aside, just what does the Singularity look like? Kurzweil does an excellent job presenting his argument for the inevitability of the Singularity, and that argument will be presented and examined next.

Singularity 101: The Law of Accelerating Returns

The heart of Kurzweil's argument that the Singularity is coming, and is inevitable, starts with a reference to Moore's Law on Integrated Circuits. Kurzweil states, "every two years, you can pack twice as many transistors on an integrated circuit. This doubles both the number of

⁵⁰ *Singularity*, 8-9

⁵¹ *Singularity*, 9

components on a chip as well as its speed."⁵² But Moore's Law will only last so long, because eventually the, "transistor insulators will then be just a few atoms thick, and the conventional approach of shrinking them won't work."⁵³ At that point, Kurzweil is confident a new paradigm of computational technology will appear, for, just as transistors replaced vacuum tubes, a new, more efficient computing process will replace integrated circuits.⁵⁴

Computing is a process of ordering, and, as computing power grows, so grows order. Thus Moore's Law on Integrated Circuits serves as Kurzweil's bridge to the idea that animates his belief about the nearness of the Singularity: The Law of Accelerating Returns. Kurzweil defines this law as follows: "As order exponentially increases, time exponentially speeds up (that is, the interval between salient events grows shorter as time passes)."⁵⁵ Salient events in this case should be understood as future discoveries and technologies enabled by current technologies that create ever-more efficient technologies that perpetuate the cycle of exponential technological improvement. Applying this Law to computation suggests, essentially, that today's computers will make tomorrow's computers much better, and tomorrow's computers will make future computers even better and even more quickly than today's, etc., until the computational power of machines meets and exceeds that of the human brain. Kurzweil believes that, according to the Law of Accelerating Returns, we are about to see the exponential growth curve shoot upwards.⁵⁶ If humans interface or replace their bodies with these super intelligent

⁵² Kurzweil, Ray, *The Age of Spiritual Machines*, Penguin Books, 1999, p. 21. All further references to this work will be referred to as *Age* followed by the page number.

⁵³ *Age*, 21

⁵⁴ Kurzweil is not putting his faith in a vague promise of future technological development. He pairs a chart of the previous forms of computing with a plot of the exponential growth of computing power in *Age* 22-24. Each time a previous paradigm reached its maximum potency, a new one appeared to continue the exponential growth. Four such shifts have already occurred, and Kurzweil notes a variety of options, from DNA to carbon nanotubes, that could initiate the fifth shift. Kurzweil is persuasive when he makes this claim because of his research.

⁵⁵ *Age*, 30

⁵⁶ *Age*, 39. Kurzweil often uses the phrase, "the knee of the curve" to describe where he thinks we are with regard to technological development.

machines, they shall ride the curve up to levels of intelligence incomprehensible to people living today.

So the Law of Accelerating Returns can explain how something as fundamentally groundbreaking as the Singularity can occur in such a seemingly short period of time, but what is it that makes the Singularity inevitable? To understand why Kurzweil thinks that the Singularity is destined to happen, his beliefs about the nature and development of life on Earth must be examined.

Kurzweil describes the beginning of life on Earth by saying, "*patterns of matter and energy that could perpetuate themselves and survive perpetuated themselves and survived*," and he finds it "remarkable" that "this tautology went unnoticed until a couple of centuries ago."⁵⁷ In short, Kurzweil's statement simply means that the emergence and evolution of life occurred. Kurzweil says, "*A key requirement for an evolutionary process is a 'written' record of achievement*, for otherwise the process would be doomed to repeat finding solutions to problems already solved. For the earliest organisms, the record was... coded directly into the chemistry of their primitive cellular structures."⁵⁸ With DNA, Kurzweil claims, "evolution had designed a digital computer to record its handiwork."⁵⁹ The Law of Accelerating Returns began to work upon evolution itself, with salient events occurring more and more frequently in the timeline of

⁵⁷ *Age*, 13, emphasis original

⁵⁸ *Age*, 13, emphasis original

⁵⁹ *Age*, 13

life.⁶⁰ It was not long, evolutionarily speaking, before creatures with enough intelligence to begin harnessing the power of evolution itself arose: humans.⁶¹

With humans came the development of technology, first in the form of primitive tools, and then more complex machines, and, finally, problem-solving machines, or computers. Kurzweil sees technology as evolution by other means,⁶² so technological development is affected by the Law of Accelerating Returns, not because technological development is *technological*, but because it is *evolutionary*. Kurzweil explains the whole process as follows:

The Law of Accelerating Returns as Applied to an Evolutionary Process

- An evolutionary process is not a closed system; therefore, evolution draws upon the chaos in the larger system in which it takes place for its options for diversity; and***
- Evolution builds on its own increasing order.***

Therefore:

- In an evolutionary process, order increases exponentially.***

Therefore:

- Time exponentially speeds up.*** (or, the time between salient events shortens-JS)

Therefore:

- The returns (that is, the valuable products of the process) accelerate.***⁶³

In this way, Kurzweil's belief that the Singularity, the moment when human intelligence is superseded by synthetic intelligence and the two are blended into one, is inevitable becomes

⁶⁰ The engine that powers the exponentially increasing frequency of salient events in the process of evolution is the disorder of the universe itself. Kurzweil writes, "evolution is precisely not a closed system. It takes place amid great chaos, and indeed *depends on the disorder in its midst, from which it draws its options for diversity*. And from these options, an evolutionary process continually prunes its choices to create ever greater order." (Age, 37, emphasis original) Entropy itself is the process that powers evolution, and evolution relies on previous achievements of 'orderliness' to reach higher levels of order at an exponentially increasing rate, just like computer processing power.

⁶¹ The inevitability of human evolution is likely a difficult point, though I expect Kurzweil would say that since evolution is inherently a problem-solving process, it was only a matter of time before the problem of a species that specialized in solving problems was itself solved.

⁶² Age, 14

⁶³ Age, 32-33, emphasis original

understandable. He views the Singularity as the point toward which evolution inevitably leads. In other words, the Singularity must happen because life emerged and evolved the way it did.⁶⁴

Singularity 102: GNR

But the part of Kurzweil's argument that is perhaps the most incredible is not that the Singularity will inevitably happen, but that it will happen in his own lifetime. Kurzweil asserts that imminent technological revolutions in three fields, Genetics, Nanotechnology, and Robotics, or GNR, will enable humans to transcend their biological limitations. Additionally, he believes that improving technology, particularly the previously mentioned microscopic machines he calls 'nanobots,' will be the key to fully scanning and understanding the structure of the brain so as to achieve artificial intelligence that meets and exceeds the level of human intelligence. These three fields will serve as a series of 'bridges' that enable adults alive today to benefit from the Singularity.

For the sake of emphasizing that Kurzweil actually believes that he will live to see the Singularity, it is important to note that he has taken some measures to preserve his health that may appear extreme to a normal observer.⁶⁵ Indeed, Kurzweil has partnered with a medical doctor named Terry Grossman to co-author two health books that explain in more streamlined terms Kurzweil's beliefs about the Singularity and the importance of living to see it. The first is, *Fantastic Voyage: Live Long Enough to Live Forever* (Plume 2004), and the second is, *Transcend: Nine Steps to Living Well Forever* (Rodale 2009). Both books contain practical advice about living a healthy lifestyle, but they also promote Singulitarianism. Kurzweil is well

⁶⁴ It would not be a stretch to suggest that Kurzweil would agree with the idea that the universal laws that allowed for life to develop as it did had to be the way they were (the anthropic principle, more or less, though Kurzweil seems to have some possible misgivings about it; see *Singularity* 359-360) since the Big Bang was the way it was. The Singularity was inevitable from the beginning of time.

⁶⁵ *Singularity*, 211, is where Kurzweil states that he takes 250 pills a day, and Gary Wolf's article for *Wired Magazine* on 3/24/08 highlights Kurzweil's extensive use of supplements and medical treatments. The pictures of the pills in this article are very effective at suggesting how dedicated Kurzweil is to staying alive for the Singularity. Link: http://archive.wired.com/medtech/drugs/magazine/16-04/ff_kurzweil

aware that popular acceptance of transhumanism may likely come through medicine, as was discussed in chapter one.

Genetics

Biology is the first domain from which Kurzweil draws support for his belief that he will live to see the Singularity. DNA, the molecule that contains the instructions for all the cells in the body, is likened by Kurzweil to a compact software program.⁶⁶ DNA carries information in the form of instructions, so the comparison seems fitting. Kurzweil uses DNA as a sort of proof-of-concept for nanotechnology, saying that it is, "essentially a self-replicating nanoscale replicator that builds the elaborate hierarchy of structures and increasingly complex system the a living creature comprises."⁶⁷ Kurzweil lauds the efforts made to map the human genome, and he expects that a fuller understanding of how genes are expressed will enable humans to exert precise control over their cellular functions.⁶⁸ He then goes on to cite several different examples of genetic technology already in use, like gene chips that can identify cancer cells,⁶⁹ and technologies that are still in development, like somatic gene therapy. He offers hopeful speculation about combating cancer,⁷⁰ aging,⁷¹ and cell loss.⁷²

Reversing cell loss would be achieved through a cloning process, according to Kurzweil.⁷³ He explains how the process would be therapeutic, and not meant to create copies of humans beings:

"One of the most powerful methods of applying life's machinery involves harnessing biology's own reproductive mechanism in the form of cloning. Cloning will be a key technology - not for cloning actual

⁶⁶ *Singularity*, 206-207

⁶⁷ *Singularity*, 207

⁶⁸ *Singularity*, 213

⁶⁹ *Singularity*, 213-214

⁷⁰ *Singularity*, 217

⁷¹ *Singularity*, 218

⁷² *Singularity*, 220

⁷³ *Singularity*, 220

humans but for life-extension purposes, in the form of 'therapeutic cloning.' This process creates new tissues with 'young' telomere-extended and DNA-corrected cells to replace without surgery defective tissues and organs."⁷⁴

Cloned cells with corrected DNA can replace cells that have defective DNA, thus defeating diseases that are caused by genetic disorder.⁷⁵ Kurzweil highlights human somatic-cell engineering as a promising way to use a form of cloning to defeat organ failure, type 1 diabetes, and other maladies.⁷⁶ He even suggests that world hunger could be solved through the cloning of animal protein cells.⁷⁷ Rather than clone whole animals that must be slaughtered, meat distributors could 'grow' animal muscle, thus sparing animals from the modern process of factory farming.

Interestingly, Kurzweil dismisses the danger of 'designer babies' (in a fictional dialogue with Ned Ludd, whose story inspired the Luddites), not because of ethical considerations, but because he believes that the technology to create a genetically perfect child will be developed too late; the rise of machine intelligence and the onset of the Singularity will eclipse such technology.⁷⁸ The genetic revolution, potent though it may be, is only a bridge to the Singularity, not the fruit of the Singularity.

Nanotechnology

"Nanotechnology promises the tools to rebuild the physical world - our bodies and brains included - molecular fragment by molecular fragment, potentially atom by atom,"⁷⁹ Kurzweil

⁷⁴ *Singularity*, 221

⁷⁵ Unlike the technologies mentioned at the beginning of this paper, these treatments are for individuals and will not affect the germ-line, at least in this particular conception of them. This is not necessarily because Kurzweil is cautious about tampering with human DNA, but because he sees these technologies as transitory. They are bridges to get to the Singularity, and will no longer be needed when the Singularity happens.

⁷⁶ *Singularity*, 223

⁷⁷ *Singularity*, 224

⁷⁸ *Singularity*, 225-226 Kurzweil's implied stance toward children will be discussed later.

⁷⁹ *Singularity*, 226-227

claims. And, assuming the existence of such technology is possible, he is correct.⁸⁰ If humans could manipulate the atomic structure of matter, anything could be built, even new human bodies made of more durable materials.⁸¹ Ultimately, the manipulation of small particles would be executed by another convention of science fiction, one already mentioned in chapter one of this essay: nanobots. Nanobots are conceived as microscopic machines that can rearrange matter on an infinitesimal scale and can self-replicate. After he offers an overview of the physics behind nanotechnology, Kurzweil suggests several different ways nanobots could enhance human life.

One function a nanobot could have is as a replacement of a cell nucleus.⁸² Since a nanobot has the ability to manipulate small molecules in an intelligent way, upgraded human cells would be able to defend against pathogens and alter DNA, among other things. The nanobots would be prevented from replicating needlessly (the point is not to replace organic cancer with synthetic) by having a built-in requirement to receive a broadcasted code before constructing copies of themselves. Nanobots serve as another 'bridge' technology in this role.

Additionally, as a different sort of bridge to the Singularity, nanobots could be introduced into the blood stream over time as replacements for red blood cells.⁸³ These nanobots would be able to defeat viruses and bacteria, repair damaged cells and cellular DNA, and even use oxygen in a hyper-efficient way. Indeed, Kurzweil envisions humans with the capability to direct nanobots in their bloodstreams through wireless network communication; he acknowledges that network security would be an issue, but he is confident that current private network firewall

⁸⁰ Again, it is important to remember that DNA itself is technically a 'proof of concept' of nanotechnology.

⁸¹ Kurzweil reiterates his belief that human biology is "clever" but "suboptimal" on *Singularity* 227. He repeats that genetic technologies can only take humanity so far, and that biology will have to be upgraded and eventually replaced.

⁸² *Singularity*, 232-236; Kurzweil describes how this process would work and what benefits it would grant in detail here. I will merely present some of the highlights.

⁸³ *Singularity*, 254

protection, which seems generally reliable, will develop sufficiently to protect an individual's synthetic cellular system.⁸⁴

But perhaps the most important potential function of nanobots will be their use in fully mapping, modeling, and understanding the human brain. Kurzweil suggests that nanobots are the ideal non-invasive tool to use to understand the structure of the human brain.⁸⁵ Scanning the brain would be necessary for his dream of uploading human minds to non-biological substrates to be achieved. However, it is also part of the process that must be followed to produce human and superhuman machine intelligence, which will be explained below.

Robotics: AI

The robotics revolution will not bring about the Singularity if it only produces automatons with today's levels of artificial intelligence. The key to this revolution is providing refined AI to machines. This AI will be based on current computational models, but also on models that simulate the pattern-recognition abilities and parallel-processing power of the human brain, as these abilities are what Kurzweil believes makes the human mind distinct from AI (at least for now).⁸⁶ Once the brain is understood, simulations of human thinking will be mixed with the various ways that AI currently functions, and strong AI will come into existence. This AI will have the powers of human thought in addition to the advantages of machine intelligence (near-instantaneous sharing of information, for instance). Then the Law of Accelerating Returns will kick in, and strong AI will exponentially improve its abilities until AI is vastly superior to biological intelligence.⁸⁷

⁸⁴ *Singularity*, 255-256

⁸⁵ *Singularity*, 163

⁸⁶ *Singularity*, 149

⁸⁷ *Singularity*, 292-294

But, since Kurzweil envisions that humans will have already been using a mixture of biological and non-biological intelligence by the time AI becomes super-intelligent, humanity will be swept up into super-intelligence along with pure machines. The Singularity will have been achieved. Therefore, it is difficult to speculate about what post-Singularity intelligence will be capable of, since anyone who does so is limited by his or her own pre-Singularity intelligence. That the word 'singularity' also applies to black holes is useful in this regard since, just as with the singularity of a black hole, one cannot see past the Singularity.

The Feasibility and Consequences of the Singularity

But it does not take post-Singularity levels of intelligence to recognize that developing the technology needed to achieve the Singularity will take time, possibly much more time than Kurzweil believes, the Law of Accelerating Returns be damned. Governments will be deeply invested in the creation and regulation of such powerful technologies, and with government involvement comes the red tape of bureaucracy. Businesses will see technology as a way to make money before they view it as a way to increase the quality of life for the average person. And the wealthy will have access to the best technology well before the rest of the world. If these technologies do in fact extend lifespan and increase personal power, then the type of social unrest depicted by *Deus Ex: Human Revolution* may well take place. People will be fearful, angry, and envious. It should be admitted that one of Kurzweil's greatest strengths is his optimism; it helps him to promote his viewpoint effectively. But that optimism also makes him vulnerable to overestimating the speed at which his technological predictions come true. For all of Kurzweil's positivity, it takes only one *Terminator* movie to give people reason to want to slow down and scrutinize new technologies as they arise. It is true that public opinion is fickle, and perhaps support for transhumanism can be generated as swiftly as support for gay marriage

was,⁸⁸ but at the very least, national self-interest will cause governments to tightly control the most powerful technologies.

Yet, even if the technologies Kurzweil envisions take more time than he would like to come into existence and widespread use, it is still useful to consider what the consequences of those technologies would be for human individuals and communities. Kurzweil gives his readers a glimpse of what he thinks life will be like after the Singularity in the parts of his work that are somewhat more fanciful.

Conversations with Ray: Sex

One of the tools Kurzweil uses in his texts is that of dialoguing with imaginary interlocutors to better explain different aspects of his beliefs about life before, during, and after the Singularity, and in one such dialogue, the question of sex is considered. Kurzweil's take on the issue is as follows:

You're using your virtual body, which is simulated. Nanobots in and around your nervous system generate the appropriate encoded signals for all of your senses: visual, auditory, tactile of course, even olfactory. From the perspective of your brain, it's real because the signals are just as real as if your senses were producing them from real experiences... If you go there with another person or persons, then these other intelligences, whether of people with biological bodies or otherwise, would also have bodies in this virtual environment. Your body in virtual reality does not need to match your body in real reality. In fact, the body you choose for yourself in the virtual environment may be different from the body that your partner chooses for you at the same time. The computers generating the virtual environment, virtual bodies, and associated nerve signals would cooperate so that your actions affect the virtual experience of the others and vice versa."⁸⁹

⁸⁸ I mean here that the swift change in the level of support for gay marriage among Americans, change that occurred in less than a generation, indicates that what was unthinkable in the recent past may quickly become commonplace in the present.

⁸⁹ *Singularity*, 319

The key point is that the 'body' of a participant in this virtual sexual encounter is not determined by his or her own preferences, but by the preferences of his or her partner(s). The entire experience is determined by the initiating individual, and the sense of an 'encounter with the other' is diminished. Everything about the way the other appears conforms to the will of the self. Thus, why should one allow the actions of others to determine what one experiences if one can determine the nature of the 'body' within which one's partner is instantiated? It seems an easy step from determining the 'body' of the other to determining the perception of the actions of the other. Kurzweil is not advocating taking this step, but the technology he describes would certainly allow for it, and it is not difficult to imagine that people would use such technology for that very purpose.⁹⁰ In the present day, people already use one another as tools for achieving sexual pleasure.⁹¹ Kurzweil's promised virtual reality technology would make such mutual objectification even easier.

Indeed, both modern 'casual sex' practices and this 'future' sexuality seem to contradict the way sex ought to be: it is the very 'otherness' of one's partner, the 'resistance,' so to speak, of interacting with another person, that ought to bring intimacy and joy. It is the mutual self-giving and other-receiving that makes sexual relations into an act of love. Kurzweil's scenario seems to be nothing more than technologically mediated mutual masturbation, precisely like the mutual objectification mentioned above except that it is even easier for the self to remain isolated from the other. It would seem that, on the way to the Singularity, an environment that enables an even more decidedly self-centered sexuality will be created. This outcome seems natural if the human

⁹⁰ I base this assertion on the widespread consumption of pornography that occurs today. Such technology would essentially allow for private pornographic fantasies to be made 'real' through direct stimulation of the appropriate areas of the brain.

⁹¹ Consider college "hook-up" culture.

telos is the expansion of self. Why should the expansion of self be checked by the existence of the other, even in the realm of sexuality?

It is also worth noting that this vision of sexuality is sterile. No actual children will be produced by virtual sex, and certainly it will be a simple matter to ensure that one does not become responsible for any virtual offspring that may come into existence. Even if one member of a party engaging in a virtual sexual encounter wanted the encounter to result in virtual offspring, that person could do so without alerting anyone else about what they were doing and without requiring any assistance from them. To consider the actual technology that would be needed to accomplish this sort of virtual conception of synthetic children goes beyond the rim of the Singularity, but it is clear that Kurzweil's vision of post-human sexuality is unremittingly selfish.

Beyond sexuality and its immediate consequences, the question of the nature of post-Singularity society must be raised. Kurzweil's speculations about what life will be like leading up to the Singularity are reasonable, if somewhat optimistic.⁹² But what will community life be like after the Singularity? By its very nature, it is hard to 'see past' the Singularity, and Kurzweil cannot be faulted for that. But if the self-oriented expression of transhumanist sexuality described above is an indicator, community may not be a key feature of the future. When an individual can completely control the input he or she receives, he or she can become completely isolated from others.

Conversations with Ray: God

Another dialogue Kurzweil constructs has to do with his beliefs about God. It goes this way:

⁹² *Age* 157-252 contains Kurzweil's early predictions about what life will be like leading up to and beyond the Singularity.

MOLLY 2004: *All right, but I asked whether you believed in God.*

RAY: *Again, "God" is a word by which people mean different things. For the sake of your question, we can consider God to be the universe, and I said that I believe in the existence of the universe.*

MOLLY 2004: *God is just the universe?*

RAY: *Just? It's a pretty big thing to apply the word "just" to. If we are to believe what science tell us - and I said that I do - it's about as big a phenomenon as we could imagine.*

MOLLY 2004: *... But I meant that people usually mean something more by the word "God" than "just" the material world. Some people do associate God with everything that exists, but the still consider God to be conscious. So you believe in a God that's not conscious?*

RAY: *The universe is not conscious - yet. But it will be. Strictly speaking, we should say that very little of it is conscious today. But that will change and soon. I expect that the universe will become sublimely intelligent and will wake up.... The only belief I am positing here is that the universe exists. If we make that leap of faith, the expectation that it will wake up is not so much a belief as an informed understanding, based on the same science that says there is a universe.*

MOLLY 2004: *Interesting. You know, that's essentially the opposite of the view that there was a conscious creator who got everything started and then kind of bowed out. You're basically saying that a conscious universe will "bow in"...*

RAY: *Yes...*⁹³

Kurzweil is making a number of claims in this dialogue, but the most startling of them may be that the universe is going to "wake up." He says that belief that the universe exists leads to the "informed understanding" that it will become conscious in the future. He bases this assertion on his claim that the inevitable Singularity will lead to "the matter and energy in our vicinity" being "infused with the intelligence, knowledge, creativity, beauty, and emotional intelligence (the ability to love, for example) of our human-machine civilization."⁹⁴ In other words, all the matter and energy that humanity can get its hands on will be harnessed for computation. There are a number of problems with this belief.

⁹³ *Singularity*, 390

⁹⁴ *Singularity*, 389

First is the problem of forcing sentient creatures who possess an organic substrate, present day human beings, for example, to become part of the universal computer. If any human beings (or other intelligent creatures) resist the invitation to 'transcend' in the transhuman way, they will require an entire biological ecosystem in which to live out their lives. This means that some portion of the matter and energy of the universe must not be transformed into computational equipment. There will be part of the universe that will always be 'dumb.' Will the rights of these sentient beings be respected, or will the universe achieve its destiny of becoming completely 'awake' regardless of what non-augmented people desire? If Kurzweil's principle of valuing unique patterns of knowledge holds sway, then sentient beings will not be forced to become part of the 'cosmic intellect.'⁹⁵ But if his principle is disregarded, then the vast difference in power between post-humans and non-augmented sentient beings will make it easy for post-humans to accomplish their will.

The second problem is that Kurzweil interprets the whole of the scientific endeavor as justifying his beliefs about the transcendent universe. No other interpretation of the data is valid. This sort of thinking suggests a closing of the mind to the possibility that one is wrong, and believing that one's thesis cannot be proven wrong is inimical to true scientific thought. Kurzweil is claiming that his "informed understanding" is not a belief, which leads one to ask the question, is Kurzweil claiming a special privilege for his viewpoint? It is unfalsifiable, not unlike many religious beliefs, but Kurzweil seems to implicitly reject that his acceptance of the idea of a future conscious universe is religious when he claims that it is not a belief. Is this position tenable? This 'informed understanding' seems to possess all the eschatological trappings of a religion.

⁹⁵ Or will they? What better way to preserve a unique pattern of knowledge than to make it immortal?

A third problem is that Kurzweil simply rejects out of hand the possibility that there is already a God of the universe. If he had directly engaged the basic philosophical arguments for God's existence to some degree he could have strengthened his own position, but he does not. He simply ignores these arguments, and asserts above that there is no reality beyond the universe (or multi-verse). Perhaps Kurzweil can be excused by suggesting that he is attempting to be scientific in his argument, and tackling philosophical arguments for God's existence is outside the scope of his work. But then why bring up God explicitly? It is as if Kurzweil knows that his ideas will be resisted by many believers in traditional Abrahamic religions, and he is trying to offer them something to call God to satisfy them.

To summarize, Kurzweil builds his Singulitarian scenario on patternist anthropology, which can be summed up as saying, *a human being is a self-adjusting pattern of knowledge that perpetually expands itself by expanding its power*. He offers a an analysis of history that suggests that the development of intelligence and technology are inevitable, and then uses the Law of Accelerating Returns to explain that the Singularity itself is inevitable. In GNR he offers three bridges that will carry people alive today into technological immortality, and then he provides some speculation about what life will be like on the way to the Singularity and after it, culminating in a religious-sounding vision of the universe waking up and discovering that it is god. In short, he provides a story, a modern myth, that explains the origin of humanity and its destiny. Though he may not agree with the characterization of his position as a 'myth,' the next chapter will demonstrate the transhumanism can function as a religion, and thus give credence to the notion that Kurzweil's work can function as a religious myth.

Then, the anthropology of the Second Vatican Council will be explored and considered as a challenge, a necessary one, to Kurzweil's, and by extension transhumanism's, anthropology.

Chapter 3: The Second Vatican Council

Transhumanist Faith

Before the anthropology of the council is presented, it is useful to briefly explore how transhumanism can function as a religion for its adherents. Though they make it clear that transhumanism is not a religion, transhumanists admit that it can sometimes act like one:

While not a religion, transhumanism might serve a few of the same functions that people have traditionally sought in religion. It offers a sense of direction and purpose and suggests a vision that humans can achieve something greater than our present condition. Unlike most religious believers, however, transhumanists seek to make their dreams come true in this world, by relying not on supernatural powers or divine intervention but on rational thinking and empiricism, through continued scientific, technological, economic, and human development. Some of the prospects that used to be the exclusive thunder of the religious institutions, such as very long lifespan, unfading bliss, and godlike intelligence, are being discussed by transhumanists as hypothetical future engineering achievements.⁹⁶

Recognizing the ways in which transhumanism acts as a religion can help Catholics better shape their presentation of their own anthropological beliefs so as to respond to the needs of modern people who find something of value in transhumanism. The results of the survey administered by the author of this paper suggest that teenagers have already accepted some of the premises of transhumanism. High school students are rarely without their phones; they rely on their technology to express who they are and to communicate with their peers. While the most radical transhuman technologies were not widely accepted by students, their attitudes toward the human body seem to make it possible for a concept like morphological freedom to resonate with them. The implicit nature⁹⁷ of these beliefs suggests that these young people have not reflected much on their beliefs about the human person or the logical consequences of those beliefs. These are students at a Catholic School; introducing them to the anthropology of the Roman Catholic Church as expressed by the Second Vatican Council would, at minimum, give them an

⁹⁶ http://humanityplus.org/philosophy/transhumanist-faq/#answer_47

⁹⁷ Only 16% of students surveyed strongly agreed or agreed with the statement, "I am familiar with the term, 'transhumanism.'"

opportunity to identify, articulate, and reflect on their beliefs. That alone makes it worthwhile to explore Catholic anthropology.

But beyond that, the Church must recognize and respond to the pervasive cultural forces that urge high school students and other young people to build habits that are self-centered rather than other-centered. Repeatedly performed self-centered actions can damage or destroy relationships, while other-centered actions can strengthen them. In Catholic terms, sin alienates individuals from God, others, and themselves. Love fosters communion, and love is other-centered. The anthropology of Ray Kurzweil and other transhumanists promotes a self-transcendence that is self-centered. A self-centered anthropology is not conducive to building a loving community, whether that community is a family, a school, a parish, or the Church. It is in loving communities that human persons flourish and find happiness, therefore, Catholics must present an alternative to transhumanist anthropology so that people build their relationships on love, and thus have a better chance to find happiness.

Furthermore, Catholics must be unafraid to identify transhumanism for what it is: a reductionist philosophy based on quasi-theological technological speculation. Michael DeLashmutt writes: “Post-human speculative science implies a reductionist philosophical anthropology. The complexity of the human subject – one’s spirituality, materiality, and sociality – is perceived as being reducible to a collection of patterns that can be decoded and re-embodied in whatever substrate a given future technology provides.”⁹⁸ For instance, achieving immortality through 'uploading' oneself onto a different substrate is a radical proposition, one

⁹⁸ DeLashmutt, Michael W., "A Better Life Through Information Technology? The Techno-Theological Eschatology of Posthuman Speculative Science." *Zygon: Journal of Religion & Science*. Jun 2006, Vol. 41 Issue 2, p268; all further references to this article will be labeled, “DeLashmutt,” followed by the page number. Thought DeLashmutt uses the term Post-human, it is interchangeable with transhuman in this context.

that cannot be justified based on current technology, so it can be considered to be a proposition transhumanists take on faith.⁹⁹

DeLashmutt also offers this comparison of Christian eschatology with transhumanist eschatology: "“Though a post-human eschatology wrestles with similar themes present within Christian eschatology, a Christian eschatology is ever aware that the fulfillment of its hope lies in the hands of the God who is in control of history, in contrast to a post-human eschatology that places the onus of control upon human technologies.”¹⁰⁰ Transhumanists put their faith in humanity just as Christians and other believers place their faith in God.¹⁰¹ For instance, Kurzweil's predictions about when the Singularity will occur assume that none of the governmental entanglements discussed in chapter two will significantly delay it.¹⁰² This optimism is not rooted only in the power of science, but in the ability of other human beings to accept as true what Kurzweil offers them. While there are examples of radical shifts in public thought occurring in relatively short periods of time, Kurzweil's Singulitarianism involves placing faith in other human beings, many of whom do not know what transhumanism is, even if they do implicitly possess some transhumanist viewpoints themselves.

In other words, transhumanism, and particularly Singulitarianism, may not be thought of by its adherents as a religion, but it can function as one; it even comes complete with an eschatological moment of the union of the cosmos with God, as Kurzweil explained in the

⁹⁹ DeLashmutt states that this faith is “unwavering” and rooted in the myth of progress on page 273 of his article.

¹⁰⁰ DeLashmutt, 276

¹⁰¹ This is not to say that one sort of faith is better than the other, but that faith is common to both Christians and transhumanists.

¹⁰² Kurzweil directly addresses this criticism in pages 470-473 of *Singularity*, but even as he does so, he provides predictions about the development of technology that have been proven false: "Early in the second decade of this [the 21st] century, the Web will provide full-immersion visual-auditory virtual reality with images written directly to our retinas from our eyeglasses and lenses and very high-bandwidth wireless Internet access woven in our clothing. These capabilities will not be restricted just to the privileged. Just like cell phones, by the time they work they will be everywhere." (472) Given that we are nearly through the first half of the second decade of the 21st century and these things (or their equivalent) have not come to pass, it seems that Kurzweil's optimism has gotten the better of him.

previous chapter. Catholics should recognize this reality and consider transhumanism as a pseudo-religion or 'spirituality' that can offer satisfaction to the religious impulse. A small demonstration of the power of transhumanism to satisfy that impulse can be found in what may be the first transhumanist 'church', the "Church of Perpetual Life."¹⁰³

This consideration is all the more critical for the Church to make given the openness some teenagers seem to have to some aspects of the transhumanist agenda. There is much work to be done among Catholic youth, and among non-Catholic youth connected to Catholic institutions. But there is cause for hope as well. The survey conducted by the author of this paper also asked students about their relationship with God. When asked to rate the statement, "I have a personal relationship with God," over 72% of respondents agreed or strongly agreed. The statement, "When I make important decisions I consider what God might want from me," was supported by over 53% of respondents, with 32.5% neither agreeing nor disagreeing. Also, when students saw the statement, "Religion delays technological progress," over 47% disagreed or strongly disagreed with it, and another 40% neither agreed nor disagreed. In short, there is an opportunity for the Church to present its anthropological claims to the young people in its care, and it should do so if it wishes to provide as many people as possible with satisfying answers to their deepest questions. A materialist-reductionist viewpoint, like that of transhumanism, has not yet made tremendous inroads among young people.

The Anthropology of the Second Vatican Council

So just what does the Roman Catholic Church claim a human being is? *Gaudium et spes*, the pastoral constitution of the Church, says that to be human is to be made in the image and

¹⁰³ Link: <http://www.churchofperpetuallife.org/>; Under the events tab one can find videos of events at the church, including a Christmas Eve service called, "Remembrance of the Resurrectables." Members of the Church call themselves "Immortalists," but their goals (under the About tab) are clearly transhumanist. Upcoming speakers include Dr. Max More, who is regarded like Kurzweil as one of the leading lights of the modern transhumanist movement.

likeness of God.¹⁰⁴ This quality is demonstrated in many ways, but *Gaudium et spes* focuses on humanity's dominion, or stewardship, over creation, in section 12. Thus we find a basic point of agreement between Kurzweil's beliefs and the Church's: human beings have a right to utilize creation's resources in a responsible way, including the development of technology.¹⁰⁵ Section 12 also emphasizes humanity's social nature, stating, "by his innermost nature man is a social being, and unless he relates himself to others he can neither live nor develop his potential."¹⁰⁶ Kurzweil would not disagree with this claim, though he may question the relevance of being made in God's image and likeness.¹⁰⁷ He might say it is more accurate to believe that humanity will eventually make a god in its own image and likeness, given his eschatology.

One thing Kurzweil would likely dispute is humanity's status as God's creatures, though he would not argue about humanity's 'creatureliness.' To be an image of God is not to be the Original. An image is dependent on that which it resembles for its characteristics, and, if the infinite God is the Original, that to be in His image is to be dependent and, thus, finite. Additionally, if, as Christianity claims, God is perfect and, through no need of His own, made His creatures out of love, then humans were given their existence as a gift. Does a proper reception of the gift of existence entail an acceptance of human limitations? In that humans were given dominion over the rest of creation, no, not all limitations need to be accepted. But humans were not given absolute dominion; human activity must conform to God's law, or it will incur God's wrath, according to the Biblical narrative.¹⁰⁸ Furthermore, were humans given dominion

¹⁰⁴ GS 12

¹⁰⁵ Kurzweil sees technology as the very thing that facilitates next step of human evolution, which is not what the Church sees it as, but both Kurzweil and the Church agree that the development of technology is grounded in what it means to be human.

¹⁰⁶ GS 12

¹⁰⁷ A Christian response to Kurzweil here would include a reference to the Trinity. 'Society' in a sense exists in God, and so human beings made in God's image and likeness are social, too.

¹⁰⁸ I take the Flood story as suggesting that sin defaces not just human society but all of creation, and it is easy to see how a disdain for the environment humanity was meant to care for can lead to tragic human consequences, at least

over their own humanity? In other words, were humans given the authority to abolish limitations such as mortality itself?

This question must be considered seriously, since Jesus Christ not only healed the sick, but raised the dead. The Catholic Church has built hospitals to cure the ill and medical schools to train the staff of those hospitals. Fighting against death is an accepted part of the Catholic tradition. Is there a line must not be crossed? It is beyond the scope of this essay to determine exactly which medical procedures are acceptable and which are not, but a principle that can be used in such discernment is as follows: use of technology that treats human beings as objects rather than subjects is unacceptable.

Sin

While many critics have accused the Church of focusing too much on sin, the anthropology of the Second Vatican Council includes a discussion of sin because it is with sin that the drama of salvation history begins. *Gaudium et spes* examines sin, embodiment, conscience, and freedom because they are mutually interrelated fundamental aspects of human existence, and the Church's 'story' of anthropology follows a particular logical order.

The Church traditionally holds that humanity was not meant to die, but then the first sin alienated humanity from God, and diminished human life. If suffering and death are caused by separation from God, then technology is not the ultimate solution to the problem; only God can restore humanity to immortality. Yet humans must devote themselves to alleviating the suffering of others if they are to truly imitate Christ. This tension between relying on technological progress and trusting in God is related to the wound caused by the Original Sin. *Gaudium et spes* explains:

on the local level. In that God wiped out all animal life in addition to all human life save those creatures that were aboard the Ark, I think the Flood story can be interpreted to mean that human sin befouls creation for all living things, and thus the environment must be protected from direct destruction and indirect tainting.

Although he was made by God in a state of holiness, from the very onset of his history man abused his liberty... Man set himself against God and sought to attain his goal apart from God. Although they knew God, they did not glorify Him as God, but their senseless minds were darkened... Examining his heart, man finds that he has inclinations toward evil too, and is engulfed by manifold ills which cannot come from his good Creator. Often refusing to acknowledge God as his beginning, man has disrupted also his proper relationship to his own ultimate goal as well as his whole relationship toward himself and others and all created things.

Therefore man is split within himself. As a result, all of human life, whether individual or collective, shows itself to be a dramatic struggle between good and evil... man finds that by himself he is incapable of battling the assaults of evil successfully, so that everyone feels as though he is bound by chains.¹⁰⁹

So this internal (and, to often, external) battle between good and evil is another characteristic of humanity. Indeed, if humans cannot fend off evil by themselves, and if they are "disrupted" from "proper relationship" with their destiny, then calling Kurzweil's vision 'overly optimistic' would be a dramatic understatement. Though Kurzweil does acknowledge the potential dangers in all the technologies he foresees, he is extremely optimistic that the Singularity will be an overwhelmingly good thing. For instance, he writes, "The human species, along with the computational technology it created, will be able to solve age-old problems of need, if not desire, and will be in a position to change the nature of mortality in a postbiological future."¹¹⁰ The Singularity will enable the fulfillment of all human needs! What a remarkable claim! It is true that Kurzweil did not write "all" but "age-old," but the implication is clear: humanity needs no divine assistance, only enough time and resources to create the proper technology. But if the Church's anthropology is accurate, humanity simply cannot save itself.

It is here that the importance of building communities on an accurate anthropological foundation comes to the forefront of this discussion. The Church posits that human beings are basically good, but still prone to do what is evil without God's assistance. Having this fundamental recognition of oneself as a sinner should promote humility and a willingness to both

¹⁰⁹ *GS* 13

¹¹⁰ *Age*, 2

seek and offer forgiveness when necessary. It should also promote compassion for one's fellow sinners, and it facilitates the building of loving relationships where the other is recognized as more important than the self. Again, it is in loving relationships that human beings flourish and find sustained happiness.

Kurzweil's anthropology suggests that happiness is found in fulfilling one's desires, and that the way to fulfill one's desires is to become more powerful than one previously was so that the limitations that prohibited one from fulfilling one's desires can be overcome. But the quest to become an ever-greater self is necessarily self-centered. Self-centeredness does not facilitate the creation of loving relationships, therefore it will not lead to human flourishing and sustained happiness.

Consider the differences between the citizens of a society based on Kurzweil's anthropology, and the citizens of a society based on the Catholic understanding of the human person. In which one would an average person rather live? In which one would it be more likely for the average person to find happiness? The anthropological assumptions on which a society is built matter for the happiness of human beings. Catholic anthropology may involve a painful admission of one's sinfulness, but it leads to love. Kurzweil's anthropology may involve empowerment of the individual, but it does not lead to love as easily and as surely as Catholic anthropology.

Body and Soul

The Church suggests another essential aspect of being human is being a composite creature: "Though made of body and soul, man is one."¹¹¹ Physical and spiritual reality intersect in human beings in a unique way. In the past, this anthropological belief led some Christians to disparage the body. But, "man is not allowed to despise his bodily life, rather he is obliged to

¹¹¹ GS 14

regard his body as good and honorable since God has created it and will raise it up on the last day."¹¹² The fundamental attitude humans should have toward their bodies is that they are good. What does Kurzweil think of the human body? Again, he writes, "Although impressive in many respects, the brain suffers from severe limitations... our thinking is extremely slow: the basic neural transactions are several million times slower than contemporary electronic circuits... Our version 1.0 biological bodies are likewise frail and subject to a myriad of failure modes, not to mention the cumbersome maintenance rituals they require."¹¹³ Kurzweil is revealing a fundamental dissatisfaction with the human body. The Catholic Church certainly does not exalt the body as the greatest good, but it recognizes that the body is holy in that the Son of God took on a human body when He became man and was resurrected bodily after His death, and that through the body a person can receive powerful grace from God in the sacraments. For Kurzweil, the body is a limitation to be overcome, not a gift and potential source of grace to be embraced. Of course, why should Kurzweil regard the body as anything else, since, fundamentally, he regards himself as a pattern, not as a composite of body and soul?

Kurzweil's view on sexuality has already been examined. But what does that view imply about children? How is new life created in a post-singularity world? Inherent in the process of bringing a child into the world is uncertainty. How will the child take after its parents? When will the child come? Some couples still choose to remain ignorant of their child's sex. Ignorance is accepted, despite the anxiety that it can cause. Even if there is no ignorance, knowing a child's genetic make-up, due date, and sex does not give parents complete control of their child. The couple's lack of control over all aspects of their child's nature and development reinforces the 'otherness' of the child. It is not merely an extension of its mother and father; it is an entity unto

¹¹² *GS 14*

¹¹³ *Singularity*, 8-9

itself. But Singularitarian emphasis on the expansion of personal power for the sake of achieving one's will may lead to the treatment of children as objects to be adjusted, or discarded,¹¹⁴ as their parents desire. By virtue of their complete dependence on present generations, future generations of human beings are vulnerable to being engineered or 'improved' to whatever degree transhumanists desire, assuming of course that future generations of humans are given permission to exist at all.

The Interior Moral Law

The notion of conscience as a guide to behavior is deeply rooted in Catholic tradition. According to the Church, conscience is etched deeply into human existence: "In the depths of his conscience, man detects a law which he does not impose upon himself, but which holds him to obedience. Always summoning him to love good and avoid evil, the voice of conscience when necessary speaks to his heart: do this, shun that. For man has in his heart a law written by God; to obey it is the very dignity of man; according to it he will be judged."¹¹⁵ A transcendent moral law that is not derived from the human mind inheres in the core of each person's being. Indeed, obeying this law is the 'dignity' of a human being; obeying the moral law is what ratifies human worth in a dynamic way. Human life is ordered toward something beyond human imagining, and humans must strive to obey the moral law so as to live in accord with that end. For Kurzweil, such a strong assertion of *telos* is problematic. He does offer a teleology in the following statement that has been discussed in chapter two: "ours is the species the inherently seeks to extend its physical and mental reach beyond current limitations."¹¹⁶ But this apparently self-evident justification for Kurzweil's radical vision is not a *purpose* in the comprehensive

¹¹⁴ This ABC news story by Susan Donaldson James references the over 90% abortion rate of fetuses diagnosed with down syndrome: http://abcnews.go.com/Health/w_ParentingResource/down-syndrome-births-drop-us-women-abortion/story?id=8960803

¹¹⁵ GS 16

¹¹⁶ *Singularity*, 9

sense. It is not an *end* for which humanity is created.¹¹⁷ It is a mandate for unimpeded technological development that is more concerned with 'how' questions than with 'why' questions.

Returning again to the definition of transhumanist anthropology offered previously, *a human being is a self-adjusting pattern of knowledge that perpetually expands itself by expanding its power*, the question of the ultimate end of a human being seems to be answered only by Kurzweil's vision of the universe 'waking up' when all matter and energy within it has been transformed into interconnected units of computation. Presumably, this 'waking up' involves some sort of communion on the part of all the unique loci of intelligence that exist at that time, but the sort of communion that will exist is impossible to guess. This presumed communion does seem to parallel the communion of the saints with God and each other that exists in heaven, but there is a foundational difference: heaven is a trans-temporal reality, while the very life of the universe is time. The question becomes, can the universe transcend itself? If the universe is finite, and all the matter and energy in it is utilized in its 'waking up,' then there will be a point when the conscious universe can no longer transcend its previous limitations.¹¹⁸ Of course, there is no guarantee that the universe is in fact finite, but that is the point. There is no guarantee that the universe is infinite, or that there is a multi-verse, etc. Finitude may set in again, and the entire transhumanist eschaton could be revealed to be nothing more than a false hope. If this is the case, the only something - Someone - external to the universe, to all temporal reality, could enable the universe to transcend itself.

¹¹⁷ Kurzweil, though he prefers being called a patternist, is a materialist, so from his point of view, humanity can have no *telos* beyond what it decides for itself, which is the same as having no *telos* at all. Evolution would seem to demand that our purpose be survival and reproduction, but part of Kurzweil's point is that humanity should transcend biological evolution, so why should human purpose be derived from an evolutionary paradigm?

¹¹⁸ The Law of Conservation of Mass applies to all closed systems, and the universe may be a closed system in that all the matter and energy that ever will exist in the universe was present at the Big Bang.

This 'external Actor' who helps finite entities transcend themselves is recognized by *Guadium et spes* in a unique way when the document offers another fundamental aspect to the human person: human beings will be judged. This judgement, like the moral law itself, is not of human origin. God will judge each human being, and He will render a perfect judgement about each person's choices. The reality of being judged by the Supreme Judge of the Universe reinforces that humans are created, dependent - finite - beings. It reminds human beings that they have a responsibility to God for their lives, and that responsibility points toward something that goes beyond even being made in the image of God: humans are called into relationship with God. "Conscience is the most secret core and sanctuary of a man. There he is alone with God, Whose voice echoes in his depths."¹¹⁹ The existence of the moral law points toward the Lawgiver who judges, but the Judge is actively helping the one who is judged to act in accordance with the moral law. The Judge cares for the judged. So awareness of the coming judgement of God, though traditionally (and rightly) a source of fear, can also be seen as a source of comfort, for the Judge is trying to help the judged.

Since Kurzweil's view does not include God or a transcendent moral law (though he does think that the Golden rule is a good idea, he asserts that the principle role of religion has been to "rationalize death"),¹²⁰ there is nothing analogous to a supreme judge in his worldview. There is no One outside the universe Who will help the universe transcend itself. It is possible that the 'humans try to extend beyond their limits' principle combined with the superior value for knowledge Kurzweil expresses can be seen as a 'universal moral law' for patternists. Of course, the possible finitude of the universe might still impose a hard stop on the transcendence that can be achieved, so this universal moral law does not point to anything ultimately transcendent.

¹¹⁹ *GS 16*

¹²⁰ *Singularity*, 374

Kurzweil's transcendence will always be a transcendence relative to past states of power, and never an absolute transcendence of finitude itself. There is no escaping finitude when reliance on the infinite is intrinsically disallowed by one's method of transcendence. Therefore, ultimate transcendence, from finitude to infinity, is never achieved, and the inherent telos of Kurzweil's anthropology can never be fulfilled. If a telos, or ultimate end, cannot be fulfilled, perhaps it is not a true telos of humanity after all, and a different anthropology is true, and thus better for a person and a society to adopt.

Freedom

Christianity generally, and Roman Catholics particularly, have argued that humans have freedom, or possess free will. This freedom is radical in that it allows the human being to accept God and the destiny God offers humanity, or to reject God and ultimate union with Him. Kurzweil's patternism is fundamentally materialistic, as a pattern of information is something that can be perceived with the senses, and it possesses no super-natural characteristics. Kurzweil seems to believe in some kind of freedom in that he states that he can influence the evolution of his pattern. Of course, this language suggests an "I" that exists apart from the pattern that is that "I." But that cannot be true, since the "I" is the pattern and only the pattern. So how can a pattern influence itself in a way that is not determined by its prior state and the input it receives? Is there a way for Kurzweil to guide his pattern toward a certain point, or is the feeling of an "I" that is providing guidance an illusion? It would seem that an "I" that is nothing more than a pattern of information is bound by material limitations; in other words, though it may be a highly complex chain, it is cause and effect that determines how the pattern develop. The idea of an "I" that chooses how its pattern develops does not make sense.

In fairness to Kurzweil, it must be stated that his philosophy is not the only one that struggles with the problem of free will,¹²¹ and he does grapple with free will in one of his latest works. He writes, "My own leap of faith is that I believe humans have free will, and while I act as if that is the case, I am hard pressed to find examples among my own decisions to illustrate that."¹²² He does not have a solid solution to the problem of the conflict between deterministic materialism and free will, though he recognizes that the link between free will and responsibility is "useful, and indeed vital, to maintaining social order, whether or not free will actually exists."¹²³ Kurzweil should be applauded for his candor in his search for answers to the riddle of human freedom. He could easily dismiss free will as an illusion, but he recognizes the danger of that approach and wisely refuses to take it. But he must concede his belief in free will to a "leap of faith." This is problematic, given that it would be reasonable for another transhumanist thinker to reject Kurzweil's leap of faith and argue that a rejection of free will, and thus of personal responsibility, is more in line with what the best evidence suggests to be true. In taking his "leap of faith," Kurzweil's position is vulnerable to refutation within the framework of his own system. He writes: "I will continue to act as if I have free will and to believe in it, so long as I don't have to explain why."¹²⁴ What will he do when pressed for an explanation? Will he ultimately give up on free will and personal responsibility? Again, Kurzweil is not alone in that this problem affects many philosophical and theological systems. But Kurzweil's materialism makes his acceptance of free will especially difficult. This conflict between the inherent materialism of a patternist anthropology and a belief in free will that cannot be explained materially seems irreconcilable.

¹²¹ Traditional Roman Catholicism must deal with the standard objections to a dualist conception of free will.

¹²² Kurzweil, Ray, *How to Create a Mind: The Secret of Human Thought Revealed*, Penguin Books, 2013, pp. 239-240. All further references to this work will be designated by *Mind*, followed by the page number.

¹²³ *Mind*, 235

¹²⁴ *Mind*, 240

Catholicism puts great emphasis on moral responsibility, and it holds that the consequences of decisions are imputable to those people who make them. Is there personal moral responsibility in Kurzweil's patternism? Despite his suggestion that the Golden Rule should be adopted, it would seem that the answer is, "no," if one strictly goes on the scientific evidence (or lack thereof) for the existence of free will in the traditional sense. If Kurzweil is suggesting that the Golden Rule be followed because it is advantageous to do so, then he can make a consistent case for doing so. Following the golden rule for the sake of benefits one seeks for oneself does not involve the invocation of supernatural entities to which one might be responsible. But if he thinks the Golden Rule is actually good in itself, then the entire structure of objective truth and individual responsibility before that truth thrusts itself into his system, and it is questionable whether or not such a structure fits there.

Furthermore, in the Roman Catholic understanding of the telos of a human being, loving the other genuinely and selflessly is intrinsic to the ultimate end of human existence: the beatific vision of, eternal communion with, God. Yet for the transhumanist anthropology of Kurzweil, the Golden Rule is a means for achieving social stability, not a precondition of entering into supreme beatitude. Social stability is desirable because it allows for individuals to pursue their goals unimpeded by each other. Thus, even in its invocation of the Golden Rule, Kurzweil's anthropology is self-interested, not other-centered. This dichotomy is explained by the nature of self-transcendence as Kurzweil understands it: the overcoming of limitations that previously curtailed the satisfaction of one's will. Kurzweil's self-transcendence is not ordered toward the other, but the self. It is *inherently selfish* in that it is most concerned about comparing one's present configuration of selfhood to one's past configurations of selfhood and measuring the increase of personal power that has occurred. That it is technologically-based reinforces this

comparative process, in that the technology of the present is always measured against the technology of the past in terms of how powerful it is - what it can do for its user.

The self-transcendence proclaimed by the Roman Catholic Church is doubly other-centered, in that it is enabled by faith in the Other and oriented toward the O/other. Christ's New Commandment goes beyond even the Golden Rule by setting His example of love as the standard that must be followed. This truth must be reckoned with in any understanding of Roman Catholic anthropology because Catholic anthropology is theological anthropology, and, as Marc Cortez writes, "theological anthropology begins with the divine-human relationship, however, also... it must begin with the person and work of Jesus Christ. As the one who is both fully human and fully divine, the true image of God, the redeemer of humanity, and the teleological focus of all creation, the mystery of humanity finds its most complete manifestation in Jesus."¹²⁵ What is the model of self-transcendence offered by Christ? Self-sacrificial love. True self-transcendence occurs when the totality of the self is offered on behalf of the other for the benefit of the other. It is in this focus on the other, this giving over of the entire self to the other, that the self is transcended. True ec-stasy occurs in this loving self-emptying, and one can stand outside oneself only when one gives oneself entirely to the other. It is here, in other-centered, self-sacrificial love that self-transcendence occurs. It is here that the human telos is fulfilled.

Roman Catholic Anthropology in Summary

Given the above statements from the Church on the human person, what formulation could a concise statement of Roman Catholic anthropology take, at least for the purposes of comparison with the previously formulated statement of transhumanist anthropology? Roman Catholic anthropology could be summarized as the belief that *the human person is an intelligent,*

¹²⁵ Cortez, Marc, *Theological Anthropology: A Guide for the Perplexed*, T&T Clark International, 2010, p. 16.

morally responsible, composite being made in the image and likeness of God, and is called by God to communion with God and others through self-sacrificial love. A necessary caveat is that human beings are sinful and in need of redemption in Jesus Christ, and it is Christ who gives the perfect example of self-sacrificial love to humanity. This caveat is what may make Christianity unpalatable to many modern people at first, but it cannot be separated from the main anthropological assertion above. Though modern members of Western Civilization may not always seem to possess a sense of personal sinfulness, there is openness among people, old and young,¹²⁶ to the message of conversion that is and inherent part of the Good News.

¹²⁶ The popularity of World Youth Day is a clear indicator that young people continue to find meaning in the traditional message of repentance in the Gospel, and my own experience with the methodology of a much more local form of evangelization, Convivio, confirms that many of the young people I work with are interested in a message of healing the wounds caused by sin and reconciling with God.

Conclusion: Truly Human Anthropology

Human beings are storytellers. They tell stories about themselves: their origins, their struggles, and their destinies all feature prominently in the art of the past and present. Ray Kurzweil understands this, which is why his proclamation about the promise of future technology is embedded in a great story, the story of the evolution of life, and of the universe itself. While Kurzweil's research into cutting edge science, and the application of that science in new technology, is impressive, it is his situating of the central claims of transhumanism within the framework of the development and destiny of all life in the universe that gives persuasive force to his ideas. This persuasive force is the force of an ancient and powerful narrative, and in this way his Singularity can be seen as promoting its anthropology in the form of a religious myth.

Roman Catholicism deals in religious myth, too, and the Church could point out that Kurzweil's story is, at its core, the same story uttered by one of the denizens of Eden: "You shall be as gods!" Auto-apotheosis is the goal of transhumanism, and though the means - computational technology - is new, the plot has been written out again and again in human history. Recognizing this, the Church can suggest that the consequences of this attempt to supplant God will be the same as all the previous attempts: alienation of people from each other, followed by suffering and death.

It also can propose an alternative story, that of a loving God Who has given His only-begotten Son to the world for the salvation of the world. This story does not allow for humanity's self-deification, but it does promise eternal life of a different kind. Rather than promoting a selfish and self-centered anthropology, the Church can point to the example of Christ's self-sacrificial love as the means of true self-transcendence. Yes, it is true that

Christianity affirms that human beings are dependent on God for their self-transcendence to occur, but that only make the self-transcendence more genuine., for it happens thanks to the power of the Other, not the self. The Other toward whom the supreme expression of self-transcendence, self-emptying love, is ultimately oriented is the very same One who enables that self-transcendence. Christian anthropology is intrinsically other-centered. Transhumanist anthropology is not.

Western culture is on the brink of redefining the story of human life, and that re-definition is supported by popular culture, technological development, and even the prevailing interpretation of American constitutional law. But the new story, which is in truth an old story, is based on pride, not love. The Church must do everything it can to continue to promote its story of humility, its Good News, so that human beings can recognize themselves as beings that by their very nature are made not for the accumulation of personal power, but for the total self-giving of kenotic love.

WORKS CITED

- "All Time Domestic Box Office Results." *All Time Domestic Box Office Results*. N.p., n.d. Web. <http://www.boxofficemojo.com/alltime/domestic.htm>.
- "Biological Technologies Office (BTO)." DARPA RSS. N.p., n.d. <http://www.darpa.mil/about-us/offices/bto?PP=0>
The original link to this source, http://www.darpa.mil/Our_Work/BTO/, no longer functions due to a massive overhaul of the website. The information on the projects cited in this thesis is still available through the new link.
- Captain America the First Avenger*. Dir. Joe Johnston. Perf. Chris Evans. Paramount, 2011. Film.
- Chappie*. Dir. Neill Blomkamp. Perf. Sharlto Copley. Sony Pictures, 2015. Film.
- "Church of Perpetual Life." *Church of Perpetual Life*. N.p., n.d. Web. 24 June 2015. <http://www.churchofperpetuallife.org/>
- Cortez, Marc. *Theological Anthropology: A Guide for the Perplexed*. New York: T&T Clark International, 2010. Print.
- DeLashmutt, Michael W., "A Better Life Through Information Technology? The Techno-Theological Eschatology of Posthuman Speculative Science." **Zygon: Journal of Religion & Science**. Jun 2006, Vol. 41 Issue 2
- Dovey, Dana. "Stem Cell Breakthrough Opens Door For Two-Dad Babies In As Little As 2 Years." *Medical Daily*. N.p., 24 Feb. 2015. Web. <http://www.medicaldaily.com/stem-cell-breakthrough-opens-door-two-dad-babies-little-2-years-323350>; Link to an abstract of the study referenced by the article: <http://www.ncbi.nlm.nih.gov/pubmed/25543152>
- "Game Database." , *Best Selling Video Games, Game Sales, Million Sellers, Top Selling*. N.p., n.d. Web. <http://www.vgchartz.com/gamedb/?name=Deus+Ex>
- "Google Search." *Google*. N.p., n.d. Web. <https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=mass%20effect%20transhumanist%20ending>
- "HumanityPlus Mission Statement." Web. <http://humanityplus.org/about/mission/>
- Iron Man*. Dir. Jon Favreau. Perf. Robert Downey. Paramount Pictures, 2008. Film.
- James, Susan Donaldson. "Down Syndrome Births Are Down in U.S." *ABC News*. ABC News Network, 02 Nov. 2009. Web. http://abcnews.go.com/Health/w_ParentingResource/down-syndrome-births-drop-us-women-abortion/story?id=8960803

- Knapton, Sarah. "Three-parent Babies: The House of Lords Approves Law despite Fears Children Could Be Born Sterile." *The Telegraph*. N.p., 24 Feb. 2015. Web. <http://www.telegraph.co.uk/news/science/science-news/11432058/Three-parent-babies-House-of-Lords-approves-law-despite-fears-children-could-be-sterile.html>
- Kurzweil, Ray. *The Age of Spiritual Machines: When Computers Exceed Human Intelligence*. New York: Penguin Books, 1999. Print.
- Kurzweil, Ray. *How to Create a Mind: The Secret of Human Thought Revealed*. New York: Penguin Books, 2013. Print.
- Kurzweil, Ray. *The Singularity Is Near: When Humans Transcend Biology*. New York: Penguin Books, 2005. Print.
- "KurzweilAI | Accelerating Intelligence." *KurzweilAI Ray Kurzweil Biography Comments*. N.p., n.d. Web. <http://www.kurzweilai.net/ray-kurzweil-biography>
- "Mass Effect: A Sales History." *VGChartz*. N.p., 17 Apr. 2012. Web. <http://www.vgchartz.com/article/250066/mass-effect-a-sales-history/>
- "Pastoral Constitution on the Church in the Modern World-Gaudium Et Spes." *Pastoral Constitution on the Church in the Modern World-Gaudium Et Spes*. N.p., n.d. Web. http://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat_ii_const_19651207_gaudium-et-spes_en.html
- Planned Parenthood vs. Casey. Supreme Court of the United States. 29 June 1992. *FindLaw*. N.p., n.d. Web. <http://caselaw.lp.findlaw.com/scripts/getcase.pl?court=US&vol=505&invol=833>.
- Sandberg, Anders. "Morphological Freedom." *The Transhumanist Reader*. N.p.: Wiley-Blackwell, 2013. N. pag. Rpt. in Ed. Max More and Natasha Vita-More. N.p.: n.p., n.d. 56-64. Print.
- "Transcendence." *IMDb*. IMDb.com, n.d. Web. <http://www.imdb.com/title/tt2209764/>
- "Transhumanist FAQ." Web. <http://humanityplus.org/philosophy/transhumanist-faq/>
- Wolf, Gary. "Futurist Ray Kurzweil Pulls Out All the Stops (and Pills) to Live to Witness the Singularity." *WIRED*. N.p., 24 Mar. 2008. Web. 24 June 2015. <http://archive.wired.com/medtech/drugs/magazine/16-04/ff_kurzweil>.

APPENDIX I: IMPLICIT SUPPORT FOR TRANSHUMANSIM SURVEY DATA

SURVEY RESULTS FOR SELF-IDENTIFIED CATHOLICS

Rel Srv Att Rate:	< once a year	Few times yearly	Monthly	Weekly	> Weekly	No Answer
	7	38	34	55	2	1
	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	No Answer
1.) When I make important decisions I consider what God might want from me.	17	63	42	11	2	
2.) Computers will never be as smart as humans	13	22	58	21	23	
3.) I would permanently replace a healthy body part with technology that does a better job so I could be stronger/faster/smarter, etc.	7	15	28	37	47	2
4.) Religion delays technological progress.	4	8	56	51	18	
5.) I have a personal relationship with God.	42	64	19	10	1	1
6.) I think technology is the most powerful force in the world right now.	21	24	44	29	18	1
7.) People should be able to do whatever they want with their bodies.	25	40	43	15	13	1
8.) Artificial intelligence that is at least as smart as the average human being will exist within 15 years from today.	13	37	66	18	3	
9.) If there was technology that could make me live forever, but I would have to significantly change or give up my body to use it, I would use it.	1	16	28	43	49	
10.) It would be good if there was technology that allowed disabled people to gain or regain normal human abilities that are currently impaired or not present for them.						

	64	54	13	3	2	1
11.) I would put microscopic robots in my bloodstream if they were considered safe and they made me healthier.	12	33	42	30	20	
12.) If machines in the future demonstrated that they were intellectually equal to humans, they would deserve human rights.	3	8	35	46	42	3
13.) If there was technology that allowed me to use the internet with my thoughts, but it had to be implanted in my brain, I would have it implanted,	7	16	28	43	42	2
14.) I am familiar with the term, "transhumanism."	5	17	19	44	52	

SURVEY RESULTS FOR NON-CATHOLICS

	< once a year	Few times yearly	Monthly	Weekly	> Weekly	No Answer
Rel Srv Att Rate:	15	14	18	18	5	2
	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	No Answer
1.) When I make important decisions I consider what God might want from me.	14	18	26	4	8	2
2.) Computers will never be as smart as humans	12	5	33	14	7	1
3.) I would permanently replace a healthy body part with technology that does a better job so I could be stronger/faster/smarter, etc.	3	8	20	21	20	1
4.) Religion delays technological progress.	2	11	29	19	10	1
5.) I have a personal relationship with God.	22	21	15	5	9	

6.) I think technology is the most powerful force in the world right now.	8	15	27	10	12
7.) People should be able to do whatever they want with their bodies.	12	21	21	11	7
8.) Artificial intelligence that is at least as smart as the average human being will exist within 15 years from today.	3	18	43	6	2
9.) If there was technology that could make me live forever, but I would have to significantly change or give up my body to use it, I would use it.	1	6	19	22	24
10.) It would be good if there was technology that allowed disabled people to gain or regain normal human abilities that are currently impaired or not present for them.	26	23	14	7	2
11.) I would put microscopic robots in my bloodstream if they were considered safe and they made me healthier.	2	12	34	18	6
12.) If machines in the future demonstrated that they were intellectually equal to humans, they would deserve human rights.	4	6	27	24	11
13.) If there was technology that allowed me to use the internet with my thoughts, but it had to be implanted in my brain, I would have it implanted,	3	10	21	19	18
14.) I am familiar with the term, "transhumanism."	6	9	15	21	21

APPENDIX II: NANOBOTS STUDENT SURVEY AND RESULTS

Mr. St.Onge's Graduate Thesis Survey Part 2

Imagine you had access to one of the technologies mentioned in the previous survey: nanobots. These microscopic robots can replicate themselves and communicate with each other wirelessly. They can be implanted in human beings to serve a variety of functions. They can make you healthier, connect you to an expansive virtual reality network (think of it as a super-internet), and even give you access to an artificially intelligent personal assistant, like Siri, only much, much smarter. These nanobots function like your body's cells in that they fulfill their jobs without you thinking about them, unless you wanted to use the more advanced features as well as the basic ones. The advanced features require you to think to activate them. The basic features will always happen automatically. Below are a series of numbers. Each number has a corresponding statement. Please circle the number that best represents what you would do if you had access to this technology. Remember, only the features that you want to use will be unlocked. The nanobots will not do something you do not want them to do.

0 - I would not put nanobots in my body.

1 - I would put nanobots in my body so that they could help my immune system destroy germs, heal injuries, and eliminate dangerous things like cancer cells. *This feature is basic and would happen automatically.*

2 - I would put nanobots in my body for everything in **1** and so that I could eat as much as I want without ever having negative consequences; the nanobots would eliminate all the excess and harmful particles I consumed. *This feature is basic and would happen automatically.*

3 - I would put nanobots in my body for everything in **1** and so that I could access the virtual reality network with my mind. I understand that this means that the nanobots would be connecting directly with the nerve cells in my brain. *This feature is advanced and would be activated by your thoughts.*

4 - I would put nanobots in my body for everything in **1** and **3** and so that I could access a super-intelligent personal assistant with my mind. I understand that I would be communicating with an artificial intelligence with my thoughts, and I understand that I would have to be able to connect to the virtual reality network so that that artificial intelligence could find information for me and do the things I wanted it to do. *This feature is advanced and would be activated by your thoughts.*

5 - I would put nanobots in my body for everything in **1, 2, 3, and 4.**

Total	232
0	73
1	73
2	46
3	7
4	5
5	28

APPENDIX III: NANOBOTS ADULT SURVEY AND RESULTS

How old are you?

Answer Choices–

Responses–

–

Under 21 years old

6.06%

4

–

21 - 35 years old

74.24%

49

–

36 - 49 years old

10.61%

7

–

50 - 64 years old

6.06%

4

–

65 - 80 years old

3.03%

2

–

81 years old or older

0.00%

Total 66

Which number above best reflects the choice you would make about putting nanobots in your body?

Answer Choices–

Responses–

–

0

21.21%

14

–

1

33.33%

22

–

2

25.76%

17

–

3

3.03%

2

–

4

4.55%

3

–

5

12.12%

8

Total 66