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# The Role of Science Fiction in Shaping Future Posthumanist Scenarios[219]

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**Abstract:**

This paper focuses on stories about artificial life, particularly *Frankenstein* and *Erewhon.* It analyzes how they have influenced contemporary perceptions of science and technology, with an emphasis on robotics. By comparing these works through the lenses of posthumanism, this essay highlights the role of science fiction in addressing complex issues, preparing society for future challenges and examining the ethical implications of technological progress. This essay argues that science fiction is vital in helping humanity conceptualize future technological challenges and critically evaluate potential outcomes and ethical considerations that scientific experiments cannot adequately address.

**Keywords:** Posthumanism, Artificial Life, *Frankenstein*, *Erewhon*, Mary Shelley, Samuel Butler.

## 1. Introduction

This paper focuses on two 19th century novels that have influenced humanity's understanding of science and technology. It analyzes the deep relationship between reality and fiction, exploring how stories about robots and artificial life shape our perceptions of the future of robotics. This essay presents a comparative analysis anchored in posthumanism so as to showcase the privileged position of science fiction to examine difficult topics in a way that may help humanity be better prepared for future challenges. Mary Shelley's *Frankenstein* could be said to be a story about the consequences of performing scientific experiments with the objective of achieving fast-

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paced progress while disregarding ethical matters. Samuel Butler's *Erewhon*, on the other hand, is a satire of Victorian society that explores how a philosophical treatise about the dangers of progress has shaped an entire civilization. *Frankenstein* relates to the theme of this essay in that it is a very early example of how science fiction stories tackle the concerns their authors have about the future, since this genre gives them more freedom to explore challenging topics than others do. It also serves as a poignant instance of one of the more pessimistic outlooks on humanity's potential to create artificial life and the possible negative consequences that could arise from this. The basis for the construction of Frankenstein's monster is not mechanical, as it would be in a robot, but organic, or, as Victor defines it, the bestowal of "animation upon lifeless matter"[221]. Nevertheless, *Frankenstein* is, in the end, a story about a human invention gaining consciousness and turning against its creator, which is a common theme in dystopian robot stories that aim to warn against the dangers of unchecked scientific progress and human ambition, such as *Westworld* (1973) or *2001: A Space Odyssey* (1968). These science fiction stories acquaint people with the aforementioned dangers, perhaps in an attempt to help shape a safer future. In this way, literature provides scientists with the opportunity to foresee the outcomes of every endeavor before they undertake them, so that they can assess the dangers more thoroughly than they would if they did not have fiction as a referent.

This essay attempts to prove that science fiction indeed holds such an important role in the advancements of science and human societies. *Erewhon* also helps illustrate this importance, since the Erewhonian society depicted in it has been greatly shaped by a work of fiction: "The Book of the Machines." This book is a fictional philosophical treatise that exists within the universe of the novel, and it warns against the dangers of humanity becoming so dependent on machines that they eventually become enslaved to them. This work created such concern amongst the Erewhonians that they decided to ban all modern technology, keeping only things that were created over 700 years ago. This shows, within Butler's work, an extreme example of how the world can respond to fiction and reshape itself according to its teachings.

[221] Mary Shelley, 1994, 52.

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This essay endeavors to examine how literature helps shape reality, focusing on how early science fiction has shaped the way in which humanity understands science, and specifically robotics, in the present. From the methodological perspective, the research follows a posthumanist approach that highlights the differences and similarities of the two main works, *Frankenstein* and *Erewhon*, the ways in which each of them tackles similar themes, and their effects on the real world.

Posthumanism is a philosophical perspective and a theory of literary criticism that has been defined as "something that comes both before and after humanism," since the shared existence of the human animal and the external technical, medical and informatic realities present in human life have come to be inseparable from the human experience.[222] Contemporary visions of posthumanism are informed by conversations on cyborgs or automata, which have often involved a reflective stance on humanity's distinct and special place in the world. In this fashion, a crucial premise of posthumanism is its critical stance towards the prominence afforded to humanity in the natural order.[223]

Stories about robots or artificial life of any kind, such as the one depicted in *Frankenstein*, always seem to be written as a reaction to the matters of the real world that worry their authors. The many stories that fit this category all explore similar topics, such as social injustice, the unregulated advance of science or the nature of life and humanity, but they are not restricted by reality like scientific experiments are. This means that they can examine problems from angles that would be impossible to address in real life. Most problems explored in science fiction may not seem pressing or realistic in the present, but many of them will be in the future; and they may become relevant sooner than expected, given the rapid development of science and technology. This is why this essay defends that fiction must continue to address difficult topics so as to provide humanity with the broad perspective it needs in order to be as prepared as it can be when it finally has to face these challenges in the real world.

[222] Cary Wolfe, 2010*, 15.*
[223] Andy Miah, 2007, 2.

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The structure of this essay consists of four sections as well as a conclusion. The first section will give a historical overview of stories featuring automatons, robots or artificial life; the second one deals with one of the main questions found in science fiction stories, that of the nature of humanity and how this issue relates to posthumanism; the third one explains the connection between robots and the concept of 'otherness'; the fourth paragraph examines the reasons given in literature as well as in real life for the construction of robots; and finally, the conclusion offers an overview on how the robotics of the 21st century are shaped by the art and literature of the past and the present.

## 2. A Brief History of Tales about Artificial Life

Nowadays, robots are common enough to seem unremarkable, but it has not always been that way. Before the reality of robots existed, there was the idea of robots. Stories shape the way in which we understand the world, and the idea humanity shares nowadays of how robots are or ought to be comes from centuries of stories about them. As Oscar Wilde would say, "literature always anticipates life. It does not copy it, but moulds it to its purpose"[224]. Life imitates art: it might not even have occurred to scientists to try to build robots in the first place if someone had not written about them before. "There are various ways in which roboticists integrate and construct 'cultural models' –practices, artifacts, and concepts shared by members of a culture that provide an interpretive filter through which the world is meaningfully perceived and can be acted upon"[225]. And while robots are decidedly not ancient history, the concept of artificial life certainly is.

Tales of automatons date back to Classic Antiquity, with the story of the great bronze automaton Talos, protector of Europa. *The Dictionary of Greek and Roman Biography and Mythology* describes him as "a man of brass, the work of Hephaestus"[226]. Apollonius Rhodius describes him as a "man of bronze"[227]. Hephaestus also created the

[224]Oscar Wilde, 1995, 11.
[225] Selma Šabanović, 2014, 345.
[226] "Talos" Dictionary of Greek and Roman Biography and Mythology, 2018, 973.
[227] Apollonius of Rhodes, 2009, 409.

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*kourai khryseai* to be his own servants: "these are golden, and in appearance like living young women. There is intelligence in their hearts, and there is speech in them and strength, and from the immortal gods they have learned how to do things"[228]. Homer describes them, then, as anthropomorphic inorganic intelligent beings, therefore, the name of "robots" seems appropriate for them. This kind of automaton has not merely been imagined, but also developed by different cultures throughout history. An example would be the *karakuri ningyo*, mechanical dolls built during Japan's Edo period[229]. This shows that humanity has considered the possibility of robots for many centuries. In the case of the *kourai khryseai*, the entity that imbues these machines with intelligence is not a human scientist but a god, which suggests this scenario might be no different from the concept of a deity giving life to a clay figure, as seen in various mythologies. While it remains distinct from science fiction stories where humans find a way to create artificial life without divine intervention, it is still interesting to note how the idea of automatons that imitate life has been present in literature for so many centuries.

Subsequently novels such as Mary Shelley's *Frankenstein*, dating back to 1818, also explore the topic of artificial life, but in a way that differs from its portrayal in Greek mythology. The connection between Mary Shelley's novel and classical antiquity is especially obvious, since the very subtitle of the novel, *The Modern Prometheus*, references the myth of the Titan who molds humans from clay and gives them fire, or, in other words, technology. One of the main differences between the portrayal of Hephaestus' aforementioned automatons and Mary Shelley's creature is that, in the latter, artificial life is made from organic components instead of mechanical ones, and therefore could not be called robotic. To understand this terminology better, it should be specified that this essay understands the word "robot" as "a machine that resembles a living creature in being capable of moving independently and performing complex actions"[230], and that these robots must not necessarily resemble human beings in their shape (these beings will be referred to as "humaniform robots," "humanoids" or "androids"). On the other hand, "artificial intelligence" refers in general to "the

[228] Homer, 2011, 386.
[229] Selma Šabanović, 2014, 343.
[230] "Robot." Merriam-Webster Dictionary, 2024.

capability of computer systems or algorithms to imitate intelligent human behavior,"[231] and "artificial life" refers to any kind of being that resembles a living organism in behavior or intelligence, but that was created by a human being and is therefore not natural.

While all these concepts are interesting to posthumanism, the one that best serves to illustrate the blurring of boundaries between the mechanical and the organic, between the human and the machine, as theorized by this philosophy, is the idea of the "cyborg," understood as "a bionic human."[232] Before the word "robot" started being used to speak about a real scientific endeavor, it was first used in literature, specifically in a 1920 Czech play called *Rossumovi Univerzální Roboti* (Rossum's Universal Robots), by science-fiction writer Karel Čapek. Thus, it is yet another example of how the science world finds inspiration in art. In Mary Shelley's work there is no mention of robots, automatons, androids or any other of these terms, as Frankenstein's invention is not mechanical; however, his life is still artificial. Consequently, the novel engages with themes such as the nature of life, humanity and scientific progress that are central to robot stories. Samuel Butler's work also lacks this terminology, but the machines he describes —capable of self-replication and enslaving humanity— might certainly be considered robots.

Samuel Butler's 1872 novel *Erewhon* has been acclaimed as one of the very first texts to explore the concept of intelligent machines, even though the novel itself cannot be classified into the category of a science fiction story, since it is a satirical critique of Victorian society. Nevertheless, the theories pertaining to the topic of artificial intelligence and self-replicating machines found in the chapters of Butler's novel known as "The Book of the Machines" may have had an influence on not only robot stories but also science. In 1872, Butler wrote about machines capable of building other machines similar to themselves in a process akin to reproduction:

> It is said by some with whom I have conversed upon this subject, that the machines can never be developed into animate or quasi-animate existences,

[231] "Artificial Intelligence." Merriam-Webster Dictionary, 2024.
[232] "Cyborg." Meriam-Webster Dictionary, 2024.

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> inasmuch as they have no reproductive system, nor seem ever likely to possess one […] Surely if a machine is able to reproduce another machine systematically, we may say that it has a reproductive system […] And how few of the machines are there which have not been produced systematically by other machines?[233]

One notable thing that both *Frankenstein* and *Erewhon* have in common is that they were written in the 19th century. It is no wonder that these and other stories from the time of the Industrial Revolution express such a deep concern regarding the idea of machines overtaking human life, or about science and progress getting out of hand and threatening humanity. After all, the authors lived in a society where they witnessed factories gradually taking over their cities and, by extension, the lives of their inhabitants. Nonetheless, even if these novels could be praised as the forerunners of speculative fiction about artificial life, they are by no means the first ones. During an era when people were migrating in large numbers from the countryside to cities to work in factories that were reshaping the landscape, it is natural that much of the literature of the time would focus on the fear of humanity losing itself to the very machines it created. As Butler puts it in his article "Darwin among the Machines," "day by day, however, the machines are gaining ground upon us; day by day we are becoming more subservient to them; more men are daily bound down as slaves to tend them, more men are daily devoting the energies of their whole lives to the development of mechanical life."[234]

In the first half of the 20th century, Von Neumann developed his theories on self-replicating automata, which NASA scientists Von Tiesenhausen and Darbro would later define as "an organization of system elements capable of producing exact replicas of itself who, in turn, will produce exact replicas of themselves"[235]. Even if Von Neumann never read Butler, it is not difficult to draw connections between early speculative fiction and later scientific advancements. Other examples of scientific developments inspired by literature could be Goddard's 1926 liquid-fueled rocket, inspired by Jules Verne's

[233] Samuel Butler, 1970, 165.
[234] Samuel Butler, 2012, 4.
[235] Georg Von Tiesenhausen and Wesley A. Darbro, 1980, 2.

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moon cannon in his 1865 book *Journey to the Moon*[236] , or Dr. Martin Cooper's design of the first cell phones, inspired by the communicators in *Star Trek: The Original Series*[237]. These are perfect examples of life imitating art.

A similar concern related to the impact of machine advancement on labor is the idea of machines replacing humans in the workforce. Mentions of characters losing their jobs to machines can be found in all sorts of books and it is a possibility that still generates concern today. Asimov's *Robot Series* features a human detective called Elijah Baley whose dislike of robots comes from the fact that his father lost his job to one. *Detroit: Become Human*, a video game released in 2018 for the PlayStation 4, turns robots into an analogy of slavery and draws a parallel between the fear of machines supplanting human workers and the fear that immigrants will supplant national workers. The player experiences the story through the perspective of three different robots that suffer the full scope of the hatred and discrimination that results from this fear. Social injustice, ethical concerns and the fear of an unregulated advance of science always seem to be catalysts for the creation of stories about artificial life and robots, and *Frankenstein* and *Erewhon* are notable examples of this. Given that stories help shape the world, these tales should therefore be considered as a powerful tool for exploring ethical dilemmas from various perspectives, helping humanity gain a deeper understanding of itself.

When even the most brilliant scientists cannot see outside the box of the obvious, science fiction can help by stimulating the imagination and expanding mental boundaries. People born in the early twentieth century would likely have had trouble envisioning the feats humans would accomplish through, for instance, artificial intelligence. But their children would grow up reading about Asimov's robots and other artificial intelligences, and this might have inspired generations of scientist to work relentlessly to achieve such a technology, as it has finally happened in the 21st century.[238]

[236] Camilla Alexandra Hrdy and Daniel Harris Brean, 2020, 415.
[237] Martin Saadia, 2016, 11.
[238] Hrdy and Brean, 417.

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Throughout history, there have been many examples of art that focuses on the topic of artificial life. Intelligent automatons, living corpses or human-like machines have been abundantly addressed, as seen in this first section, but why has this topic fascinated writers for so many centuries? One of the reasons could be that it facilitates the exploration of the many different answers to the question of what nature of life is, and specifically of human life. Victor Frankenstein himself expresses at the beginning of the novel his intention to "pioneer a new way, explore unknown powers, and unfold to the world the deepest mysteries of creation."[239] But even after so much literature has addressed this issue, there is still no satisfactory answer to what makes humans human, or what those mysteries of creation consist of. Science and philosophy experiment and theorize tirelessly to give answers to these questions, but they must abide by the laws of the physical world and therefore their progress can only be slow. For this reason, exploring the same topics through literature can provide a creative outlet for a much freer and boundless experimentation that allows for different perspectives, unrestrained research and almost endless possibilities. This can help people figure out, through safe fictional scenarios, the things that they do not wish to see happen in the real world, like Butler's "Book of the Machines" did for the Erewhonian society. Percy B. Shelley wrote a preface for Mary Shelley's *Frankenstein* in which he comments on this phenomenon by saying that the situation described in this novel, "however impossible as a physical fact, affords a point of view to the imagination for the delineating of human passions more comprehensive and commanding than any which the ordinary relations of existing events can yield."[240] It is indeed a testament to the power of art over people's minds. The following section deals with this question regarding the nature of human life and the ways in which it has been explored both in philosophy, particularly posthumanism, as well as in literature, focusing on science fiction.

## 3. What does it Mean to Be Human?

[239] Mary Shelley, 1994, 46.
[240] Shelley, 11.

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The question of what it means to be human seems to be as old as humanity itself, or at least as storytelling. *The Epic of Gilgamesh*, known as the oldest piece of epic literature, is an example of this. As written in Herbert Mason's translation "Gilgamesh was called a God and man; Enkidu was an animal and man. It is the story of them becoming human together"[241]. If one had to attempt to simplify the answer that the epic gives to this question, it may be that being human means knowing that death is inevitable.

Posthumanist studies have also tried to give a satisfactory answer to this question, although this endeavor has borne little results. In Zylinska's words, "new technologies and new media are constantly challenging our established ideas of what it means to be human and live a human life."[242] Throughout *Bioethics in the Age of New Media*, Zylinska defends her belief that there is no satisfactory and universal definition of "living being," and that there probably will never be one. She quotes other scholars who have claimed that there is a difference between the definitions of "human" and "person" and tries to determine whether they are right or not by examining the topic of abortion whilst she continues to search for an answer to the question of what a living being is.

This is an example of the more realistic, and perhaps more useful, pursuits of philosophical theories such as posthumanism, as this research could contribute to settling the long-lived debate regarding abortion. In contrast, science fiction takes on a more fantastical approach, addressing similar questions but with fewer constraints. For example, that phrase from the beginning of *The Epic of Gilgamesh*, "becoming human," can also be found in the aforementioned video game *Detroit: Become Human* for this exact reason: because it deals with the idea of robots becoming people by becoming self-aware. In this game, the thing that allows robots to gain self-awareness is a virus. In *All Systems Red*, a 2017 novel by Martha Wells, the protagonist is an android who hacks itself to be able to disobey commands at will, becoming in this way capable of making decisions.[243] Fiction allows authors to explore these same topics of personhood and autonomy that also trouble philosophers, but they can do so through fictional non-

[241] Harbert Mason, 2003, 15.
[242] Joanna Zylinska, 2009, 4.
[243] Martha Wells, 2019, 5.

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human characters. These authors have first decided that what makes humans human is their self-awareness and free will, and then they have explored that notion through scenarios that would be impossible to replicate in real life.

Where *The Epic of Gilgamesh* seems to focus on the awareness of death and its constant presence as one of the main things that set human life apart from other kinds of existence, Milton's *Paradise Lost*, a text of great importance in Mary Shelley's novel, could be said to offer a different perspective on the matter, more similar to that found in *Detroit: Become Human* or *All Systems Red*. Adam and Eve were already human when they were created and lived in the Garden of Eden, but it is not until they decide to eat from the forbidden tree that they become human as that term is understood today: as imperfect beings who will know suffering and death. "Cursed is the ground because of you; through painful toil you will eat food from it all the days of your life. […] By the sweat of your brow you will eat your food until you return to the ground, since from it you were taken; for dust you are and to dust you will return."[244] Therefore, at least according to Milton's interpretation of this passage, their free will is what allows them to make the decision to eat the forbidden fruit and it could therefore be considered as the defining factor of their humanity: "I made him just and right, sufficient to have stood, though free to fall."[245]

Regarding *Frankenstein* in relation to this issue of what characterizes human beings, many questions arise. Why can the creature be considered a living being when it is made from corpses? Or in other words, what is the secret of life that Victor Frankenstein uncovers, and which allows him to give life to something that should be dead? Moreover, and still in line with Zylinska's study, can Frankenstein's monster be considered a human being? Mary Shelley, in her diary from the time when she was writing *Frankenstein*, states that it was a conversation she heard her companions have while they were at Polidori's house that inspired her to think about the "principle of life" and whether it could ever be uncovered.[246] This is then echoed in Percy B. Shelley's preface of *Frankenstein*, which also mentions that "the event on which this fiction is

[244] The NIV Bible, 2018, Gen. 3.14.
[245] John Milton, 1860, 60.
[246] James Rieger, 1963, 467.

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founded has been supposed, by Dr Darwin and some of the physiological writers of Germany, as not of impossible occurrence."[247]

In the 19th century, the concept of vitalism was very prevalent. As it is described by Bechtel and Richardson, "vitalists hold that living organisms are fundamentally different from non-living entities because they contain some non-physical element or are governed by different principles than are inanimate things."[248] Mary Shelley could be referring to this concept when she speaks of the "principle of life." For Frankenstein's monster to exist as he is, as an intelligent and sentient creature capable of deep emotion, reflection and empathy, then he must have been endowed somehow with this principle of life, which is to say, with a soul.

These are some examples that illustrate how, when human beings try to answer the question of what makes them human, they tend to gravitate towards the same answer: consciousness. The knowledge of death and the awareness of themselves and the world around them. They also show that there is no satisfactory definition of consciousness, nor any tangible proof of its existence or its nature. However, humans are seldom satisfied with the unknown, so they use speculative fiction to navigate their nature through stories about themselves and hypothetical non-human beings that nevertheless resemble and behave like humans. Furthermore, they seek to comprehend the essence of humanity by constructing an artificial 'other' that helps clarify what humans are not.

## 4. Artificial Life as the 'Other'

The concept of 'otherness' refers to the condition of being different or distinct from a normative or dominant group or identity, which often leads to marginalization, discrimination, and exclusion. In Lacanian psychoanalysis, if there is an individual, there must also be an 'other' against which they define themselves. This notion has been used in postcolonial studies to explore the construction of non-Western cultures as the 'other' by the dominant Eurocentric discourses, and to analyze the way in which

[247] Mary Shelley, 1994, 11.
[248] William Bechtel and Robert C. Richardson, 1998, 1.

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'othering' affects the individual configuration of cultural identity in postcolonial contexts. In Bignall and Rigney, for example, posthumanism is used to deconstruct anthropocentrism from a postcolonial perspective that examines the "Indigenous conceptualization of their humanity as being constituted in inextricable relations with the nonhuman world"[249]. It has also been analyzed in gender studies since patriarchal societies define women as the 'other' as opposed to men and relegate them to subordinate positions. In Braidotti's foreword for *Socially Just Pedagogies*, the connection between feminist and posthumanist theories is explained as follows:

> I have proposed philosophical neo-materialism and nomadic becoming, inspired by neo-Spinozist vital ontologies and feminist theory, as the ontological grounding for the posthuman predicament. This materialist posthuman approach, does not restrict subjectivity to bound individuals, but rather repositions it as the effect of a cooperative trans-species effort.[250]

Posthumanism also defends that the boundaries between humans and machines are blurring, and it is becoming increasingly difficult to define a non-human 'other', which challenges anthropocentric perspectives and reevaluates the relationship between human and 'other' in the modern world.[251]

A certain preoccupation with 'otherness' can be seen in Mary Shelley's work, because she was concerned about the behaviors she witnessed and the state of the world around her and wondered whether the end should always justify the means when it comes to progress. It seems far away still, the day when humanity will be able to create artificial life, but the fact is that science is trying to achieve this goal. When science is about progress, science fiction should be about theorizing where that progress will lead, and whether it is worth it. Literature, and the still unnamed genre of science fiction, allowed her to ask these questions and explore a scenario in which imbuing a corpse with life was indeed possible, and explore what might happen after.

In the novel, Frankenstein's creature is taken for an evil monster even when he is not, and therefore 'othered' and treated with cruelty. Humanity tends to distrust

[249] Simone Bignall and Daryle Rigney, 2019, 159.
[250] Rosi Braidotti, 2018, XV.
[251] Andy Miah, 2007, 13.

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everything it deems different and to answer the question of "what makes us human" in ways that alienate those it seeks to exclude, as seen in postcolonial studies. Victor Frankenstein achieved the incredible feat of artificially manufacturing a living being, but, when he was finally face to face with him, he realized he could not stand the sight of him. Every person who saw the creature was similarly afraid of him, and this fear led them to attack him even though he was peaceful and had no ill intentions towards anyone.[252]

Mary Shelley and Samuel Butler both lived in the height of Imperialism, so it makes sense for Butler to have written his satire in the format of a colonial narrative. In it, the protagonist, Higgs, is surprised by the many ways in which the Erewhonians are different from him and his society, but gradually comes to realize that they are more similar than he thought, making the reader reflect on the absurdities of Victorian society. In this work, Higgs feels alienated from the country he has found himself in and ends up being persecuted. Thus, both Higgs and Frankenstein's monster are seen as the 'other' in opposition to the people they live amongst. This is the role of robots in many science fiction stories, that of the 'other' humanity shapes itself against. As explained earlier, the figure of the 'other' might be used to help answer important questions and explore different philosophical dilemmas through fiction. Nonetheless, evidence suggests that this role is rarely peaceful, and most speculative fiction stories acknowledge that, if such a thing as an artificially sentient being were to exist, it would probably face the same mistreatment as Frankenstein's monster.

Isaac Asimov has written many short stories and novels featuring robots. He was also aware of the fear that humans have against all that is different from them, and he named the phenomenon of humans loathing their own creations after Mary Shelley's protagonist, coining the term "Frankenstein complex" in *The Naked Sun*. He realized that it would be perfectly rational to fear intelligent mechanical beings who are smarter, faster and stronger than humans, and so he placed a safeguard in them that would prevent them from harming humans, exploring in this way the legitimacy of the fear that the concept of artificial intelligence inspires. This safeguard is known as "the laws of

[252] Mary Shelley, 1994, 136.

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robotics," and they are listed as follows in another one of his novels, *The Robots of Dawn:*

> 1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
> 2. A robot must obey orders given it by human beings except where such orders would conflict with the First Law.
> 3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.[253]

If real artificial intelligence was ever achieved and robots came into existence, Asimov's laws would no doubt be programmed into them, and this would become yet another example of how fiction shapes reality.

Asimov, much like Mary Shelley and Samuel Butler, was concerned with the state of the world around him, where people complained about being fired from their jobs because a machine could do the same thing faster, for free and without taking any breaks. But in his *Robot Series*, Elijah Bailey's character arc consists of him learning to respect robots. This is the main divergence regarding how the protagonists of *Frankenstein* and *The Robots of Dawn* see their respective artificial creations. This illustrates how science fiction can serve to give several different answers to the same question by looking at it from different angles. Victor Frankenstein ends up dying just to be rid of his creature,[254] but Elijah ends up seeing Daneel as a person and saying that he loves him.[255]

Thus, one can assert that posthumanism and science fiction have a privileged position from which to explore ethical dilemmas that may not be relevant yet but could be in the future. Scientists are currently developing what is known as Artificial Intelligence (AI), as well as robots, and they expect to be able to construct androids that are self-reliable and moderately self-sufficient in the future, as will be discussed at a later section. The matter of whether humanity will ever be able to create artificial life

[253] Isaac Asimov, 2009, 32.
[254] Mary Shelley, 1994, 211.
[255] Asimov, 176.

has no satisfactory answer, but science fiction offers the chance to explore that idea and to stretch it to its limit, to reflect on every ethical and philosophical dilemma tied to it.

## 5. Reasons for the Creation of Artificial Life

It is a known fact that robots and AI are being developed nowadays, but why? As was mentioned in a previous section, the idea of mechanical beings that serve humans and work for them has been prevalent for many centuries. There are robots in science fiction that are considered slaves by the narrative, providing labor that is hard for humans to do with the objective of making their lives easier. Nevertheless, there are also stories that treat robots as people, that dwell on the intrinsic value of their lives, and in which the humans around them learn to accept their differences and come to see them as equals, and even befriend and love them. This last possibility is especially interesting considering the generalized 'othering' of machines. In these stories, the 'other' goes from being ostracized, dehumanized and enslaved to reaching a certain equality in the eyes of humans, an idea that sounds almost utopic.

Humanity seems to have always contemplated the idea of creating humanlike automatons that would do the tasks most humans find hard or unsavory, like Hephaestus' automatons did for him. Prometheus, found in the subtitle of Mary Shelley's *Frankenstein*, offers a different dimension to this desire. When the titan makes humans out of clay, he does not have the objective of enslaving them. The other gods accept humanity in the end because they enjoy being worshiped by lesser beings, but that was not Prometheus' aim in the story; it looks like he merely wanted to partake in the act of creation to create a new species that looked like the gods and were intelligent, so they would populate the Earth, grow, and live. This concept sounds similar to the idea in Abrahamic religions that God molded the first man in his own image.[256] Victor Frankenstein has been accused of "playing God" in his attempts to create life by himself, as Prometheus did, and there is a reference in the text to this concept of molding a new species out of clay when Victor, explaining the excruciating pains he took to create his

[256] The NIV Bible, 2018, Gen. 1.27.

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monster, says that he would "torture the living animal to animate the lifeless clay."[257] This earns him the title of "The Modern Prometheus." Nevertheless, his intentions were fundamentally different from those of the Greek titan. Where Prometheus simply sculpted humans and did not expect anything in return, and got punished for helping them, Frankenstein expected, like the gods in the Greek pantheon, to be worshiped by this new race of superior beings that he envisioned: "a new species would bless me as its creator and source; many happy and excellent natures would owe their being to me."[258] This raises the question of what motivates humans to create artificial life.

Asimov references the Bible several times in his robot series, especially in the first book, *Caves of Steel*, and although he does not outright compare humans to gods in their creation of robots, the idea found in *The Robots of Dawn* of Dr. Sarton designing his first humaniform robot in his own image seems reminiscent of these creation myths[259]. Similarly, Sarton and Fastolfe's idea in Asimov's stories was to create androids for the sake of creating them, of inventing something marvelously complex that they could pride themselves on. They did not intend either R. Daneel or R. Jander to do any sort of labor, and these two anthropomorphic robots would be severely more unprepared for any kind of manual work than the other non-humaniform robots in the novels.[260] In this way, Asimov's roboticists had a similar objective to that of Prometheus and Victor Frankenstein, and of Dr. Noonien Soong in *Star Trek: The Next Generation*, which is that of creating a new form of life similar to theirs in appearance and intelligence. As opposed to this utopian ideal, there is the purpose of the other robots in Asimov's stories and of those in *Detroit: Become Human*, which is that of working for humans like Hephaestus' golden automatons worked for the gods. Slavery was an institutionalized practice in Ancient Greece, and gods often had servants of some kind, such as the immortal human Ganymede; so, what is surprising about Hephaestus' servants is that they are mechanical. The idea of machines as perfect and willing slaves is an appealing one, because it gets rid of the distasteful reality of enslaving other

[257] Mary Shelley, 1994, 52.
[258] Shelley, 51.
[259] Asimov, 66.
[260] Asimov, 67.

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humans that are, even if the enslaver will work hard to deny it, equal to you in every way, while keeping all the benefits of unpaid labor and servitude. According to Šabanović, countries like Japan, where the main advances in robotics are currently being made, consider that robots would be preferable to immigrants as a solution to Japan's labor shortage.[261]

As opposed to this idea of machines as slaves to humanity, there is Samuel Butler's idea of humanity enslaved to the machines. He theorizes in *Erewhon*'s "The Book of the Machines" that they will eventually become superior to humans in every way, and that they will only keep humanity alive so they can repair them, until they find a way to do that for themselves as well. He admits that they are useful, but warns that this usefulness gives a false sense of security and that machines will turn on their makers as soon as they are able to, like Frankenstein's monster: "true, from a low materialistic point of view, it would seem that those thrive best who use machinery wherever its use is possible with profit; but this is the art of the machines—they serve that they may rule."[262] This could have been written in a more cautionary tone, the more horrifying aspects of being enslaved by those machines that are humanity's own invention could have been further explored, but the way Butler writes about it is calm and almost matter-of-fact. During the Industrial Revolution, Samuel Butler had already experienced a society enslaved to machines. If it is no wonder that people accustomed to a social pyramid with slaves on its base would envision their deities as being waited upon by immortal servants of one kind or another. Additionally, it is also understandable that people accustomed to seeing hordes of workers of every age entering factories every day to produce more and more intricate machines would envision a future in which humanity's only purpose would be the betterment of the machine. In Butler's words in "Darwin Among the Machines":

> If they want "feeding" (by the use of which very word we betray our recognition of them as living organisms) they will be attended by patient slaves whose business and interest it will be to see that they shall want for nothing. If they are

[261] Selma Šabanović, 2014, 359.
[262] Samuel Butler, 1970, 162.

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> out of order, they will be promptly attended to by physicians who are thoroughly acquainted with their constitutions; if they die, for even these glorious animals will not be exempt from that necessary and universal consummation, they will immediately enter into a new phase of existence, for what machine dies entirely in every part at one and the same instant?[263]

With this, Butler also addresses the previous topic of what constitutes a living being, explaining why he thinks that machines could eventually be considered as such. He mentions, as the aspects of their existence that would make machines qualify as living organisms, the fact that they can be "fed" (imitating the vital function of nutrition), and the fact that they can "die."

When talking about what he thinks machines will eventually become, Butler defines perfection: "no evil passions, no jealousy, no avarice, no impure desires will disturb the serene might of those glorious creatures. Sin, shame, and sorrow will have no place among them. Their minds will be in a state of perpetual calm, the contentment of a spirit that knows no wants, is disturbed by no regrets."[264] It is very common, if not mandatory, for stories featuring robots in any prevalent role to talk about emotions. If robots are perfect, as Butler describes perfection, then this is the very thing that alienates them from humans. Human beings are, by definition, imperfect. *Errare humanum est*. Probably the most notorious example of a robot tormented by his own perfection and inability to feel human emotions is Data from *Star Trek: The Next Generation*. When a science fiction author wishes to create a markedly non-human character, it seems that the most utilized resource is making them emotionless. Mary Shelley seems to employ this resource as a double-edged sword: she gives her monster deep feelings and great emotional maturity to convey them in such a way that the reader has no choice but to relate to him, empathizing with the monster and seeing him as nothing other than human. Victor Frankenstein would have wanted his creation to be more similar to the immaculate and precise perfection that Butler describes, and he

[263] Samuel Butler, 2012, 183.
[264] Butler, 182.

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might have had better luck in this endeavor had he been an engineer instead of a necromancer.

What these fictional roboticists seem to have in common is that the main reasons why they attempt the construction of artificial beings are ambition and the desire to make human lives easier. These could also be said to be the reasons why roboticists create robots in the real world, another way in which life imitates art.

## 6. Conclusion: Robotics Today

This essay has examined some of the robots and artificial life forms present in science fiction, but does reality truly mirror these stories? In 2005 there was an exposition in the Aichi International Exhibition Center in Japan with a pavilion dedicated to the possible day-to-day uses of robots in the future, to familiarize the population with a lifestyle that may not be as far away as it seems. Their strategy was to showcase these prototypical robots in very traditional environments, "where ancient tradition ensures that the new art of life arising from the marriage of technology and culture is already part of everyday life here."[265] Some *karakuri ningyo*, the aforementioned Edo period mechanical dolls, were displayed there as a link between Japanese history and the future that roboticists are working to build. Even though the *karakuri ningyo* never had anything resembling artificial life, nor can they be classified as robots, they are yet another example of how the idea of mechanical beings that resemble humans can be found all over the world and across history, and how this history serves as inspiration to shape the world that humans inhabit today.

Roboticists in the real world seem to have very similar goals to those of roboticists in fiction that were explored in section four, namely, that of creating machines that resemble human life and can serve humanity. Šabanović speaks of a team of Japanese roboticists called The Humanoid Robot Group whose aims are to create robots able to "go anywhere a normal human can go […] pass through a door, go up and down stairs or crawl on the ground," and whose prototype's promotional photographs

[265] Šabanović, 343.

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depict it "working in construction sites and other dangerous environments, as well as helping people carry heavy objects, serving tea, and washing dishes."[266]

Another way in which reality imitates fiction in these robotic projects is the exterior design of the robot prototypes. There have been attempts to make their appearance as close to a human's as those of fictional robots such as Asimov's R. Daneel, *Star Trek*'s Data or *Detroit: Become Human*'s Markus. On a similar note, the Humanoid Robot Group hired artist Yukata Izubuchi to design their humaniform robot because he has worked on a science fiction anime called *Patlabor* which features robots who perform industrial labor, much like the robots that the HRP group wants to develop.[267] Interestingly enough, they also considered modeling their robots after another well-known anime character, Astroboy, but they realized early on that they could not make robots destined for labor look like children, afraid that people would complain about them making a "boy" work.[268] In the time of Mary Shelley and Samuel Butler, many children had to work and not many people would have opposed it, so this illustrates one of the many ways in which the world has evolved since then and how societal customs may change over time, perhaps thanks in part to books that dare criticize them, such as their contemporary *Oliver Twist*.

The issue of the "principle of life" mentioned in relation to Mary Shelley's *Frankenstein* was grounded, as was explained in the second section of this work, in the concept of vitalism, but this philosophy finds its opposite in the animism prevalent in Japan and other parts of Asia. Where vitalism stipulates that living organisms are fundamentally different from inanimate objects because they possess a vital metaphysical component that gives them life, animism is the belief that everything, whether organic or inorganic, has a soul. Or, to quote Stringer, "animism is understood primarily as a way of relating to the non-human world as if it were human."[269] Where many Western works of fiction focus heavily on the question of whether robots can be considered living beings with a sense of personhood even though they are inorganic and

[266] Šabanović, 351.
[267] Šabanović, 352.
[268] Šabanović, 353.
[269] Martin D. Stringer, 1999, 552.

therefore soulless, perhaps Japanese culture lends itself more readily to the acceptance of robots as people, since animism will automatically grant them this principle of life. Šabanović also broaches this topic when she speaks of the Humanoid Robotics Institute of Waseda University and how they define robots as "a third existence […] between that of a living creature and that of a nonliving creature, machines with hearts that are no longer pure and simple machines."[270]

The third section of the paper explained how many robot stories put robots in the position of slaves or immigrants in order to deal with these societal problems from a more futuristic or technological perspective, but the issue remains that roboticists do seem to intent to build robots who can fill the niche of unpaid workers who can do labor for longer periods and under extreme conditions that are impossible for human beings to undergo. Therefore, the solution to slavery or to aging populations that lack a sufficient workforce to support their elderly citizens is not a social renovation that pays more attention to regulating the work of immigrants or abolishing slavery, but the creation of functional and inexpensive robots that will conveniently solve this problem without any work on the part of governments and societies. Although it is an undeniably tempting notion, it is unlikely that such a solution will present itself in the near future, and therefore, like Šabanović puts it at the end of her essay, "robotics will need to engage explicitly in 'cultural fixes' […] to identify and resolve contemporary sociotechnological problems and develop socially beneficial and meaningful applications for robotic technologies."[271]

The ways in which literature has influenced roboticists are clear, as is the deep connection between art and life. Robots that successfully imitate life do not yet exist but, when they do, science fiction will be an invaluable asset in order to figure out how to design them, what their purpose will be and how humans will interact with them. Cautionary tales about the dangers of scientific ambition have never stopped the relentless pursuit of progress, but this paper has aimed to emphasize the great value of literature in helping to shape an ethical technological future that will consider the risks

[270] Šabanović, 357.
[271] Šabanović, 361.

of its scientific endeavors before undergoing them and that will take constructive criticism and advice to heart in order to ensure a safe, just and dignified future for humanity and all other living beings, equally important in the eyes of posthumanism, be they organic or inorganic, human or more-than-human.

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