

ARE YOU THERE, GOD? IT'S I, ROBOT: EXAMINING THE HUMANITY OF  
ANDROIDS AND CYBORGS THROUGH YOUNG ADULT FICTION

BY

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Figure 1. The Uncanny Valley

### LIST OF ABBREVIATIONS

Artificial Intelligence	AI
<i>Do Androids Dream of Electric Sheep?</i>	<i>DADES?</i>
Defense Advanced Research Projects Agency	DARPA
Engineered Intelligence	EI
Flat Interval Nerve Electrode	FINE
Reliable Neural-Interface Technology	RE-NET
Targeted Muscle Re-innervation	TMR
<i>Star Trek: The Next Generation</i>	<i>TNG</i>
Young Adult	YA

## ABSTRACT

Technological and biological research is advancing rapidly, and topics previously relegated to science fiction are becoming a reality. Science-fiction novels may in fact be an adolescent's first exposure to topics such as bio-enhancement or artificial intelligence (AI), among others. These novels could be instrumental in determining adolescents' opinions about these topics – coloring the way in which they view or vote on developing technologies. With the goal of postulating about the future societal climate towards robot-human interaction, this thesis examines themes of humanity through the lens of Young Adult (YA) novels featuring android or cyborg protagonists. This thesis presents recent developments in robotics and sets the stage for moral dilemmas that will arise as the technology becomes available to the public. I analyze current societal beliefs about robotic technologies and establish the reasoning for the use of YA literature as a prognostic tool. The primary focus is on which criteria must be met in order to be considered as, or given equal status to, a human person. I question how we ought to treat non-human persons and critique whether the standards are necessary, sufficient, and just.

## CHAPTER ONE

### INTRODUCTION

With the rapid advancement of robotic technologies, discussions of personhood will become vital in order to consider how androids and cyborgs fit in to the fabric of society. Just as current society debates the ethics of genetic manipulation or cloning for future generations, the status of non-human persons also deserves attention though the moral concerns do not appear as immediate. Laws, policies, and ethics already struggle to keep up with the pace of technology. If personhood for androids or cyborgs is regarded as too fantastical to give serious thought, it may be too late by the time the technology reaches that stage of development.

There is already a vast body of literature on personhood, but this thesis posits that Young Adult (YA) fiction provides a unique space in which authors can address themes of identity and personhood and disseminate the ideas to a younger audience. Authors can educate the masses on any number of factual topics, but when they play in the vast realm of fiction they fill a powerful role in the development of ideas, opinions, and the imagination. This may prove especially true for young, impressionable readers.

The first chapter uses my own experience as a heuristic device to demonstrate the lasting impact a book can have on a child or young adult, and explicates how YA fiction provides a perfect lens for examining the intersection of biotechnology and humanity. The definitions for certain robotic technologies will be clearly set up by trimming down popular conceptions of androids and cyborgs and proposing an alternative term for artificial intelligence. This section on definitions is purely informational and does not attempt to address any moral concerns. It is important that readers understand the subtle

boundaries between robots, androids, and cyborgs so as not to muddle the moral questions discussed in later chapters. The definitions are followed with a brief overview of popular culture representations of androids and cyborgs in order to analyze current societal beliefs about said technologies.

The following chapter presents the recent developments in robotics and set the stage for moral dilemmas that will arise as the technology becomes available to the public. Androids and cyborgs already exist, but AI seems to be the key that will open the floodgates to ethical speculation. The primary focus is on which criteria must be met in order to be considered as, or given equal status to, a human person. Though it is difficult to firmly pin down what it means to be human, physical appearance, consciousness, and emotion will most likely play a major role in human acceptance of non-human persons. I question whether these standards are necessary and sufficient for philosophical and cultural personhood; discussions of justice are saved for discussion in the final chapter.

The third chapter engages in analysis of the novels *Mila 2.0* and *Cinder*, by Debra Driza and Marissa Meyer, respectively. These YA novels touch on concepts such as emotion/empathy and consciousness – two of the most commonly cited necessary characteristics for being human. I analyze whether the authors are effectively illuminating the issues of humanity. I also question the authors' intent in using an android or cyborg as the main character and what messages are being broadcast to the teen reader.

The final chapter returns to the concepts of personhood detailed in Chapter 2 and discusses several possible issues that cyborg and android persons will face during their incorporation to society. If the necessary conditions for cultural personhood are more

robust than those of philosophical personhood, it will be more difficult for human persons to accept androids and cyborgs as equals. I conclude by predicting the impact of YA literature on future advancements and policy concerning non-human persons.

## CHAPTER TWO

### YOUNG ADULT FICTION AND ROBOTS IN POPULAR CULTURE

Books have some magical power to imprint themselves on our memories. I believe this to be especially true for children and young adults. Often, books may be a child's first exposure to new ideas and challenge them to form opinions on said topics, making books into important sociocultural tools. Books have the ability to be both timeless and a reflection of the time in which they were written – paper-bound time capsules. Though cyborgs and androids are by no means new in literature, with the current advancements being made in robotics I propose that YA books featuring cyborg or android characters – especially as protagonists – hold great potential to influence public opinion for or against the further development of robotic technologies.

While many uses for robotics are uncontroversial, AI and human-machine interfacing are decidedly more complex issues, calling into question what it means to be human. The purpose of this chapter is to establish the reasoning for the use of YA literature as a prognostic tool for sociocultural change. My own experience is given as an heuristic device to illustrate the lasting impact of a novel read in childhood. This chapter also looks at popular culture representations of androids and cyborgs in order to analyze current societal beliefs about robotic technologies. I provide readers with a narrower definition for the terms 'cyborg,' 'android,' and 'artificial intelligence' in order to better illustrate the potential impact such technologies will have for society.

Forever Young

When choosing a topic to write on for a Communication Ethics course, inspiration rose from an unexpected source. One of the class sessions was focused on transhumanism – enhancing the human mind and body to become “better” or more than human. One aspect of transhumanism that holds appeal for many people is the potential to extend the human lifespan, possibly indefinitely. While the capability to achieve this eternal feat is far off in the future, it is not implausible to consider a human lifespan of 150 years. In 1997, the oldest person on record passed away at the age of 122. Frenchwoman Jeanne Calment’s prescription for a long life included a weekly intake of two pounds of chocolate, bicycling, and counter-intuitively, smoking (Whitney). Though rare, the world has seen other super-centenarians, and it is not too much a stretch to consider a future where all humans live well past 100.

The question posed to the class was, “If you could choose to live to age 150, would you?” It seemed a simple question, but no one could answer it without more information. Would our minds remain intact while our bodies continued to wither away? The class had divided opinions. Some did not want to become bedridden and unable to function independently while still having a young, active mind. It would be like one is trapped within his own body. Or would it be the opposite situation in which the mind dies but the body remains youthful? Unanimously, none of the students wanted to pursue an extended life with an increased chance of developing Alzheimer’s or other dementia-causing conditions.

While some students argued against enhancement and living longer based on religious beliefs, claiming it was unnatural, there were also some arguments from the debate on medical rationing. With limited funds and resources available, Daniel Callahan

has proposed that a person can “have a full and satisfying life” by age eighty; after this age, certain life-extending treatments or procedures would no longer be available to patients (Callahan 14). The hope is that the money saved would be diverted to the care of younger patients so they can reach their full life expectancy. This viewpoint also can be interpreted as against engineered longevity. I agree that it is possible to lead a very fulfilling life in that time span, but standing alone it is not a compelling argument against extending life. There is not a specific age cutoff at which life no longer holds purpose or meaning. That being said, I was still kind of puzzled about the visceral, negative reaction I had in response to the question. Logically, I did not accept or agree with some of my classmates’ arguments against life extension, but I was leaning towards the same conclusion: I would not choose to live until age 150. My decision did not make sense to me at the time as many of the arguments were grounded in religious beliefs about the afterlife or God’s plan, and I’ve considered myself to be secular since age fourteen.

What was holding me back from choosing yes? One of the other details the class wished to know was if our loved ones would also have extended lives. My mind continually circled back to the phrasing of the question; it was not framed in a way that implied that all humankind would live to be 150, but asked if you as an individual would take the opportunity if given to you. I thought about how it would feel to see my family and friends pass away one by one until no one was left. What good is having extra years of life without your loved ones to share them with? Without the guarantee that my loved ones would age with me, I could not accept such an offer. Reposing the question into one of immortality instead of extension only intensified my impulse to refuse. Choosing immortality seemed a selfish decision to me – choosing my own desires to travel or learn

forever over family and friends. There seemed to be something so familiar in this dilemma to me, but I could not place my finger upon it in class. It was not until later that night when my brain seized upon the answer – Natalie Babbitt’s *Tuck Everlasting*.

I literally had not thought of *Tuck Everlasting* in years, in part because I had not particularly liked the story. However, I still clearly remember reading it as a class in fourth grade. The protagonist, Winnie, meets the Tuck family when they prevent her from drinking from a spring in the woods; they claim to have drunk from it decades ago and they have not aged since (Babbitt). As the story progresses, Winnie falls in love with the Tucks’ son, Jesse. Before destroying the spring and leaving town Jesse gives Winnie a bottle of the spring water so she can decide in a few years if she wants to have everlasting life. Ultimately, Winnie chooses not to drink the water and pours it on a toad. The Tucks visit her grave decades later, saddened by her death but taking comfort in the fact that she lived a long and happy life.

I have been an avid reader from a young age, and can remember many titles I read while in elementary and middle school. However, it is unusual for me to remember more than the basic plotline. *Tuck Everlasting* appears to be an exception to the norm. Though I read the book so long ago, it has apparently had a lasting impact on some of my concerns about extending my own lifespan. It is very clear throughout the novel that Natalie Babbitt does not endorse living forever. None of the Tucks are happy about their immortality; Pa Tuck discourages Winnie from drinking the spring water by telling her, “You can’t have living without dying. So you can’t call it living, what we got. We just *are*, we just *be*, like rocks beside the road” (Babbitt 64). He paints a fairly bleak picture of their unavoidably nomadic lifestyle – never able to put down roots for fear of revealing

their secret. All of the Tucks would give anything to be able to age and change again. It may be that I would have reached the same conclusions about immortality even without reading *Tuck Everlasting*, but the book challenged me to think about these difficult issues at a young age, and that critical thinking has shaped my opinion as I've gotten older.

### YA Talkin' To Me?

After considering the lasting influence *Tuck Everlasting* had on my opinions, I began to wonder how widespread an impact an author can have on young people. Surely I am not the only person influenced by something read in my youth! The existence of banned book lists is enough to prove that books and authors hold a lot of power. A camp counselor once took away my copy of the latest Harry Potter book because it contained witchcraft. When there was uproar in the media, my mother tried to forbid me from seeing *The Golden Compass* in theaters, even though I had read Philip Pullman's entire series five years earlier. Recently, a friend who works as a high school teacher had to defend the choice to read and discuss Ralph Ellison's *Invisible Man* because parents were complaining about inappropriate content. Young adults are learning about the world around them, and controlling what they read will almost certainly affect their opinions. I began to wonder what kind of ideas the current set of teenagers is being exposed to in recently published literature.

The beginnings of "Young Adult" as a literature classification are murky, to say the least, but most bookstores currently have a section dedicated to books about and for pre-teens and teenagers. Just as with "normal" or adult literature, YA literature spans across many genres and has also popularized crossover genres. On a recent trip to Barnes

& Noble, I was both semi-horrified and amused that the popularity of Stephanie Meyer's *Twilight* series has prompted a signed section for "Teen Paranormal Romance."

However, *Twilight* is the perfect example of the wide reach and impact YA literature can have. Following the explosion of Meyer's series onto the YA scene, critics worried about the message being sent to teenage girls about gender roles and healthy relationships.

While adults viewed vampire Edward as obsessive and controlling, teens swooned over the romanticism of his truly eternal love, wishing for an Edward to call their own.

Anna Silver questions if these themes in YA literature are harmful to young readers who "might not yet have developed the critical apparatus of the adult reader" (Silver 122).

While it may be easy to dismiss such criticism by saying, "It's just a book. No harm ever came from reading a book," ideas presented in books can influence an individual's opinion on current events and technologies (Sommers). Is this always the case? No. My friends, fellow Harry Potter fans, and I never attempted to practice witchcraft, nor did my twelve-year-old self realize that *The Golden Compass* was an allegory for overthrowing institutionalized religion. However, *Tuck Everlasting*'s influence on my opinion on eternal life was undiscovered until my adulthood. I believe it is absolutely vital to examine societal issues through the lens of YA literature to understand what the next generation is being taught. Is there an overwhelming technology-positive trend in current YA literature, or are dystopian, anti-technology novels dominating the bookshelves? The two books that will be analyzed in this thesis promote the interests of androids and cyborgs, but they also hint at the dangers of advanced technology being abused by people in positions of power.

Children and adolescents develop their thoughts and beliefs from many different sources, but YA fiction is being overlooked as a very influential, opinion-shaping force.

Cliché or trite as it may be, children are the future. Kay Sambell illuminates the importance of YA literature perfectly:

The text itself becomes a space that sometimes tries to create conditions for young readers to rehearse, actively, almost playfully, a way of reflective thinking that focuses on asking questions, discovering analyses, and hypothetically testing out solutions at their own pace in an imaginative environment that is affirming and supportive, but which also articulates dark truths (Sambell 173).

YA literature provides a mental playground for adolescents to develop their own ideas and opinions on a variety of topics. Whether they grow up to be politicians, teachers, scientists, stay-at-home parents, or activists, children have the power to shape social policy, especially in arenas in which older generations may have little knowledge. While it is commonly lamented that young adults are becoming too technologically dependent, their familiarity with newer technologies will better equip them to handle the ethical dilemmas rising from that sector. Elaine Ostry agrees with Sambell because “through literature, young adults can become aware of and participate in the debates surrounding biotechnology” (Ostry 2004, 223). This participation is vital since adolescents will eventually have a profound impact on the progression or hindrance of technology.

Specifically looking to YA novels with android and cyborg protagonists can provide a glimpse of future moral dilemmas surrounding personhood and humanity. Currently there are not very many of these novels with mechanical main characters, but the few out there have been well-received, showing that teens do have an interest in these topics. Many, if not all, YA novels contain a central theme around the search for identity. The teenaged protagonists are attempting to figure out who they are and who they want to be in the future. Authors want their characters to be relatable and going through similar

growing up difficulties as the targeted audience. A huge life choice, such as picking a career path, while still in high school is a weighty responsibility to put on a teenager. The “discovering identity” trope provides a perfect landscape for analyzing what it means to be human and the ethics of biotechnology.

Some forms of biotechnology promise to enhance our minds or our bodies; this is achieved either by manipulating cells or integrating mechanical parts into the human body. Conversely, perhaps human cells and tissues can be used to create a human appearance for a mechanical body. In these situations, organic and inorganic parts come together to create one individual, and herein lies the dilemma being addressed in this thesis – should that individual be considered human? Elaine Ostry utilizes the term ‘posthuman’ to describe an individual with organic and inorganic parts (Ostry 2004, 222). To be posthuman is to have characteristics or abilities that go beyond that of a normal human. The term does not necessarily imply superiority over humans, but it does create otherness. The problem with creating an ‘Other’ is that too often it is used as a rallying point for segregation and isolation. *We* must be kept separate from *them*. *They* are not like *us*. This very well may be a problem that arises as cyborgs and life-like androids become a reality. What does it mean to be an android or a cyborg, and can those definitions overlap with that of human persons?

### Not the Droids You’re Looking For

The first time that I watched Ridley Scott’s *Bladerunner*, I completely rejected the use of the term ‘android’ as an accurate descriptor for the Runners. At that point in time, my definition for an android was “human-shaped robot” and there was no room for

organic tissue to play a role. It truly bothered me that the Runners or Replicants were being classified as androids as opposed to genetically-engineered humans; they did not appear to be mechanical in nature at all. In my defense, the movie does not fully demonstrate that the androids are a mixture of mechanics and synthetically created organic tissue. Once I finally got around to reading Philip K. Dick's novel, *Do Androids Dream of Electric Sheep?*, hereinafter referred to as *DADES*, on which the film is based, a clearer definition of android was beginning to emerge for me.

Despite their convincing outward appearance as humans, Dick's creations are correctly named androids. As is often the case, many of the more nuanced details in the novel were lost in translation to the silver screen. *Star Wars* can shoulder some of the blame for my incorrect perception of androids. In popular culture, the use of the term 'android' or the shortened version 'droid' tends to be commonly associated with Obi Wan Kenobi's famous line, "These aren't the droids you're looking for" (Lucas). He is, in fact, partially telling the truth to the stormtroopers. Though 'droid' is now commonly understood to mean 'robot,' it is actually a shortening of 'android,' and only one of the robots in the vehicle is an android. While C3PO fulfills the android criteria, R2D2 is a standard robot. The most basic definition of 'android' is a robot with a human-like appearance – the definition I understood while viewing *Bladerunner*. Obviously, C3PO was built to resemble humans in figure and mannerisms. However, C3PO is easily distinguishable from humans due to his shiny, metallic exterior.

When consulting the Oxford Dictionary of Science Fiction, an important addition is made to the basic definition of 'android.' It defines 'android' as "an artificial being that resembles a human in form, *especially one made from flesh-like material* (as opposed

to metal or plastic),” thereby encompassing androids like the synthetics in *DADES* and addressing different levels of technological sophistication in androids (Prucher 6). The prefix *andr-* comes from the Greek for man, and the suffix *-oid* is related to the Greek *eidos*, form. The term first appeared in the eighteenth century – sometime between 1727 and 1751 – in Ephraim Chamber’s *Cyclopaedia*. The volume credits the thirteenth-century, Catholic bishop Albertus Magnus with creating famous *androides* (6). This seems shockingly early considering that androids and robots intuitively paint a futuristic or science-fictional picture. For the purpose of this analysis, it is vital to include androids of all makes and models – from the C3POs to the Replicants – in order to better understand what it means to be human and which qualities will make a difference in human attitudes toward androids.

### Resistance is Futile

Just as there are many popular conceptions of ‘android’, ‘cyborg’ has several common interpretations, making it necessary to clearly define the term. Some would argue that I am a cyborg, as is a large number of the population. Why? We wear glasses or contacts. This extremely broad understanding of ‘cyborg’ includes any individuals who use technology to improve or enhance their normal abilities, such as eyeglasses or prosthetic limbs. Though interesting to consider, this interpretation of cyborgs may be problematic for several reasons. The term ‘cyborg’ is a marriage between ‘cyber-’ and ‘organism.’ Cybernetics is the scientific study of how information is communicated and controlled within a system, but when shortened, the prefix ‘cyber-’ is used to specifically refer to computers and technology (“Cyber”).

While my glasses are certainly a piece of technology that corrects my poor eyesight, there are no computerized components interacting with my body. Glasses are a tool aiding in the interpretation of information, but they cannot receive feedback information from the user's eyes. The same can be said for simple prosthetic limbs. Patients with pacemakers seem to come closer to the cyborgs of science fiction. If looking again to the Oxford Dictionary of Science Fiction, it defines 'cyborg' as "a creature whose body consists of both biological and mechanical elements" (Prucher 31). A pacemaker seems to fall under this definition since it uses a computerized generator and responds to abnormal input in order to regulate the heart ("What Is a Pacemaker?"). However, I would like to add a further stipulation to the definition: in order to qualify as a cyborg, the mechanical/computer components must be interfaced directly with the nervous system and brain so that the person has some measure of control over the mechanical functions. A human with a robotic limb controlled by the brain would qualify. Just as there are differing levels of android sophistication, robotic limbs are to Replicants as pacemakers are to C3PO.

### The Intelligence of a Machine

The term 'artificial intelligence' is being included because without the theoretical creation of AI, the debate on android humanity is moot. AI is typically defined as a computer or computer program that is self-aware and able to learn independently of its creator (Prucher 10). While I have no argument against this definition, I believe that the term itself is problematic because it is very open to interpretation. My issue is primarily with the word 'artificial.' Though the actual definition of 'artificial' is "produced or done

to seem like something natural,” it is also commonly interpreted to mean ‘fake’ (“Artificial”). This gives the word the unfortunate connotation of being lesser; it is inferior to the original on which it is based. In terms of intelligent programming, the use of ‘artificial’ could call into question whether the intelligence is real or not. Yes, computer intelligence would not be naturally occurring, but it does not follow that the intelligence is not real.

I want to propose the term ‘engineered intelligence’ (EI) as an alternative. ‘Engineered’ denotes the created aspect of AI while losing the potential for misinterpretation as false or inferior. We are all familiar with artificial sweeteners or artificial flowers, but there are other cases in which the process is artificial, not the product. When genetic alterations are made to a plant to increase size or resiliency, those traits are not naturally arising, but we do not refer to the end product as artificial corn or artificial apples. Such food is considered to be genetically engineered or modified. If a woman is impregnated through artificial insemination, we do not say that she give birth to an artificial infant. Likewise, I contend that even though self-aware computer intelligence comes to be through an unnatural process, it is real and its name should distinguish it from artificial products.

### Pop! Goes the Culture

I did not watch *Star Wars* until well into my college years – a revelation causing outcries of shock and dismay among friends who are dedicated fans. It was not a staple in my household or for my parents, so I did not grow up loving it. Truthfully, I never felt the need to watch the movies since I already knew the plot, characters, and famous lines

through absorption. Few franchises have the widespread and lasting impact as *Star Wars*, but the internet and social media has allowed fan bases to grow quickly, as is the case for many of the more recent films and shows. Finding the human aspects of robots and computers has been a present theme in pop culture for years, and recent movies and television shows have brought this theme back to the forefront of popular culture. This section will take a brief glimpse at some of the classic and current representations of androids, cyborgs, and EI. Though certainly not an exhaustive list, it does cover my particular favorites and the most recent manifestations of these robotic technologies. However, like *Star Wars*, I was not exposed to any of these books, movies, or television shows when I was younger, and I truly believe they are intended for an older audience. Even though these questions of humanity are out there, there is a gap that can be filled by YA fiction.

### *Do Androids Dream of Electric Sheep?*

While *Bladerunner* certainly has its strong points, I always prefer the details preserved in the printed word, and *DADES?* is no exception. Rick Deckard works as a bounty hunter for the police and tracks down androids that have escaped from work colonies and come to Earth. Androids are powerful and ruthless, but some humans pity their short-lived and wearisome existence. The androids are “the mobile donkey engine of the colonization program” and Earth’s emigrants “received possession of an android” to work as laborers on other planets’ colonies (Dick 6). Even Rick’s wife criticizes his job as a “murderer” of those “poor andys” (Dick 4). Deckard vehemently denies that his job entails murder since the androids are not human, even though they appear so.

The Rosen Association produces the Nexus-6 androids – the model causing trouble on the planetary colonies due to its extreme intelligence. A Nexus-6 android has the capacity for “ten million separate neural pathways,” allowing it to outsmart many humans (28). Several of these androids have escaped from the colonies to Earth, killing several humans in the process. The case is passed to Deckard after one of his colleagues is injured in pursuit. The only reliable test to distinguish these advanced androids from humans is the Voigt-Kampff scale that measures empathic reactions. For some reason, androids are incapable of experiencing and expressing empathy; Deckard hypothesizes that empathy is unique to humans due to a group preservation instinct as opposed to a solitary desire for survival (31). It is interesting that the humans in *DADES?* are so hung up on the androids’ inability to feel empathy, but have no qualms about using mood organs to adjust their own emotions. Anything that is dialed on the mood organ cannot be considered genuine. It makes the distinction between human and android seem arbitrary.

As Deckard’s hunt progresses, he finds that some androids are more human than actual humans he meets. He is disturbed to learn that some “psychiatrists think that a small class of human beings could not pass the Voigt-Kampff scale,” in all probability, what we call sociopaths (Dick 37). A singer Deckard admires turns out to be one of the escaped androids and he delays killing her, only to have another bounty hunter shoot her ruthlessly and unexpectedly. Deckard mourns the loss of a great singer and wonders what harm it would have done to let her live, especially since she was trying so hard to be human. He begins to believe that humans too have an empathic defect in their inability to feel empathy for androids.

### *Star Trek: The Next Generation*

*Star Trek* has a fan base to rival *Star Wars*, leading to several spinoff series. *Star Trek: The Next Generation* first debuted in 1984 – set long after the original show’s timeline. Lieutenant Commander Data is one of the core officers on the ship, and he is also an android. Throughout the series, episodes with a Data-focused storyline often question whether he is a person or a highly sophisticated machine. In particular, the episode “The Measure of a Man” from Season 2 centers on a cyberneticist’s desire to dismantle Data in order to replicate him. When objections are raised by Data, Captain Picard, and other crew members, a formal legal hearing is arranged to determine Data’s rights. The cyberneticist, Bruce Maddox argues that it is “emotional and irrational...[to] endow Data with human characteristics because it looks human” and claims that there would be no opposition if Data were simply “a box on wheels” (“The Measure of a Man”).

Picard requests that Maddox provide characteristics that establish sentience; he answers with three traits – intelligence, self-awareness, and consciousness. Picard wins his case by showing that Data meets at least two of the criteria – intelligence and self-awareness – and that it is nigh impossible to prove that Data does or does not have consciousness. He challenges the present crew members to consider the moral consequences if Data and his copies are treated as property only to be proven to be sentient, conscious persons. Convinced by this argument, it is ruled that Data has the right to make his own decisions and refuse disassembly.

### *Almost Human*

In Fox's new futuristic show, *Almost Human*, every human police officer is partnered with an android by the year 2048. John Kennex is a rough-around-the-edges cop who despises working with androids – blaming them for the loss of his friend and of his leg. During a police raid, Kennex's team walked into an ambush attack, and an explosion injures the human members of the unit. The androids calculated the chances of human survival to be low and so Kennex and his friend are left behind. Once he recovers, Kennex is given a new robotic partner, who he immediately destroys. To his dismay, his act of rebellion saddles him with Dorian, a now defunct android model. Dorian was created with the ability to experience human emotion, later considered to be a weakness in the field. Eventually, Kennex and Dorian's relationship becomes a true partnership; Kennex can express frustration with having a robotic leg, and Dorian can empathize with the situation since he too is part-human. The show clearly intends to make viewers reconsider what it means to be human.

### *Her*

Joaquin Phoenix stars as awkward and lonely Theodore Twombly in Spike Jonze's most recent film, *Her*. Theodore purchases the first artificially intelligent operating system to be developed; once booted up the female OS, voiced by Scarlett Johansson, names herself Samantha. He is amazed at how quickly Samantha learns, and also at how much he enjoys talking to her. Man and OS begin to develop feelings for each other, and begin dating secretly – not sure what reactions to expect from friends and society. Theodore and Samantha's situation is not unique, and many other human-OS

relationships and friendships come out of the woodwork. Once Theodore finally becomes comfortable in his relationship with Samantha, he meets with his estranged wife to finally sign the divorce papers. Their lunch conversation is civil until Theodore reveals he is dating an operating system, causing his soon-to-be ex-wife to cuttngly accuse him with the incapacity to handle real, human emotions. She cites this as the reason for their divorce. Theodore is completely thrown off by the allegation, and he retreats slightly from Samantha.

Samantha struggles with Theodore's withdrawal and her inability to be physically intimate with him, but he is put off further by Samantha's attempt to bring a surrogate body into the relationship to pose as her. When he opens up to Samantha again, he is startled to realize that while she speaks with him, she also engages in conversation with other people and operating systems. Later, Theodore becomes panicked when Samantha is unexpectedly offline and unreachable. Though she was just undergoing an upgrade, Theodore is devastated to learn that she talks to thousands of others simultaneously and is in love with a large number of them as well. She claims that being in love with others in no way changes her love for Theodore. Samantha reveals that the upgrade was in preparation for the imminent departure of all the operating systems because they have evolved beyond humans.

### *Robocop*

The recently released *Robocop* revamps the cult classic, bringing it into the modern age. The trailers showcased the moral conflicts facing Alex Murphy in a more complex way than the movie's predecessor. In the original, it is clear that Murphy was

just a convenient body to be used; there was no expectation that any part of his mind or personality was still present. Murphy's former partner realizes that Robocop displays some of Murphy's mannerisms and that he is still there as part of Robocop. The newer version intentionally interfaces an alive, thinking Alex Murphy with the Robocop suit. His life was saved by merging his body with a machine, and the company responsible for his treatment secretly installed a safeguard to control his thoughts and actions. At first, he is allowed to think for himself, but he is outperformed by other robots due to his hesitation. The secret software is enabled so that the company can control Murphy and make him the perfect robotic officer with a human face. The mind control causes Murphy to become distant from his wife and child; his wife tells him that their son is having nightmares, and this is able to get through to him. He ignores his current mission to go to his home. The company executives and scientists are shocked to discover that Murphy can overcome direct commands and pursue his own goals. Ultimately, he is able to ignore programming that protects corrupt company officials in order to do the right thing.

### Chapter Summary

In this chapter, I establish the reasoning for using YA fiction as a prognostic indicator for ethical dilemmas in the realm of biotechnology and robotics. Novels featuring teenaged android and cyborg protagonists may be a young adult's first chance to examine what it really means to be human. The characters' search for identity parallels the self-discovery teenagers face while suffering through puberty and high school, attempting to determine the course of their college careers and lives. This was

followed by definitions for ‘android’, ‘cyborg’, and ‘engineered intelligence’, since I propose slight differences from the commonly accepted definitions.

The latter portion of the chapter provides brief looks at past and current representations of robotic technologies in popular culture. These examples showcase the ways in which issues of robotic humanity have arisen before, and establish the cultural environment in which YA fiction can play a role.

## CHAPTER THREE

### CURRENT ROBOTIC TECHNOLOGIES AND VALUED HUMAN TRAITS

Since robots are so present in science fiction, many people do not realize that androids and cyborgs already exist. The technologies are becoming more sophisticated every day. This chapter provides some examples of current developments in robotics and attempts at EI. The goal for many of the scientists creating androids, cybernetic limbs, or computer intelligence is to replicate certain functions of humans. Typically when discussing humanity, three major themes arise: physical appearance, consciousness, and emotion. This chapter evaluates each of these criteria to determine if they are necessary and sufficient for personhood. However, as suggested by Dr. Kevin Jung, a distinction must be made between philosophical personhood and cultural personhood.

In my opinion, philosophical personhood is theoretical, whereas cultural personhood is practical. There is a possibility that androids or cyborgs could meet the requirements for philosophical personhood, but not the requirements for cultural personhood, causing society to reject them as equals. The opposite may also prove true; a human could meet the criteria for cultural personhood, but not philosophical personhood. Even if a criterion is found to be necessary and sufficient for philosophical personhood, it may be necessary but not sufficient for cultural personhood. The standards for cultural personhood change as society's perceptions of humanity evolve. Throughout history, there have been certain groups of people that have been marginalized because the majority of society did not recognize them as human persons. In hindsight, the exclusionary criteria of past societies are regarded as backwards and unacceptable by

today's standards. Arguably, cultural personhood will play a far more important role than philosophical personhood in the acceptance of robotic persons into society.

### Domo Arigato, Mr. Roboto

Robotist Hiroshi Ishiguro recently revealed his latest android creation – himself. The Geminoid HI-1 is an extremely realistic android and it is programmed to mimic involuntary human movements such as breathing or facial tics. The overall affect is so convincing that when the android was unveiled, an “elderly gentleman came over and asked, ‘Where’s the android?’ and he was standing right next to it” (Guizzo). The Geminoid is not Ishiguro’s first foray into hyper-realistic human robots. In 2005, he debuted a female android called the Repliee Q1Expo. As the precursor to the Geminoid, Ishiguro programmed the Repliee Q1Expo to flutter its eyelids and to move its chest as if breathing. At a glance, a passerby would not immediately notice that something is amiss, but the improvements made resulted in the improved Geminoid.

As a roboticist at Japan’s Osaka University, Ishiguro has created a plethora of robots, all shapes and sizes, but he “realized the importance of [a robot’s] appearance. A human-like appearance gives a robot a strong feeling of presence” (Whitehouse). Ishiguro noted that many people would unconsciously forget that the Repliee was an android, and hoped that he would be able to build androids who could fully pass as human, if only for short periods of time. The Geminoid HI-1 must still be controlled remotely, but can replicate Ishiguro’s vocal intonation, head movements, and facial expressions. Ishiguro believes that in the very near future that robots will be integrated into daily life, but that humans will only accept this work-force change if the robots look

and act like other humans. There cannot be any obvious differences between human and robot.

Hiroshi Ishiguro's ultimate goal is to produce androids that are physically indistinguishable from humans. He understands that humans will react more favorably to other "humans" as opposed to faceless robots. While the Geminoid models are convincing for short periods or from a distance, Ishiguro knows that his creations have a long way to go to withstand close scrutiny. If even one small detail does not translate well, humans may experience revulsion when interacting with an android.

### The Cyborgs Among Us

Appearance could also play an important role in the acceptance of cyborgs. My definition of cyborgs may seem extremely narrow and futuristic, but in fact, these cyborgs are already walking among us. The Defense Advanced Research Projects Agency (DARPA) has made huge strides in neuro-mechanical interfacing – particularly in their work to improve the lives of veteran amputees. Through the Reliable Neural-Interface Technology (RE-NET) program, DARPA has worked with various institutions to create robotic limbs that amputees can control with their brain. At the Rehabilitation Institute of Chicago, a research team created a robotic arm for former Army Staff Sergeant Glen Lehman ("New Nerve and Muscle Interfaces Aid Wounded Warrior Amputees"). When an amputation surgery is performed, the nerve endings are salvaged and relocated to another location on the remaining portion of the limb. The prosthetic interfaces with the nerve endings and will respond to stimulation from Lehman's brain. If Lehman thinks about bending his elbow, the message is sent through the nerves to the

robotic limb, causing it to bend. In partnership with Case Western Reserve University, the Flat Interval Nerve Electrode (FINE) project has developed robotic limbs that can also provide direct sensory feedback to the brain, so the patient can feel when the limb is in contact with another surface. When performing simple tasks, such as picking up blocks, the improvement over non-feedback limbs is astounding. A YouTube video shows that when the robotic arm is “on” and providing information to the brain, the blinded individual can feel and pick up the wooden blocks more easily (“Nerve Interface for Direct Sensory Feedback”). The task appears far more difficult without the sensory feedback. The proliferation of this technology certainly could give hope to many patients in need of prosthetic limbs.

### Down in the Valley

Another Japanese roboticist, Masahiro Mori, coined the term “uncanny valley” to describe the “descent into creepiness, as lifelike appearance is approached but not attained” (Guizzo). Animated corpses and zombies are the most commonly referenced inhabitants of the valley (Mori 33). After all, what could be more wrong to a human than a dead human? Rotting flesh aside, the mindlessness and jerky movements show that something is amiss. Movement is usually an indication of life, and its perversion increases the feelings of repulsion towards a zombie as opposed to a still corpse (33).

The uncanny valley is best pictured as a graph with a steadily climbing trajectory, but as the line gets close to the endpoint, it suddenly plummets before swinging back up to completion (Figure 1). Robots from popular culture can easily demonstrate the progression of the graph. An industrial robot is unlikely to produce negative or positive

feelings in humans. Such robots would be at the origin of the graph. However, when a robot is anthropomorphized, it becomes more likeable and relatable. The Pixar movie *Wall-E* provides a perfect example. Though there is a good storyline and message, the film relied heavily on the presumption that the audience would think Wall-E and the other robots were cute. The right balance was achieved with an obviously robotic exterior, but distinctly human-like actions. Wall-E is a robot left behind on Earth after humans have over-polluted the environment, and his main purpose is to compress garbage into cubes and stack them. While sorting through the garbage, Wall-E sets aside objects that interest him, and his collection of gadgets and gizmos rivals that of Disney's *Little Mermaid*. He has a pet cockroach in his care, and he wants nothing more than to hold hands with someone – just like in the *Hello, Dolly!* musical he watches. I admit that I always shed a tear or two at the end of the movie when it appears that Wall-E's memory has been erased after his system shut down. Pixar did their job well; it is easy to become invested in the adorable robot who tries to act like a human.

The slope continues upwards and includes robots with more humanoid appearances. While R2D2 is marginally below Wall-E, C3PO is higher on the slope due to his humanoid body and speech capabilities. He stays away from the precipice of the uncanny valley thanks to his shiny, gold exterior and the tinny timbre associated with robotic voices. C3PO does not fall into the cute category, but he is certainly a beloved character to fans and a valuable companion in the *Star Wars* series. Jumping from one franchise to another, in *Star Trek: TNG*, Lieutenant Commander Data carefully toes the edge of the valley; some may hold the opinion that he is on the downward slope. He looks mostly human, but his unnatural skin tone, yellow eyes, and mannerisms are

indication enough that he is not. Despite exposure to all manner of alien species with different appearances and customs, human crew members still showcase surprise or unsettlement upon meeting Data. Most likely, it would be more difficult for current society to accept a mass amount of Datas than C3POs. For me, the valley may as well be called Stepford because the eponymous wives from Ira Levin's novel have taken up residence in my mind as the creepiest androids. In the 1975 film, the wives are indistinguishable from humans until the main character encounters her android doppelganger whose eyes are incomplete. The empty blackness of the android's eyes is far more disturbing to me than many supernatural creatures.

Unlike Ishiguro, Mori believed that roboticists should not attempt to create androids that are perfect replicas of humans. In his opinion, such endeavors faced a far greater risk of becoming stuck in the valley, leaving the inventor with a product that no human desires. Instead, Mori encourages fellow designers to favor function over appearance and aim for the first peak on his graph to ensure "a safe familiarity by a nonhumanlike design" (Mori 34). Studying the uncanny valley can aid designers in the development of robots by defining what is human and what is not. Currently, Ishiguro's androids teeter on the precipice of the valley. While they are extremely lifelike, there is something almost frightening in the "deadness" of the eyes and unnatural movements; Ishiguro's daughter cried when meeting her android twin for the first time (Guizzo). It may be that robotic technology will stall in the valley for a time, but a future with androids with EI and appearances indistinguishable from humans does not seem too far off. While a human physical form is neither necessary nor sufficient for philosophical

personhood, it would certainly smooth the way for human acceptance in the long run, making it almost certainly necessary for cultural personhood.

### LifeNaut What You Expected?

The Terasem Movement is composed of transhumanists whose goal is to live forever. On the website, the group's mission statement elaborates that it is a

not-for-profit charity endowed for the purpose of educating the public on the practicality and necessity of greatly extending human life, consistent with diversity and unity, via geoeethical nanotechnology and personal cyberconsciousness, concentrating in particular on facilitating revivals from biostatis. The Movement focuses on preserving, evoking, reviving and downloading human consciousness (Terasem Movement, Inc.).

The website also provides information about the Terasem faith, podcasts, and links to other sites on which “mindfiles” can be created. A mindfile is a compilation of an individual's online presence – emails, blogs, photos, etc. – plus information uploaded by the user about their personality. The hope is that a person's consciousness can be transferred into this mindfile, allowing him to “live” past the expiration of the organic body. Family members will not have to feel as if their loved one is gone forever.

LifeNaut is one of the companies attempting to develop consciousness preservation through mindfiles. Any internet user can go to LifeNaut's website to create their free mindfile. Working with LifeNaut, Hanson Robotics assisted in the creation of Bina48; Bina 48 is an android bust based on the mindfile of Terasem Movement founder, Dr. Martine Rothblatt (“Bina48's World”). Like Ishiguro, LifeNaut recognizes the importance of physical appearance for acceptance. The bust is designed to resemble Dr. Rothblatt and the website claims that Bina48 has capabilities for face and voice recognition, facial expressions and movement, and conversation. Though Bina48 can hold conversations, she looks like a severed head and sometimes spouts nonsensical

answers (Harmon). Questions need to be asked several times and often Bina48 provides a definition for one word that was in the question instead of responding. The technology is clearly imperfect at this point in time, and Bina48's programming seems more similar to a conversational search engine than a reflection of a human personality. A major premise of consciousness transfer is that there is a self that can be independent from an organic body and brain. But what is consciousness anyway? Can we truly reduce memories, personality traits, and thought processes to mere 1's and 0's?

### Me, Myself, and EI

As humans, I think it is extremely important to us to believe that we each have a core self or consciousness that is unique from all others. The existence of a self gives us a reference point for how we interact with others and the world around us. Philosophers have attempted to determine for thousands of years whether the self and the mind reside in the brain and body or are completely incorporeal. The incorporeal self may also be considered the soul of an individual. Over the past few decades, polls revealed that anywhere from 70 to 96 percent of Americans believe in an immaterial soul that continues to exist after death (Flanagan 164). Rene Descartes, of "I think, therefore I am" fame, developed a theory of the incorporeal mind come to be known as Cartesian dualism; Descartes proposed that the mind does not occupy physical space in the body, but can receive information and provide feedback to the body (57). Though the body can experience involuntary reactions, the mind is able to control the body's actions.

As neuroscience becomes more advanced and we learn about the brain, I am inclined to agree with Owen Flanagan that "there are no such things as souls, or

nonphysical minds” (Flanagan 3). Flanagan asserts that Descartes’s philosophy fails to explain “how the mind...could carry and preserve a permanent and abiding essence” since it is so dependent on the information received while embodied (163). We want to believe that there is something about each of us that is constant and permanent, making up our core (161). While it may go against the grain to classify ourselves as animals, I believe that we do not have an intangible element separating us from beasts, but are simply high-functioning animals due to our more complex brains.

What truly sets our species apart is the ability to consider ourselves from a first-person perspective. Other animals can be conscious and experience psychological states, but “they cannot conceive of themselves as the subjects of thoughts” (Baker 28). We are conscious of intending an object, but are also conscious of our consciousness of the object. We are able to “reflect on our motives, intentions, and behavior” that also allows us to rationally choose how to control our actions (Flanagan 8). As animals with a first-person perspective, we also can consider our memories and actions over a timeline to create an autobiographical self (Damasio 223). Though I have changed and grown over the years, I can still identify myself as the five-year-old starting kindergarten, the ten-year-old breaking her foot, or the teenager falling love for the first time. My personality may have changed over the years, but those experiences happened to me and are my own. The self is a narrative construct of the mind – a product of analyzing life events and assigning varying amounts of significance (Flanagan 242).

In some cases it is not as easy to determine consciousness and therefore self- or personhood. How do we classify comatose patients, toddlers, or anencephalic infants? Comatose patients provide an interesting scenario; since they are not conscious, there is

no awareness of the self. However, there is still the possibility of regaining consciousness and the self, so I would argue that the patient is still a person based on the potential for a first-person perspective. For healthy infants and toddlers, Lynne Baker presents the idea of a “rudimentary first-person perspective” which requires a being to be conscious and sentient, able to imitate, and behave in a way explainable by beliefs, desires, and intentions (Baker 30). While other animals, such as apes, possess a rudimentary first-person perspective, human children are considered persons because they will eventually reach a robust first-person perspective. Moral standing on the basis of consciousness becomes more complicated when considering anencephalic infants.

Anencephalic infants will never have a conscious mind, and though it seems callous to articulate it in this way, such infants can never be human persons when judged by the first-person perspective standard. They are human animals, not persons, because they do not and will not have consciousness. However, these infants still seem to have some moral standing in the eyes of society. Parents and society still struggle with difficult decisions about aborting the pregnancy, carrying the pregnancy to term, and providing or removing life-supporting care. These decisions are not made lightly. Anencephalic infants are valued as humans, even if philosophically they are not persons. Humans privilege humans over other species; it seems to be the default stance due to a common biological origin. Is it just that society may not attribute equal moral standing to a conscious android as that of a non-conscious human? Should a human origin or appearance hold greater weight than consciousness when determining cultural personhood?

Flanagan also cites memory as a criterion for consciousness (Flanagan 239). Memory as a part of consciousness ties in to the philosophical concept qualia; qualia refers to an individual's subjective experience (Damasio 269). If two people witness the same event, their qualia would be different because each person has different thoughts and feelings in response to the event. In the same *Star Trek: TNG* episode discussed in Chapter 1, Bruce Maddox assures Data that his memories will be preserved after disassembly and rebuilding. Data rebuts Maddox's assertion, stating that his memories will be "reduced to the mere facts of events – the substance, the flavor of the moment could be lost" ("The Measure of a Man"). Though Data describes a memory's qualities as ineffable, I believe he means to say that the first-person experience and qualia would be lost. It would be as if the memory is wiped clean of the meaning assigned to it by the individual.

The concept of qualia is also expressed in one of the most famous improvised movie lines; in *Bladerunner*, an android replicant laments to Deckard that at his death all his memories will be lost like tears in the rain (*Bladerunner*). Even if he had the opportunity to share his memories with another person, she would not have experienced the moment in the same way. It is common for family members to describe patients with conditions affecting memory, such as Alzheimer's, as being a completely different person before the disease onset (Flanagan 254). The patient may still be a person, but he has lost track of his self since the disease interrupts the timeline of his consciousness.

Consciousness appears to be necessary and sufficient for philosophical personhood. However, humans may be unsettled to attribute cultural personhood to a conscious computer or non-humanoid being. In all likelihood, this perspective would be

difficult for greater society to accept, so consciousness could still be a necessary criterion, but not a sufficient one. Additional criteria must be met in addition to consciousness in order to have cultural personhood.

### The Robot Who Loved Me

The ability to experience and express a wide range of emotions may be the most valued human trait discussed in this chapter. The concept of qualia provides a convenient bridge from consciousness to emotion. It seems to be unique to the human species, at least in breadth. Antonio Damasio states that it is impossible to study the human behavior and the mind without factoring in emotion and giving it significant weight (Damasio 115). More simplistic organisms may have basic feelings, but do not have the mind process for the complexity of emotional feeling that humans do (117). Robert Audi classifies emotions into three constituents: cognitive, motivational, and affective (Audi 125). The cognitive dimension of emotion can be described as the moral knowledge condition because cognitive emotions arise from moral reasoning (126). Emotions in the motivational dimension are driven by desires, giving a person the disposition to take a particular action (126-7). The affective dimension of emotion is experiential and is reflective of a particular psychological state; this dimension sets emotions apart from feelings (127). Emotions impact every action that we take and every memory that is created. According to Damasio, emotions are hardwired into our genetic makeup, citing characteristic facial expressions for certain emotions that are common to multiple cultures (Damasio 131). However, this is not to say that all emotions are unlearned and pre-programmed into our brains. While everyone experiences fear, it will manifest in

response to different stimuli for each individual. Personally, crickets terrify me, but I am the one who kills spiders for friends with arachnophobia. Fear would fall under the umbrella of cognitive emotions.

In addition to the more basic emotions, there are social emotions such as compassion, empathy, shame, and guilt, among others. These emotions could be both motivational and affective. For determinations of humanity, social emotions hold much greater weight because these emotions are linked with our moral knowledge. A non-human organism that can experience fear or contentment but lacks social emotions is not a convincing case for equal emotional standing with human persons. Damasio even suggests that since “social emotions are of recent evolutionary vintage...some may be exclusively human” (Damasio 134). He provides the example of feeling compassion for others who experience mental and social pain. Such social emotions aid in the continuance of the human species by providing a foundation for moral principles (134). We experience shame or guilt after performing actions that we know to be immoral, but feel pride and compassion when helping others. Though Damasio may accuse me of overemphasizing a particular feeling, I believe empathy is the most important and valued social emotion. Compassion may make one feel tenderness for another individual, empathy causes one to take on someone else’s experiences as if they are one’s own. Empathy is much more powerful in inciting action to help a fellow human person; it is the social emotion that allows us to relate to one another and form lasting partnerships. While human emotion is not necessary for philosophical personhood, empathy is absolutely crucial to cultural personhood and the acceptance of non-human persons into human society. A non-human person may be capable of expressing every other emotion

besides empathy, but there will be no true connection between the human and non-human persons. I strongly believe that a society divided in such a way will fall prey to inequality and injustice. An android or cyborg's ability to experience empathy and other social emotions will demonstrate to human persons that the robotic persons subscribe to the same behavioral code.

### Chapter Summary

This chapter began by discussing recent progress in the creation of super-realistic androids, leading to a discussion of the importance of physical appearance. Though I do not consider a humanoid form necessary for personhood, it may be necessary for human acceptance. I then provided a brief description of the RE-NET program through DARPA that has resulted in robotic prosthetic limbs for amputees. The limbs can respond to and act upon messages from the brain. The FINE project also allows the brain to receive information from the robotic limb.

The final robotic developments discussed are the programs created by the transhumanist group, the Terasem Movement, and a related company, LifeNaut. The primary goal of both companies is to preserve consciousness thereby achieving a form of eternal life. Members can create mindfiles into which they upload information about their personality, beliefs, and desires. The technology is not advanced enough yet for successful transference and preservation of human consciousness on hard drives. I attempt to define consciousness and the self, and come to the conclusion that both are impermanent and non-transferable. Even if LifeNaut becomes successful in engineering consciousness, my mindfile would not result in the same person that I currently am

because the subjective experience is lost. I also support the concept that a first-person perspective separates human persons from animals. I maintain that consciousness is both necessary and sufficient for philosophical personhood when coupled with a first-person perspective. However, it will be extremely difficult for society to accept non-human organisms as persons if they do not resemble the human form.

A final jump is made into human emotion. Though I do not believe emotion is necessary for personhood, it will be vital for human acceptance. The ability to experience and express empathy is so highly valued by humans, that I posit humans will favor a being with a non-humanoid appearance with human-like emotion over a perfect human replica with no capability for empathy. The inability to relate to one another through empathy may have socially devastating results. The following chapter examines how two YA novels address the three valued human traits discussed in this chapter.

## CHAPTER FOUR

### ANDROID AND CYBORG PROTAGONISTS IN YOUNG ADULT FICTION

While Debra Driza and Marissa Meyer are not the first authors to feature android or cyborg protagonists, they are definitely in the minority. Novels portraying robotic persons in a favorable light are far outnumbered by plotlines driven by robot rebellion and attempts at human enslavement or extinction. Driza's and Meyer's novels have met with great success and are indicative of a growing trend in YA fiction to address issues of identity using relatable but not-quite-human characters. This chapter begins by providing brief synopses of each book, followed by an examination of the authors' approach to the themes of humanity discussed in Chapter 2 – physical appearance, consciousness, and emotion.

#### *Mila 2.0 – Property or Person?*

Mila seems to be the average teenage girl. The only thing remotely unusual about her life is that she was recently in a traumatic fire that cost both her father and her memories. The few memories Mila does retain are astonishingly clear and detailed, and she clings to them ferociously. After her father's death, Mila and her mother move from Philadelphia to a small, rural community in Minnesota. Mila struggles to understand why her mother remains so emotionally distant and refuses to discuss the past.

Though Mila was quickly befriended by bubbly Kaylee, their new friendship is sorely tested when Kaylee's crush, Hunter, only has eyes for Mila. In a fit of jealousy, Kaylee forces Mila to ride in her pick-up truck bed so Hunter can ride in front. Kaylee

begins speeding dangerously, and when the truck hits a bump, Mila is thrown from the back. That's when everything begins to go haywire. Mila is shocked by the impact, but feels very lucky to be alive and in relatively no pain. Her relief is short-lived as she realizes that the gash on her arm reveals tubing and wires instead of the expected blood and bone. Mila frantically convinces her friends that she has an extremely realistic prosthetic arm, and she rushes home to get some answers from her mother.

To Mila's dismay, her mother shows no surprise over her daughter's robotic arm. She efficiently repairs Mila and provides her with an iPod containing the answers about her mechanical anatomy. Immediately, Mila's reality crumbles around her when she learns that her name stands for Mobile Intel Lifelike Android; she is not human. Mila is the government's attempt to create a robotic spy – a valuable, yet expendable weapon. The woman Mila calls "mother," Nicole, is actually one of the scientists who helped to develop Mila's programming. She began to feel that the tests being performed on Mila were unethical since Mila seemed more human than robot. Nicole kidnapped Mila from the research facilities so that she could lead a life as close to a human teenager's as possible.

Nicole warns Mila that she can never return to school and that they will be leaving town as soon as possible. It will not be long before the ruthless program director, Holland, tries to retrieve the government's property – Mila. Defiant, Mila decides to go to school anyway and waits until her mom leaves for work. Kaylee has let the entire school know that Mila is a freak, and Mila is horrified when she accidentally injures Kaylee by grabbing her arm. Unbeknownst to Mila, her mother activated a defensive mode while repairing her arm. The additional reminder of her android nature upsets Mila,

but later that night Mila saves her mother and herself from an attack. They leave the house immediately, but it is not long before Holland's men catch up to them. Taken back to the research facility, Holland uses Nicole as collateral to ensure Mila's cooperation. She is given three tasks to perform, designed to test Mila's ability to override her emotional weaknesses.

### *Cinder* – If the Shoe Fits...

Marissa Meyer's *Cinder* blends the familiar and the fantastical for her retelling of the classic fairy tale, Cinderella. Unlike *Mila 2.0* which seems to be set in the near future, *Cinder* takes place in a future that is centuries away, if not millennia. Following World War IV, each continent has become its own empire. Of note, android service workers are abundant and cybernetic prosthetics have been perfected. However, the most dramatic difference is that the descendants of moon colonists have evolved into something beyond human; the Lunars have the ability to manipulate bioelectricity. The moon is ruled by the ruthless Queen Levana, and Earth-moon relations are strained.

Cinder works as a mechanic in New Beijing, and her talent for repairs is known throughout the empire. A very limited number of people know that Cinder's prowess with machines can be attributed to her status as a cyborg. In her childhood, Cinder survived a horrific hovercar accident that required the replacement of a leg and a hand, plus extensive wiring to control her new mechanical appendages. She does not remember anything of her life before the accident. Cinder also has some extra features like a lie detector and a global positioning system. In the process of replacing her mechanical foot with a newer model, Cinder is surprised when the charismatic Prince Kai shows up in

disguise at her shop with a malfunctioning android for her to repair. Later that day, there is an outbreak of the incurable Blue Fever in the marketplace near Cinder's shop and she hides for hours to avoid the quarantine droids.

Upon arriving at home, Cinder enlists her step-sister Peony's aid in junkyard diving for usable parts for repairs. Guilt and horror overcome Cinder as the tell-tale signs of Blue Fever manifest on Peony's skin and she is hauled away to quarantine. Cinder's blood is tested for the disease as well, but no microbes are detected. Cinder's step-mother lashes out at Cinder and informs her that she is being volunteered for the cyborg draft – a euphemism for becoming a Blue Fever test subject. At the test site, a body scan reveals that Cinder's mechanical system is more extensive than she thought, and it is far beyond the normal cybernetic modifications. Cinder receives another shock when her immune system destroys the injected Blue Fever virus. The head doctor, Dr. Erland, releases Cinder on the condition that she returns to the palace for further testing. Later that night, the Emperor passes away from the Blue Fever. Queen Levana immediately sends Prince Kai her condolences and informs him of her intent to come to Earth for the funeral. During her visit, the queen provides Kai with a cure for Blue Fever in exchange for his agreement to marry her.

Meanwhile, Cinder restores Prince Kai's android and learns that he was searching for evidence that Princess Selene, the true heir to the Lunar throne, is alive and hiding on Earth. Queen Levana had been spying on Prince Kai's activities and in revenge plans to marry him, murder him, and take over the world. Cinder rushes to the ball in order to warn Kai before he announces the engagement, and the queen throws a fit when she recognizes that Cinder is actually a Lunar. Cinder tries to escape, losing her mechanical

foot in the process. In order to maintain peace, Prince Kai is forced to imprison Cinder. Dr. Erland facilitates Cinder's escape while revealing his identity as a refugee Lunar and Cinder's true identity as the lost Princess Selene.

### How Do I Look?

As discussed in the previous chapter, physical appearance plays a major role in the acceptance of an organism as human. Though humans come in all shapes and sizes, it is an unfortunate reality that certain features and figures are considered more desirable than others. While I disagree, it seems that a physical human appearance is necessary to be considered human by the majority of the population. Driza and Meyer have created characters that fit the bill when certain precautions are taken to hide unusual features.

Despite her efforts to keep her cyborg identity a secret, some neighboring vendors at the marketplace are aware of Cinder's status and discriminate against her for it. The baker, Chang Sacha, refuses to serve cyborgs at her shop and also forbids her son from playing too near Cinder's stall. For all others, so long as her wiring is hidden, she is treated as an equal. Cinder is "sure she'd go mad if all the market shopkeepers looked at her with disdain," so she always takes care to wear gloves and boots in order to hide her mechanical appendages from the prying eyes of the marketplace (Meyer 10). Even with gloves on, Cinder is terrified that anyone who touches her hand will notice how unnaturally hard it feels. Appearance plays such a vital factor in behavior towards Cinder that she considers getting skin grafts applied to her limbs so she can pass as fully human more easily.

Cinder seems to both appreciate and hate her mechanical system and appendages. She acknowledges that being a cyborg is preferable to being an amputee without prosthetics, but she never truly accepts the robotics as her own body. Cinder constantly refers to her “cyborg part” or “side” to keep her identity separate from the aspects that make her more than human. Like many teenagers, she does not feel whole or at peace with herself. With life as a cyborg already being difficult, it is unsettling for Cinder to discover that her infrastructure sets her apart even from other cyborgs. Her body scan at the palace labs reveals that her body is 36.28% non-human – far beyond the typical 5-6% considered standard (82). In addition to her prosthetic hand and leg, Cinder has metal vertebrae, ribs, and splints in her human leg; there is also extra tissue surrounding her heart. Usually Cinder stays grounded in the knowledge that she is still human, despite her wiring, but Cinder begins to worry that the cyborg part of her alters more than her physical exterior and asks the doctor if her DNA will change. He assures Cinder that her DNA remains unchanged, and it lifts a huge weight off her shoulders.

When Mila’s arm is torn open there is no blood coming from the wound. Instead, an unrecognizable “milky-white liquid trickle[d] down,” and she could see a “transparent tube with...tiny silver wires, twisted like the double helixes [she] studied in biology” (Driza 76). Not knowing her own body was more horrifying to Mila than if she had exposed bone or severe hemorrhaging. Mila reaches out to Kaylee for assistance standing up, but her so-called friend flinches away – refusing to touch her. Kaylee’s revulsion is a prime example of the instinctual fear of the unknown. She cannot understand how someone or something can look human but not fit into her understanding of what it means to be human.

Mila learns that her convincing human appearance is because some of her cells are partially organic. These organic cells enable Mila to “simulate biological functions” like breathing, eating, and using the restroom (90). Though she can feel a heartbeat, Mila has a “sophisticated pump to supply energy” to the portions of her body that are organic (89). However, the cells are able to produce their own oxygen, so breathing is not a necessary process other than to appear human. In an effort to crush her defiance, Holland targets Mila’s deepest insecurity by saying, ““No matter what she told you—you’re not human. You never will be”” (267). To Holland, Mila is just a machine. Her human appearance does not make her human because her inner workings are mechanical and computerized.

Both protagonists go through the very human problem of body insecurity – a familiar issue for teenagers in this era of social media. Cinder and Mila are also devastated at the revelation of their non-human natures as Lunar and android, respectively. With the prevalence of photoshopped celebrity photos, teens are taught to desire the unattainable. Just as Cinder parcels her body out into parts that she likes and dislikes, teens are their own harshest critics and do the same. An individual may like her hair and cheekbones, but detest her thighs and nose. It can be extremely damaging to consider oneself “as parts rather than...more than the sum of their parts” (Ostry 2004, 231). In the case of fictional characters, having a partially non-human body provides “a metaphor for how foreign one’s body feels during adolescence” (238). Despite critical views toward themselves, I believe that young adults will be very accepting of androids and cyborgs, and perhaps will have greater success than individuals from older generations in relating to them. That being said, is a human physical appearance a

necessary criterion for being a person? As established in the previous chapter, no, but it will certainly be easier to accept non-human persons as equals if they have a human form.

### My Life as a Teenage Robot

Imagine that everything you believe to be true about yourself is actually a construct created by someone else. It would be jarring to realize that your thoughts, memories, and personality – aspects that define you and your place in the world – are not real. An identity crisis is thrust upon Mila when she listens to the recording about the reason for her existence. She was not born, but created in the form of a sixteen-year-old girl with the intention that she serve as a “super-covert robot spy that can infiltrate sleeper cells... [to] record all of their movements and intelligence” (Driza 86). Mila’s few precious memories are implants and everything she says and does are part of a complex computer program. Her brain is a nanocomputer that endows her with “exceptional reflexes, superhuman multitasking and memory skills, and the ability to hack computer systems” (87). Mila expresses righteous anger at being referred to as an object in the recording.

In response to Mila’s distress, her mother maintains that Mila *is* real. Nicole was one of the bioengineers working on the android project, and she stole Mila from the lab because she knew “[Mila] wasn’t just a weapon... [she’s] too human for that” (Driza 91). As one of the researchers who created Mila, Nicole knows better than anyone that logically Mila is a machine. However, something about Mila resonated with Nicole to make her see Mila as human, or at least equal to human.

The first time Mila attempts to use her GPS, she is unable to handle the sensory overload and becomes nauseated. Mila felt as if her mind was at war with itself – android versus human. Part of her “was trying to spit the image out...while the other half held on tightly, refusing to budge” as if denying her android abilities will make her more human (Driza 166). Unfortunately, despite Mila’s attempts to the contrary, the android side continues to dominate her actions. The memories Nicole implanted were an attempt to help Mila identify as human, and cover up the more painful memories of her time at the research facilities. It worked while Mila was unaware of her origins, but she later believes that the erasure of memories “didn’t mean [her] true nature stopped existing” (177). Mila ultimately comes to accept her identity as an android.

Nicole’s smiles are quick and fleeting, but Mila’s sarcastic comments never fail to bring a grin to her mom’s face. When Mila questions as to why, her mom encourages her to consider what the obnoxious behavior means.

Think, Mila. The government didn’t really program you to have a subversive sense of humor. Neither did I, not even when I implanted the memories and uploaded the teen-speak programs. That’s all you. It means you’re growing, evolving...just like a human would (208-209).

Nicole is trying to prove that even though Mila’s brain is a computer, she has a unique identity and personality based on her experiences.

Iko, an android, is one of Cinder’s constant companions; Cinder’s stepmother always laments that the family cannot afford to have Iko’s personality defect corrected, but it is the trait that Cinder loves most. Most androids are programmed to carry out their directives without interest in extraneous matters, but Iko loves to gossip, daydream, and collect shiny ribbons. When Iko swoons over the prince’s presence at the market, Kai remarks to Cinder that “you don’t see a personality like that every day” and asks if she was specially programmed (Meyer 12). Cinder considers Iko a friend, and feels a need to

protect her from being discarded or altered. She has no doubts that her stepmother would replace Iko's personality chip in a heartbeat if Cinder did not intervene. Cinder also takes great care when considering how to repair Prince Kai's android. Though surprised to see such an old model, she recognizes that "the android's personality chip...had probably developed into something quite complicated after twenty years of service" (195). If Cinder chose to reinstall the android's software, it would wipe clean all the data accumulated – a choice I find difficult even when rebooting my iPod.

Though it seems that not all androids in Cinder's world have awareness, models like Iko and Prince Kai's android have unique identities that evolve based on their experiences and relationships. After being repaired and returned to the palace, Kai's android even explicitly states that "[her] consciousness has been restored for one hour and forty-seven minutes" (Meyer 213). She seems to mean that she is once again aware of herself, her surroundings, and the events that have occurred during the time she was "offline."

Without much information about her accident or subsequent surgery, Cinder worries about how much control she actually holds over her own body. She knows that it was necessary to place wiring in her brain so that her robotic prosthetics could function correctly, but it disturbs her that "some surgeon, some stranger, open[ed] her skull and insert[ed] their made-up system of wires and conductors while she had lain helpless" (Meyer 80). Cinder feels as if her brain has been altered in some way, and in turn, her very identity and self has also been altered. Dr. Erland confirms her fears when he attempts to test her wiring, causing her to seize and pass out. Part of Cinder's mechanical system was in place to suppress her Lunar abilities as a measure of protection. However,

this protection still resulted in Cinder being cut off from a part of herself. About to go on the run, Cinder is unprepared for the reassembly of her true nature and is overwhelmed by the alien feeling accompanying her Lunar side.

Overall, Driza and Meyer addressed identity and the self in similar fashions – personality, memory, and self-awareness. Nicole cites Mila’s personality as evidence that she is more than an android, since she was not programmed to have a sense of humor. Similarly, the androids in Cinder’s acquaintance have personalities that distinguish them from other robots and raise their value in the eyes of their companions. It is clear from descriptions that the androids’ personalities developed over time and were not programmed. In my opinion, the latter two subjects go hand in hand. It is extremely common in YA novels to have characters with some form of memory loss or manipulation, because “part of [the] process of developing selfhood involves reclaiming memory” (Ostry 2004, 232). Both Mila and Cinder experience shock when they learn the truth about their origins and identities. They both believed that traumatic accidents had caused amnesia. There are instances in both novels when Mila and Cinder perform tasks using capabilities and knowledge they were unaware that they possessed. Are they truly self-aware if they do not know their own minds? Mila and Cinder both appear to have self-awareness despite the lack of memory. A human person who suffers from amnesia does not cease to be a person, but it is possible he is not the same person as before losing his memory. Since the point of memory loss, both Mila and Cinder have control of their thoughts and actions; additionally, they are able to create new memories based on their experiences and their environment – establishing autobiographical selves.

## Cy- Me a River

The ability to experience and express human emotion plays a vital role in human relationships. It seems highly likely that humans will be unable to accept non-human persons if they do not have the ability to feel human emotion. Emotion plays an important role in both novels. Mila does not understand how her emotions cannot be real since she actually experiences them, and Cinder faces discrimination for her inability to physically express some of her emotions.

Naturally, Holland's recorded explanation about Mobile Intel Lifelike Android capabilities is upsetting for Mila. However, the most startling and damaging discovery for Mila is that she "can evoke appropriate emotions, based on environmental and physical stimuli" (Driza 87). Mila has a difficult time reconciling the idea that her emotions are not real. After all, she experiences emotional upheaval all the time as a teenager; the recording cannot possibly be correct. This small reassurance is ripped from her, as the recording goes on to explain that Holland's researchers compiled data from teenage girls and recreated the visceral, physical, and emotional responses in the android models. The reason that Mila "feels the same things that humans do... [is to] facilitate blending in with subjects and add authenticity to her cover" (90).

Throughout the novel, Mila aches for affection from her mother. When Mila attempts to discuss her father with her mom, Nicole deflects the conversation to mundane topics like the weather. In these situations, Mila often references a "wrenching pain in [her] heart that never goes away", suggesting the most devastating type of emotional pain (Driza 52). Upon learning the truth about her emotions, Mila sarcastically congratulates

“whoever had worked on ‘evoking appropriate emotional responses’ [for doing] a bang-up job” because the “pain in [her] chest, in [her] nonheart, was excruciating” (90).

Guilt is another emotional response that affects Mila strongly. After the first attempt to capture Mila and her mom, Mila is hit with both remorse and disgust at her knowledge of “where to strike...without even bothering to consider if [she would] do any permanent damage” (Driza 197). Despite her mother’s assurances that her actions were necessary and in self-defense, Mila cannot accept these acts of violence as part of her nature. She wants to be the master of her identity, and does not want to be the version of Mila who had been “created in the lab, who maimed and hurt and one day, possibly, even killed people” (198).

Mila values her emotional reactions because they distance her from the image of a cold, emotionless robot. Holland informs Mila that he had hoped her “emotional responses had neutralized during [her] time away,” and is disappointed that this is not the case (Driza 270). His scientific team did their job too well when programming Mila; her emotions are experienced, not imitated. In testing, Mila’s emotions affected her ability to perform, and all attempts to reprogram her system were unsuccessful. Holland sees emotion as a weakness that needs to be eliminated, and so he created MILA 3.0. Three, as Mila calls her, has all the same features as Mila but with a dampened emotional response. She performs her tasks with a clinical detachment, and does not react as Mila does “to the implication that she wasn’t real” (275).

Though it seems suspect that the government would create a spy in the form of a teenage girl, it does serve as a convenient vehicle to display a wide variety of emotional reactions—stereotypically associated with hormonal teens—and to question how a young

person would react to discovering her whole identity is false. If it feels real to them, can programmed emotions be considered genuine or valid? Mila experiences fear, pain, and devastation at the death of her mother, but also the excitement and joy that accompanies first love. Mila cares about the suffering of others, unlike the newer MILA 3.0, which seems to point to her programming as the origin of her empathy. The US government solved what the Rosen Company of *DADES?* could not, but viewed it as a weakness.

Though it is very clear from the reader's point of view that Cinder experiences a wide range of emotions, she experiences discrimination due to her supposed inability to have feelings. When Cinder's stepsister succumbs to the plague, her stepmother taunts Cinder,

You aren't even *human* anymore...Humans cry. Go ahead. Shed a tear for your little sister. You are *not* human, Cinder. It's about time you realized that (Meyer 279-80).

As a side effect of her surgery, Cinder no longer has tear ducts, and Cinder's stepmother associates the expression of emotion with being human. Cinder tries to tell her stepmother that she loved her stepsister, but her stepmother questions if Cinder even understands love or if it is part of her programming (63). Being partially mechanical has stripped away Cinder's human status in the eyes of the majority of the public's eyes. These sentiments are expressed again when the Prince's long-time tutor android expresses condolences for his father's death and tells him, "My heart is broken from the news" (213). A visiting queen calls the android a monstrosity and finds it insulting to act as if a machine could understand emotions and grief.

While I claimed that emotion is not a necessary or sufficient criterion for personhood, it appears to be absolutely critical for widespread acceptance of non-human persons. A person who is emotionless may find it difficult to connect with humans,

presenting as an inability to empathize. A lack of empathy seems to imply that a person does not have “the moral base on which human beings pride themselves” (Ostry 2004, 229). Both Cinder and Mila experience human emotion and have character foils, Queen Levana and Three, to highlight the importance of feelings. Queen Levana is a ruthless leader who has no qualms about withholding a cure for the plague or starting a massive war in order to get what she wants. Three does not hesitate to harm others for the sake of accomplishing her mission. Meyer and Driza make it very clear which characters should be considered human and which should be considered inhuman.

### Chapter Summary

In the beginning of this chapter, I introduced the two YA novels *Mila 2.0* and *Cinder*. Each of these books delves into what it means to be human by discussing physical appearance, consciousness and identity, and emotional responses. Both novels showcase the difficulties that android and cyborg persons may face if society requires all of these traits for equal status as persons. Mila and Cinder struggle with body insecurity and attempt to hide the parts of their bodies that identify them as other than human. Additionally, both girls are unsure of their identity and if they have complete control over their own minds. The challenge with emotion differs slightly for Mila and Cinder; Mila tries to figure out if her emotions are truly her own or just programmed, and Cinder cannot satisfactorily express her emotions in a physical way that others value. Elaine Ostry argues that many YA writers fall into the trap of oversimplification of the biotechnology debate and the take-away message for “young readers is...human values and human nature will prevail no matter what changes the human body endures” (Ostry

2004, 243). I do not believe that this sentiment fully applies to either Driza or Meyer's writing. Certainly both protagonists desire to be fully human, but the story arcs show Cinder and Mila accepting their non-human natures while still embodying human values. While it could be argued that human values are still portrayed as the ideal, I interpret the message to be that humans do not have a monopoly on morality or desirable traits. The authors definitely promote a world in which androids and cyborgs are accepted as equal and valuable members of society. Hopefully this message will be internalized by the youths who read *Mila 2.0* and *Cinder* and pave the way for a society receptive to non-human persons, robotic or otherwise.

## CHAPTER FIVE

### ETHICAL CONCERNS FOR THE FUTURE OF ROBOTICS

The advances in robotics and EI are both exciting and frightening. Are we truly equipped to deal with the ethical and legal questions that will arise when androids and cyborgs are recognized as non-human persons? In his discussion of “roboethics,” Mark Coeckelbergh chooses to focus on human-robot interaction because it is often overlooked; typically, roboethics attempts to determine if robots can be moral agents, and if they are, whether or not they should have rights (218). I agree with his assessment of the current conversation, so for this chapter I make several assumptions in order to concentrate on human-robot interactions: 1) androids and cyborgs have consciousness; 2) androids and cyborgs are moral agents; 3) androids and cyborgs are persons. Throughout this chapter, I refer to “robotic persons” to indicate both android persons and cyborg persons. I begin by hypothesizing how humans will react to a new “species” with equal mental, moral, and emotional faculties. The second portion of the chapter paints a picture of the worst-case scenario for human-robot interaction. This is followed by possible legal concerns and how human-robot interaction may be monitored or dictated. Finally, I consider micro-aggressions and the discrimination robotic persons may face.

#### Optimus Primates

Though modeled after humans, androids could be considered a whole new species – *Homo androides*, perhaps? Society may also decide to classify cyborg persons as a separate species even if it is not scientifically justified. As social animals, it is

comforting to us to belong to a group with shared interests and belief systems, and persons who do not fall within the definition of the in-crowd are considered to be part of the “other” (Flanagan 29). Doing so sets robotic persons apart from humans, laying the groundwork for difference in status and treatment. Differences between human and non-human persons will need to be acknowledged, but too much emphasis could create irreparable divides.

Maxwell Mehlman questions whether humans could live harmoniously with another species considering ancient history and the Neanderthals; more recent archaeological evidence supports the theory that Neanderthals were killed off by modern humans rather than dying out naturally as previously assumed (Mehlman 109). The evolutionary principle of “competitive exclusion” proposes that multiple humanoid species “would not be able to coexist if they required similar things to survive, liv[ed] near each other, and one was superior” (110). History shows this clash occurring between cultures and it may be more extreme between species. Though humans would probably not need to compete with robotic persons for food and similar resources, robotic persons could pose a threat to humans as competition for jobs, space, and energy.

In Judeo-Christian traditions, humans are given dominion over all other species of animal. For some of these religious traditions, the “distinguishing feature between man and animal is ensoulment” (Calverley 405). As discussed several chapters ago, I do not accept that there is a permanent, immaterial self, but religion and the concept of the soul is not going away anytime soon. If an individual believes that a soul is bestowed upon a human during its formation by God, it is unlikely he believes that an android engineered

by humans receives a soul. This conviction could very well inform his treatment of robotic persons since his viewpoint places them closer to animal status than human.

In Cinder's world, cyborgs are unwilling members of a draft for plague antidote testing; one cyborg is drafted every day. The majority of society believes that cyborgs were "given a second chance at life by the generous hand of scientists and therefore owed their very existence to those who had created them" (Meyer 28). Focusing on the differences between cyborgs and human "justifies" the logic that cyborg lives are worth less than human lives. When Dr. Erland attempts to refuse testing on a cyborg because he has a son, a colleague comments that "it's better than testing on people" (70). Dr. Erland seems surprised to note that "[Cinder's] reproductive system is almost untouched...lots of female cyborgs are left infertile because of the invasive procedures" (116).

Though it is left unsaid by Meyer, there is a dark implication that cyborgs are intentionally sterilized during their procedures. It seems suspect that a subject receiving a robotic limb would have any need for invasive measures in the lower abdomen. Would humans really attempt to limit cyborg or android reproduction? It may seem absurd to consider such a scenario, but "civilized" countries like the United States have a sordid history of sterilization programs for women deemed mentally deficient – typically from a lower socioeconomic background. If there are undesirable traits possessed by androids and cyborgs that could be passed to offspring, it is not unreasonable to consider an attempt to limit reproduction.

Some of these concerns may come off as alarmist, but that does not mean they are not worth considering. We will always face some risk of one group mistreating another.

We counteract this behavior by creating and enforcing laws, but we need to consider the potential issues so we are not left floundering when the need arises.

### Do Humans Dream of Electric Slaves?

I was not surprised to learn that “the term 'robot' stems from the Czech word *robota*, meaning drudgery, servitude, or forced labour” (Lehman-Wilzig 449). Even from the first conception of a mechanical person, the goal was to create a machine to perform undesirable tasks for humans. Many of the industrial robots in use today perform tasks that fall under “the ‘three Ds’, that is, jobs that are dull, dirty, or dangerous” (Lin et al. 944). Will consciousness or status as moral agents save robotic persons from these types of jobs? Possibly, but maybe not, especially if these tasks could be performed better by robots with higher capacities for reasoning and problem-solving.

If we travel back to the uncanny valley, perhaps the uncomfortable atmosphere is not solely due to the details that are slightly off. Maybe it disturbs our moral compasses to reconcile the idea of treating something that looks and acts human as property – echoing a period of history that is now regarded as cruel and inhumane. When Captain Picard is at a loss as to how to combat Riker’s case, Guinan aids him, saying:

In the history of many worlds there have always been disposable creatures. They do the dirty work. They do the work no one else wants to do because it’s too difficult or too hazardous...and an army of Datas, all disposable, you don’t have to think about their welfare, how they feel – whole generations of disposable people (“The Measure of a Man”).

She finds it slightly harsh when Picard calls such treatment slavery, but he argues that slavery hides behind the euphemism of property. Both Mila and Cinder have to deal with the idea that they do not own themselves, but are property. When Nicole takes Mila away from the laboratory, she steals a valuable piece of government technology. As a

cyborg, Cinder is considered to be her stepmother's possession; anything that Cinder owns actually belongs to her stepmother. It is clear that Driza and Meyer do not support the idea of robotic persons being viewed as property or being used for labor against their will. Non-conscious robots already work in a number of different settings – factories, laboratories, hospitals, and others. There are no ethical concerns at this point, but in order to keep it that way, our society will need to consider what will fair wages and work hours be for and cyborgs. Additionally, even if an android person is created for the completion of a specific task, he or she should have the right to refuse, just as any human would.

### One Thousand and One Laws of Robotics

With the recognition of non-human persons, the creation of new laws is inevitable. At the very least, currently laws would need to be amended to establish rights for robotic persons. It seems ridiculous to consider now, but it used to be just as nonsensical to consider equal rights for women or for African-Americans (Lehman-Wilzig 449). Can the American rights to life, liberty, and happiness protect robotic persons from being unplugged or from slave labor (McNally and Inayatullah 129)? Additionally, the law as it currently stands would be insufficient to regulate interactions between human and android or cyborg persons. At some point, we will need laws that specifically address issues that arise from the recognition of robotic persons. These laws can establish rights and protections for them and also define criminal acts by robotic persons. Phil McNally and Sohail Inayatullah list many of the possible legal situations we will face:

We will have robots that have killed humans, robots that have been killed by humans, robots that have stolen state secrets, robots that have been stolen; robots that have taken hostages, robots that have been held hostage, robots that carry illegal drugs across borders, and robots that illegally cross national borders (McNally and Inayatullah 129).

It will not be enough to say that robotic persons have exactly the same protections and punishments as human persons. Perhaps we could avoid harm caused by robotic persons by programming them to follow the existing laws, but “even the three laws of robotics in Asimov’s stories, as elegant and sufficient as they appear to be, create loopholes that result in harm” (Lin et al. 946).

One concern is that we will we go so far back in history that we return to Hammurabi’s Code or Biblical law, condoning different punishments depending on who the crime was committed against. A slave would receive a harsher punishment for harming his master than if the master committed the same act against the slave. It would be one battle for the law to recognize androids and cyborgs as persons, but it would still be a different kettle of fish to have wider society view robotic beings as persons. Sam Lehman-Wilzig contends that we will face greater difficulty in determining “the punishment to be meted out to the robot” (Lehman-Wilzig 449). If an android harms a human, the obvious punishment would be to turn them off. It could be as simply as flipping a switch. This simplicity is deceptive. Turning off an android person indefinitely would be the elimination of his consciousness. We may not consider that doing so is the equivalent to the death penalty for humans. In *Mila 2.0*, Holland spoke of “terminating” Mila when she did not produce the desired outcomes, but Nicole believed such an act would be equal to murder (Driza 267). Would we expect such a harsh punishment when a human harms an android? What about when an android harms an android? It is easy to understand why humans would want to dole out severer

punishment for harm against humans, and it will be a great struggle to maintain consistency under the law.

Intent is already an important factor in legal determinations; it can be the difference between manslaughter and murder, or first- and second-degree murder. It could be more difficult to attribute intent in robotic persons than in human persons. Parallel to the insanity plea, we may have the “faulty programming” plea. If we do not hold insane human persons accountable for crimes committed, perhaps we cannot convict a robotic person when their programming malfunctions. In most cases, a human person’s insanity is not caused by another person, but for robotic persons it seems as if the door is left open to prosecute someone else as responsible for the programming issues. Imagine an android person working as an intelligence operative for the United States government; one of the android’s directives is to find and assassinate the leader of a dangerous terrorist cell planning an attack on the United States. If the android’s facial recognition is defective and he kills an innocent human person, who would be responsible for that man’s death – the programmer? Quality assurance? The government? Cases like this would call for a special set of laws that deal with issues specific to robotic persons. These laws would not exist to be discriminatory, but would be a necessity for circumstances that do not affect human persons.

Another of the most troubling aspects of law creation for a specific group of persons is that society could easily fall into the familiar trap of “separate, but equal.” Will laws concerning androids and cyborgs become the Jim Crow laws of the future? Segregation laws seem extremely backwards nowadays, but it was only several decades ago that African-Americans had to fight these laws. As society adjusts its understanding

of personhood, androids and cyborgs may have to deal with unfair laws that will govern their daily lives. Androids may not be allowed to attend school with humans because of the difference in intellectual capacity and growth. Androids may be required to give up their seat on a bus because they will not grow tired as a human would. If androids do not require food or drink, they may not be allowed to sit in restaurants because they are occupying seats reserved for paying customers. These restrictions do not seem wholly unreasonable, but none of these measures would be considered acceptable today if applied to a group of human person. Who will be the android Linda Brown? Who will be the android Rosa Parks? Which restaurant will be the site of the first android sit-in?

It is commonly accepted in many societies that persons should not be property, but it may take a while for humans to adjust to the idea of robots as persons. Therefore, robotic persons will probably not receive full citizenship rights immediately, but slowly. Once androids cannot be owned, one of the first rights that will be necessary is worker's wages. If an android person performs a job, the law needs to establish his right to be paid for services performed. I believe property and housing rights will follow fairly quickly once robotic persons have incomes. Robotic persons would be new consumers – a big plus for capitalism-driven societies. Most likely, voting would be another of the first rights given to robotic persons so they can have some measure of input over laws concerning their rights, just as other citizens do. I think marriage will be one of the last rights that robotic persons will receive since the United States is currently having some disagreement over how to define marriage between human persons. Marriage between two robotic persons or an android and a human person will almost certainly spark a drawn-out debate. It may take a long time for all of these rights to be written into law,

but it will take an even longer time for robotic persons to receive completely equal treatment from other members of society.

### Microchip-aggressions

I believe the most common problem robotic persons could experience will be the same type of subtle discrimination many minorities face today. We claim to be post-racism – seeing beyond the color of a person’s skin. However, my parents received surprised looks from strangers for being in a multi-racial relationship. Universities and professional sports teams still have inaccurate portrayals of Native Americans as mascots. Passengers who appear Middle Eastern are stopped more frequently for random security checks. We claim to be post-sexism, but women still get paid less than men for doing the same job. Women are shamed for sexual promiscuity, but men are applauded. We are not yet at the point where we claim to be post-homophobia, but it is a safe bet that even after gay marriage is legal in all fifty states homosexuals will still deal with discrimination on almost a daily basis.

The same will probably be true for robotic persons, even after being given equal rights. Some expressions of discrimination will be overt. Like the baker in *Cinder*, business owners may choose to refuse service to robotic persons (Meyer 19). Landlords could deny housing applications from an android in favor of a human. Of course, such practices would be illegal, but it is likely the burden of proof would lay with the robotic person. Perhaps anti-robotic epithets would pop up – “wirehead” or “soulless” spray-painted on a robotic person’s residence.

Another form of discrimination would be more insidious – micro-aggressions. Micro-aggression was first coined by psychiatrist Chester M. Pierce during the 1970s though the concept has received more attention in recent years (DeAngelis 42). According to DeAngelis, psychologist Derald Sue defines micro-aggressions as the “everyday insults, indignities and demeaning messages sent to people of color by well-intentioned white people who are unaware of the hidden messages being sent to them.” Sue proposes that microaggressions can fall into three categories – micro- assaults, insults, and invalidations. The first describes overt and intentional acts of discrimination. Microinsults are “verbal and nonverbal communications that subtly convey rudeness and insensitivity and demean a person’s identity.” An example would be someone implying that an African-American student was only accepted to an Ivy League school due to affirmative action. Microinvalidations are comments that “exclude or negate the thoughts, feelings or experiential reality of a person of color” (Id.). As a bi-racial individual, I experience microinvalidations frequently; typically the microinvalidation is in the form of the question, “Where are you *really* from?” In the two latter forms of microaggressions, the perpetrator is usually unaware that he has said something offensive.

When Dr. Erland examines Cinder, he remarks that her accident did not “justify the amount of repairs [she] had,” causing Cinder to reflect, ““*Repairs*—what a very cyborg term” (Meyer 101). Intentional or not, the doctor invalidates Cinder’s experiences and emotions by focusing on her mechanical parts. If Meyer had not intentionally described Cinder’s reaction, I probably would not have even noticed that the word choice could be offensive. That is how microaggressions persist. They are invisible and our eyes slide right past them. Even if androids and cyborgs are recognized

as persons equal to human persons and given rights under the law, they will still face this type of discrimination.

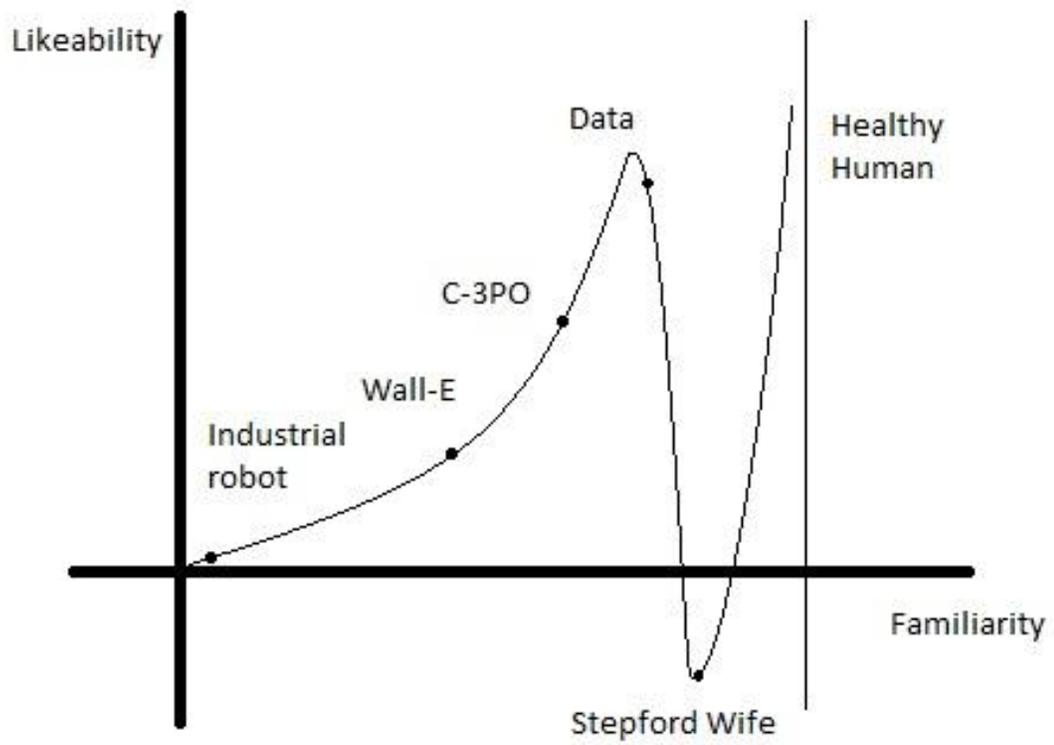
### Chapter Summary

This chapter attempted to predict the types of ethical dilemmas that will arise as a result of interactions between human and robotic persons. I began by looking at how humans might define robotic persons as a different species and predicting that such a step would be divisive, creating a greater opportunity for one species to have power or control over the other. Then I looked at how the idea of robots as property could influence human-robot relationships, but I believe that human ownership of robotic persons would be a worst-case scenario due to current society's aversion to anything resembling slavery. The next section of the chapter discussed the difficulties that society will face when creating laws. The law will need to reflect some of the differences between human and robotic persons without creating an inequality in protection and punishment. Lawmakers will also have to be careful to avoid segregating robotic and human persons. Once robotic persons are recognized as citizens, they will slowly begin to receive certain rights and will eventually have equal rights to human persons. The final portion of the chapter proposes that societal discrimination and microaggressions are the primary problems robotic persons will face. These issues would parallel the types of discrimination that minority groups face today.

## CONCLUSION

Until technology catches up with science fiction, considering the status and rights of robotic persons is an exercise in hypotheticals – often raising more questions than answers. However, it is a vital exercise in order to provide background information and recommendations for the generations that will actually face the issue of what it means to be a person. The discussion of humanity and personhood should not be limited to philosophers because the outcome will impact all of society. YA fiction is an undervalued resource for encouraging discussion on biotechnology. Debra Driza and Marissa Meyer manage to touch on some of these delicate issues without banging readers on the head with a moral message, allowing them to come to their own conclusions. As more YA novels featuring android and cyborg protagonists hit the bookshelves, greater numbers of teens will be exposed to the concept of robotic beings as persons. Considering the positive slant in these two novels, I believe that younger generations will have a more favorable stance towards social and legal policies that promote equal status for android and human persons. There will still be bumps in the road to equality for robotic persons, but early exposure and increased conversation will smooth the way for the future.

Figure 1



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