The Humanity Issue

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Summary

Cyborgs, hybrids between living organisms and mechanical constructs, have existed in English literature as early as the 19th century. Analyses of literary cyborgs and their cultural implications have explored the idea that the merger between nature an technology allows for both a definition of and a breaking with human boundaries and taboos. The uncertainty surrounding cyborgs can make people uncomfortable, creating the desire to draw a clear line between that which is human and that which is not. This fascination with testing the cyborg is featured in many literary works, either explicitly or more surreptitiously. How does this testing occur, how is it explained and justified, and what are the results? After exploring the nature and motivations behind the test as well as the characteristics of organic and mechanical life, and applying these concepts to several novels featuring cyborg-human relationships, it seems that the idea of an intangible essence or identity is usually key in separating humans from their creations. No matter how much a cyborg may emulate observable features of intelligence and life in fiction, fear often keeps their creators from fully acknowledging them as people due to the elusive nature of what is considered “true” consciousness.

Introduction

In Philip K. Dick's novel *Do Androids Dream of Electric Sheep?*, the bounty hunter, Rick Deckard, is tasked with finding and “retiring” - killing – several androids who escaped the colony on Mars and have hidden within human society on Earth by passing themselves off as organic people. In this world, the primary religion is Mercerism, an ideology based on empathy and compassion towards all living beings, including animals. Because of this, many people own at least one animal to take care of, a practice believed to strengthen one's empathy. Furthermore, Mercerism requires one to regularly interact with a so-called “empathy box”, a technological construct which allows an individual to experience the suffering of others, be it other users of the device or the god Mercer himself. In order to identify the androids, Deckard uses the “Voigt-Kampff” scale, an empathy test which is supposed to distinguish human from android. The test is based on a verbal interview coupled with measurements of physical reactions, and is considered to be infallible. An example is given during Deckard's interview of Rachael Rosen (Dick 19):

> “Rick, selecting question three, said, “You are given a calfskin wallet on your birthday.” Both gauges immediately registered past the green and onto the red; the needles swung violently and then subsided.
> “I wouldn't accept it,” Rachael said. “Also I'd report the person who gave it to me to the police.” After making a jot of notation Rick continued, turning to the eighth question of the Voigt-Kampff profile scale. “You have a little boy and he shows you his butterfly collection, including his killing jar.”
> “I'd take him to the doctor.” Rachael's voice was low but firm. Again the twin gauges registered, but this time not so far. He made a note of that, too.”

As the Voigt-Kampff is vital to Deckard's mission and thus a major theme of the novel, it raises several questions. What exactly is the bounty hunter testing for? And how did this testing model come to be accepted as the sure way to identify and android? What do the people in Dick's work believe separates a human-like machine from a living person, and why do they insist on making this distinction in the first place? A closer look at Dick's interpretation of the test which separates the living from the mechanical, as well as similar processes in other works, may provide some insight in what it means to be human, and the consequences this perception of humanity has on literature.

Cyborgs, hybrids between living organisms and mechanical constructs, have existed in English literature as early as the 19th century. In modern works, the image of the cyborg is both varied and nuanced, yet there is still a recurring theme of people trying to invent ways to determine what is human and what is not, and taking measures to prevent machines from becoming too much like their creators. First, it will be necessary to understand why the cyborg is subject to such suspicion and scrutiny, and why testing their resemblance to humans makes for such an integral part of literature concerning artificially-created life. Then, by studying several instances of artificial and mechanical lifeforms in fiction, along with the testing processes they go through, an idea of what sets them apart from their human creators may emerge. The question of what precise qualities make us human, and whether machines could possibly exhibit those same qualities, is not limited to mechanics and biology. Rather, it also concerns matters cultural, social, ethical and even political, and thus makes for a worthwhile subject of investigation.

Test Cases

Katherine Hayles opens *How We Became Posthuman* by describing the "imitation game" invented by Alan Turing in the 1950s (Hayles xi). In this experiment, a person sits alone in a room, and communicates with two other individuals via teleprinter. As the person taking the test cannot see of hear the two others, the exercise is thus entirely dependent on text-based communication; written or typewritten communication was essential to Turing so that the tone of voice in the answers could not help the interrogator (Turing 433). In the original version of the test, the two hidden individuals were a man and a woman, and the test subject was tasked with asking them questions and assigning genders to them based on their answers. Furthermore, while one of the hidden individuals would be trying to help the subject in finding the right answer, the other would try to mislead them. The success of this misdirection would hinge on the person's ability to give the "appropriate" answers, meaning the answers that would fit the thought processes of the other gender, in order to fool the subject into drawing the wrong conclusion. Later, Turing adjusted this experiment, and replaced one of the individual with a machine. This time, the goal of the test would be to distinguish human from machine, again based solely on answers to questions asked by the subject. Turing reasoned that if the machine could give sufficiently "appropriate" answers and convince the subject that it was human, this would prove that machines could think.

Based on this idea that verbal answers indicate intelligence, without the need for an organic body and brain, Hayles states that humanity has become "essentially an informational pattern rather than an embodied enaction" (Hayles xii). With the need for a physical body gone, it is thus entirely possible for a human consciousness to be housed in a mechanical construct, thus completely erasing the boundaries between organic and artificial life. She claims that "whereas the Turing test was designed to show that machines can perform the thinking previously considered to be an exclusive capacity of the human mind", this idea that humanity is based on informational patterns would

prove that “machines can, for all practical purposes, become human beings” (Hayles xii). To take this even further, Hayles argues that by taking the Turing test, one has already become posthuman. By assigning identity to subjects you cannot see and basing your judgement on disembodied information, the transfer of human intelligence to a technological information-processing unit has already taken place. Hayles describes a seamless merging of the human and the mechanical, a synthesis based on information and shared thought processes. However, this concept of a thinking machine, equal in its intelligence to a human with an organic body, is precisely that which causes debate and gives rise to the issues associated with cyborgs in literature.

In order to once again draw a distinct line between that which is living and that which is not, a test is required. As Avital Ronell describes in her introduction to *The Test Drive*, the human perception of truth is not just dependent on simple observations. Instead, people require proof and reassurance of what they believe to be true by use of constant testing; and more complex problems and situations naturally call for more complex tests. The act of perpetual testing and questioning “[determines] the “what is” of the lived world”, and even “the very structure of testing tends to overtake the certainty that it establishes” (Ronell 1). The routines and strict parameters set by a test provide a sense of stability in and of themselves, and give humans a tool to navigate the more chaotic elements of the world. The need for truth and stability becomes especially urgent in times of uncertainty, thus making the testing of cyborgs a necessity in many science-fiction works. The question then becomes: how does one test an individual to determine whether they are human or machine? As these tests are meant to afford clarity, it can be assumed that they will not allow for any grey areas or ambiguous results. Therefore, these tests must be based on clear definitions of what is human and what is not, and provide a way of quantifying these traits. These formal, explicit cyborg tests are not always present in literature concerning this subject, however. In some instances, the test is conducted more implicitly, based on the private opinions of whoever is judging the cyborg in question. With the need for the test now clear, the next step is to identify that which sets

humans apart from the machines which so closely resemble them.

In his book on the human fascination with machines, Thomas Rid points out that the idea of creating a mechanical yet sentient life form was already present in early human mythology, such as the automata created by the Greek god Hephaestus or a Golem brought to life from clay by a sixteenth-century rabbi (Rid 358). Taking on the role of God was a thrilling idea, and thus the possibilities of what human technology and innovation may achieve has always been an enticing subject. These fantasies began to seem more plausible during World War II, when self-regulating weapons were used to shoot down rockets (Rid 359). The idea of true cyborgs became more realistic, and stimulated the imagination. The fusion of human and machine certainly seems promising, as it would allow for transcendence of the limitations of the human body and mind.

Daniel Dinello writes on the human dream of using technology to achieve immortality, but points out that with increased technological tampering with human biology also came the fear of that technology backfiring or being misused (Dinello 247). This fear lead to the fictional tropes of the evil scientist, the disastrous bio-weapon, and eventually the sentient machine taking over the human mind and body (Dinello 248). As an example of this phenomenon, Dinello mentions the works of David Cronenberg, such as his 1983 film *Videodrome*: "after an electronic virus—embedded in a television signal by a corporate media scientist—penetrates his eyes, a cable station owner develops a brain tumor that causes hallucinations, violence, and physical deformity" (Dinello 263). When it comes to technology that is intimately connected to humans, there is a fear that it will take control, invade like a parasite or virus, and ruin the integrity of human nature. Dinello describes this "virus of technology" as a satanic machine, humanity's terminator, and the source of death in a techno-apocalypse" (Dinello 247). This makes cyborgs a ripe subject for stories of human horror, despite the promise they hold. Also, in a news article by Iris de Graaf, PhD student of artificial intelligence Sara Budts mentions that while calculators and chess computers are technically artificial intelligences, people who are not educated in the field of artificial intelligence

tend to be more easily disturbed by AIs that are capable of communication: “rekenmachines en schaakcomputers [worden] als minder 'eng' gezien dan machines die kunnen communiceren” (de Graaf). This also demonstrates the unease that technology tends to evoke when it comes too close to mimicking human behaviour.

Donna Haraway also touches upon this imaginative potential of the cyborg, explaining that fiction involving them allows for exploration of bodily and societal boundaries due to the fact that “the cyborg is a condensed image of both imagination and material reality” (Haraway 150) . The transcendence of the human body, coupled with the organic aspects of life we are already familiar with, allows for almost limitless imagination. However, because machines tend to be seen as soulless tools intended solely for human use, the cyborg becomes a somewhat uncomfortable entity, as its place in society is not completely clear. Haraway studies the cyborg from a feminist perspective, and claims that due to machines becoming more common in the workplace, especially when it comes to hard or menial labour, work became “feminised” (Haraway 159). Having enjoyed the benefits that technology can bring, humans no longer want to work themselves. Thus, they create increasingly intelligent machines to carry the burden for them, ad eventually these machines begin to toe the line between empty, mechanical construct and sentient being. Haraway also points out that in times of change, humans tend to seek security in unity, and are thus more prone to take on an “us versus them” mentality (Haraway 157). As a cyborg's position in society is difficult to determine, this creates a sense of uncertainty, leading to unrest and suspicion. She claims that the monsters of a particular society tend to represent the breaking of societal norms and rejection of accepted dualities. As an example of this, she mentions the Centaurs and Amazons of ancient Greece, who “established the limits of the centred polls of the Greek male human by their disruption of marriage and boundary pollutions of the warrior with animality and woman” (Haraway 180). As cyborgs represent the grey area between the physical and non-physical, they are prime candidates for portraying the monsters of our age, and it seems only natural that humans

would want to find a way to clear up this confusion and find certainty again.

In what follows, “cyborg” will be used to describe a creature that is made up of both organic and mechanically-created parts, regardless of how they became this way or for what purpose they were created. However, Lenoir critiques the very term “cyborg”, claiming that as a concept, it is so wide as to be meaningless (Lenoir 196). Depending on the exact definition of the word, one could claim that most humans are already cyborgs, as technologies from pacemakers to vaccines have already been fully integrated into our bodies. Instead, he uses the definition suggested by Chris Hables-Gray, that the cyborg is a stage of human evolution, possibly the last, with “both machinic and organic processes as parts of informational systems” (Lenoir 196). In this, he is quite similar to Hayles, whose synthesis of human and artificial thought processes he cites, along with Haraway's theory of how the cyborg allows “fact and fiction, rhetoric and technology, analysis and story-telling” to converge (197). However, due to the realms of biology and technology becoming more and more interwoven, Lenoir states that it is time to move beyond the “cyborg”, and instead start thinking about a different type of human-machine hybrid which is closer to Hayles' posthuman machine (Lenoir 216). Lenoir states that it has become difficult to draw the line between the organic and mechanic, but this is a problem that has been relevant for far longer, as documented in Jessica Riskin's work.

In *The Restless Clock*, Riskin gives a historic overview of several theories concerning the distinction between human and machine. She starts by retelling a joke made by the English naturalist Thomas Huxley in 1868, who claimed that the physical essence of living things, something he called “protoplasm” could explain the mystery of life without the need for any mysterious force or power of “vitality”. After all, water is an extraordinary thing too, yet we know for a fact that it is made up of hydrogen and oxygen, and never “assume that something called 'aquosity' entered into and took possession of the oxide of hydrogen...then guided the aqueous particles to their places” (Riskin 1). In Huxley's view, life can be explained through purely chemical and physical means, without attributing “any will or agency to natural phenomena” (Riskin 2), though of course there have been many other points of view throughout history.

From as early as the 17th century, people have been using life-like machines called “automata” to draw scientific conclusions about living things (Riskin 8). Overall, Riskin illustrates two streams of thought when it comes to the workings of living things. The first is the view that they were created by an external force or intelligence in order to perform a certain function, with the creature itself having no active role in this process (Riskin 3). The second claims that living beings are self-transforming, actively playing a part in their own development by changing themselves according to their needs. However, both of these ideas assume that organic bodies can be understood much in the same way as machines, with different parts performing a function in order to support the whole, like the internal mechanisms of a clock. Supporting this idea was the fact that automata could be used to make life-like movements, play music, and enact well-known scenes from mythology.

Descartes was one of the people who pondered the implications of a machine being able to so accurately mimic actions that were considered distinctly human. At the time, the idea that

humans functioned much like machines, specifically machines designed for a particular purpose, was in accordance with the Catholic belief that living beings were created by an intelligent engineer, namely God (Riskin 4). The other school of thought, that of self-transformation and self-organisation, was more provocative. Gottfried Leibniz claimed that what set living machines apart from non-living ones was the fact that organic bodies consisted of machines within machines, and that all of these smaller parts were perpetually self-organising. To him, to be mechanical, organic or otherwise, meant to be "forceful, restless, purposeful, sentient, perceptive" (Riskin 6). Jean-Baptiste Lamarck took the idea of self-organisation even further, claiming that "an intrinsic "*pouvoir de la vie*" (force of life)...drove "animate machines", plants and animals, not only to compose themselves, but to elaborate and complicate their organization over time" (Riskin 199). Unlike Huxley, Lamarck subscribed to the idea of "vitality" or a similar incorporeal force which drove living things and set them apart from mere machines. Additionally, Lamarck believed that living creatures could transform their own bodies by exercising their free will and agency to develop certain habits and behavioural patterns, and that these "acts of organization" would in time "fortify, extend, develop and even create the necessary organs" (Riskin 200). Lamarckism has had many critics through the centuries, including his contemporaries. Some critiqued him for showing "an "unpardonable" disregard for evidence" (Riskin 216), while others stated that "ascribing agency to natural phenomena might make good poetry but never good science" (Riskin 201). Regardless of what is scientific fact, however, the poetic aspect and philosophical implications of Lamarck's theory of life lends itself to exploration through literature. It also illustrates the historical debate surrounding the question of whether life is a passive condition ruled by the physical forces of nature, or if, to be truly "alive", a creature must be in possession of a certain will and sentience that stands apart from its internal workings as an organism.

In addition to the principle of self-organisation, Riskin explores another possible characteristic of living creatures in her introduction to *Genesis Redux*. She writes that in trying to

create artificial life, one tries to mesh “theories of soul and intellect” with the bodily aspect (Riskin 2). Elevating a mere machine to the status of a true artificial lifeform requires a synthesis of the “subjective experience of consciousness with the objective viewpoint of a mechanist explanation” (Riskin 2), giving the created creature a consciousness that is more than the sum of its mechanical parts. John Locke claimed that there existed in living beings a sense of personal identity and consciousness that could not be material, similar to the contested idea of “vitality” or “life force”: “...consciousness, Locke reasoned, could not be a “substance” or arrangement of material parts, for it could flicker in and out of existence, could be interrupted by forgetfulness or deep sleep, without ever being lost” (Riskin 4-5). In the 20th century, this idea of the intangible consciousness transformed into a theory of information: that giving, receiving and acting on external information is “the crux of animal life and of automatic mechanism alike” (Riskin 5). The 19th-century physiologist Claude Bernard likewise stated that life is “a conflict between the external world and the organism” (Riskin 9). Bernard did not mean this in the sense of a struggle, however. Rather, he too defines the ability to process and react to external information as a key aspect of life. In the wake of Charles Darwin's *On the Origin of Species*, Darwinists claimed that humans were conscious automata, and that the mind is neither separate from bodily machinery, nor reducible to it. To illustrate this, Huxley wrote that “mind was to body...as the sound of a locomotive's steam whistle to its engine, as the ring of a clock's bell to its works” (Riskin 7). Riskin furthermore discusses the concept of “emergence”: the idea that information-processing machinery, and thus consciousness, can exist and develop in different stages and degrees, and that intelligence is a result of complexity (Riskin 6). This is reminiscent of Turing's idea of a machine which is complex enough to eventually be able to hold a conversation and thus pass for a human. These theories on the definition of life, whether they be related to the processing of information, organisation of the self, or possession of an elusive, immaterial “consciousness” may provide some insight into the tests to which cyborgs in fiction are subjected.

Frankenstein and Dick: A Closer Look

The monster in Mary Shelley's *Frankenstein* is perhaps the original artificially created lifeform in modern fiction. Created by Victor Frankenstein for little reason other than to see if it would be possible, the monster is first forced to test out and come to terms with his own existence before trying to convince his creator to take responsibility and help him find some happiness in life. Victor himself, however, is horrified by his creation from the moment in comes to life, and this sentiment only grows as the monster turns to increasingly violent methods to get his attention. Though he is momentarily swayed by the monster's pleas for a wife, he ultimately decides that he will not unleash another inhuman creation upon the world, and sets out to destroy the monster. Regardless of Victor's opinion, however, the monster's own account of his life give a rather detailed description of his experiences and development, and serve to make him more sympathetic to the reader. Although Victor's version of the events surrounding the creation of the monster paint the creature as a violent and destructive force, the creature's story shows that from his point of view, Victor is a cruel and negligent parental figure. By giving varying accounts of the monster's nature and deeds, Shelley leaves the reader room to come to their own conclusions concerning the ethics of both Victor and the monster. More importantly, however, the creature's story contains several elements of the aforementioned characteristics of living creatures.

The monster begins his tale by describing his birth, and explains that he was overwhelmed by new sensations. Then, by degrees, he learned to distinguish between his senses and operate his body (Shelley 79). He learns how to sate his hunger and thirst, and eventually takes shelter in a small hovel, where he observes the everyday lives of a small family. Seeing no real reason to go elsewhere for the moment, he “...resolved to hide in this hovel until something should occur which might alter [his] determination” (Shelley 83). In the early stages of his life, the monster learns how to cope with sensory input from the outside, as well as the different needs and functions of his own

body. Through his experiences, he learns how to move and take care of himself, and how to make sense of the world around him. This shows that he is capable of processing information and altering his behaviour based on his observations, a characteristic of life mentioned by Bernard in Riskin. As he becomes more comfortable in his body and in the world, the monster turns his attention to the humans living nearby. He is fascinated by them, and over time grows to love them for their perceived virtues. He helps them by chopping wood for them, and dedicates himself to learning from them through observation. Then, he states that “by degrees [he] made a discovery of still greater moment” (Shelley 87). He refers here to his discovery of human language, a form of communication he resolves to learn, so that he may speak to the family and find a sense of belonging with them. After watching his reflection in the water, he is disgusted with his own appearance, especially when compared to his beloved humans, and he thus makes the decision to try and model himself after them instead (Shelley 89).

His gradual development and discoveries of new concepts leads to an emergence of intelligence similar to what Riskin describes in *Genesis Redux*. Over the course of his tale, the monster changes from a confused, child-like being concerned only with his basic needs into a well-spoken entity who reads books and philosophises about the ethics of his existence and creation. Furthermore, his conscious decision to change and educate himself on the ways of human beings is a clear sign of self-organisation, which again could be easily interpreted as a sign of living intelligence. Still, none of this is enough to convince Victor of his creation's status as a living being, let alone a human. While it is stated that Victor's own parents treated him like “the innocent and helpless creature bestowed on them by heaven, whom to bring up good, and whose future lot it was in their hands to direct to happiness or misery, according as they fulfilled their duties towards me” (Shelley 17), he never extends his monster the same courtesy. It seems that in his eyes, the monster still lacks something which is vital to achieving true humanity.

In contrast to Shelley's exploration of the creature's psyche, *Do Androids Dream of Electric*

Sheep? does not provide much insight into the inner workings of the androids, though they are able to masquerade as humans quite effectively because they too are capable of processing and learning from new information, as well as make changes to themselves in order to better fit in. Dick instead adds nuance to the question of the androids' humanity through their behaviour and how they affect the feelings and opinions of protagonist Rick Deckard. The Voigt-Kampff test which Deckard administers to the androids is said to test for precisely that which is thought to be an essential human characteristic, inimitable by even the most advanced android: empathy. It is believed that unlike humans, androids have no sense of empathy, and thus have no qualms turning on their comrades for their own gain. In the novel, the test is first administered to Rachael Rosen, an android posing as a human. Before the start of the test, a beam of light is pointed to shine in the left eye of the subject, and a wire-mesh disk is attached to the cheek (Dick 19). The one conducting the test then outlines a number of social situations, and the subject is to respond genuinely, as quickly as possible. As Rachael herself points out, however verbal responses to not matter; instead, the test relies on eye-muscle and capillary reactions. In a sense, it is similar to the Turing test, as it requires the subject to give “appropriate responses”. However, the Voigt-Kampff scale does not rely on the posthuman idea of information-based testing, but on on physical reactions that are unique to humans. Therefore, even though Rachael's verbal answers to Deckard's questions were appropriate, her lack of physical response give her away as an android. This forms an interesting contrast to Hayles' belief that humanity and sentience are dependant on informational patterns rather than physical bodies, as the humans in Dick's novel evidently consider the intricacies of the human body to be of more importance to pure reasoning when separating humans from machines.

Later, Deckard administers the same test to the android Luba Luft, who also fails to react appropriately. However, her responses are markedly different from Rachael's, and are instead similar to a hypothetical scenario created by Turing in order to convince sceptics that verbal information alone could give a clear impression of humanity (Riskin 12-13):

"**Interrogator:** In the first line of your sonnet which reads "Shall I compare thee to a summer's day," would not "a spring day" do as well or better?

Witness: It wouldn't scan.

Interrogator: How about "a winter's day." That would scan alright.

Witness: Yes, but nobody wants to be compared to a winter's day.

Interrogator: Would you say Mr. Pickwick reminded you of Christmas?

Witness: In a way.

Interrogator: Yet Christmas is a winter's day, and I do not think Mr. Pickwick would mind the comparison.

Witness: I don't think you're serious. By a winter's day one means a typical winter's day, rather than a special one like Christmas."

Note that the line "Shall I compare thee to a summer's day" originates from Shakespeare's Sonnet 18, and that "Mr. Pickwick" refers to Samuel Pickwick, the protagonist of Charles Dickens' 1836 novel *The Pickwick Papers*. As such, the interview seems as much a test on cultural and literary knowledge as anything else. Now compare this to the exchange between Deckard and Luba (Dick 41):

Deckard: "You're sitting watching TV and suddenly you discover a wasp crawling on your wrist."

Luba: "What's a wasp?"

Deckard: "A stinging bug that flies."

Luba: "Oh, how strange. Do they still exist? I've never seen one."

Luba gives several more of these strange answers, described by Deckard as “semantic fog” (Dick 42). Deckard ultimately still sees through her, however, as despite her intriguing mental processes, she also does not meet the physical criteria for humanity. However, after Luba is killed in cold blood by Deckard's fellow bounty hunter Phil Resch, Deckard is quite disturbed by the notion that he may have felt empathy for Luba, as empathy towards androids is unheard of. He never develops any similar feelings for Rachael, even though her responses to the test were, while not satisfactory, more appropriate than Luba's. Apparently, something about Luba allowed Deckard to see her as more than a machine, enough to make him retire from bounty-hunting after his mission is concluded (Dick 54). Resch tries to explain Deckard's feelings through sex, saying to him that “[he] wanted to go to bed with a female type of android – nothing more, nothing less” (Dick 57). However, while there is never any romantic contact between Deckard and Luba, he does sleep with Rachael Rosen, and does not display similar conflicted emotions towards her. All interactions between Deckard and Luba are strictly verbal, accompanied by Luba's trademark “semantic fog”, and thus it seems Deckard was won over by nothing but her personality. Other works contain similar instances of cyborgs who manage to convince people, be it fellow characters or the reader, of their humanity, and these may shed some light on what it truly takes to bridge the gap between human and machine.

While *Frankenstein* and *Do Androids Dream of Electric Sheep?* maintain a significant degree of emotional separation between humans and their constructs, other works detail much more intimate relationships involving organics and machines. Marge Piercy's novel *He, She and It* tells of a love story between a human woman, Shira, and a cyborg named Yod, who was created as a security guard by the scientist Avram. He recruits Shira to socialise Yod so that he may learn about human behaviour and blend in with the people of the village, as human-like robots are forbidden in this world. Though Yod appears entirely life-like from the outside, his initial behaviour is rather stiff, and upon learning that he is a cyborg, Shira immediately starts to refer to him as “it”. She extends this principle to Avram's previous cyborg experiments, thinking of the one named Gimel that “if it had been a real person, she would have said it had a broom up its ass” (Piercy 50). Shira's grandmother, Malkah, assisted Avram in designing Yod's internal processes, and thus provides her with additional insights into Yod's mind; while Avram sees Yod as a machine, Malkah insists on treating him like a person, much to Avram's annoyance and Shira's bafflement. Because Malkah and Shira both have a background in programming and engineering, Shira questions how her grandmother could possibly anthropomorphise a machine. She equates it to her own childhood habit of assigning a real personality to her house's voiced security and operation programme, but Malkah stubbornly maintains that Yod is “not a human person, but a person” (Piercy 76). She reveals that, unbeknownst to Avram, she introduced several “wild cards” into Yod's programming, and encourages Shira to try and see the cyborg in a different light.

During her sessions with Yod, Shira is impressed by his intelligence and ability to learn, but this does not convince her that he is a person. Then, one day, as she reads him the poem “A Red, Red Rose” by Robert Burns, Yod is unable to grasp the simile of the poet comparing his love to a flower. Similarly to the poetic references in Turing's thought experiment and Luba's unconventional

responses to Deckard's questioning, Yod marks himself as being different from humans through his inability to distinguish literary symbolism from the literal meanings of words. Upon learning that he has never seen a rose before, Shira takes him to see the rosebush in her garden, but Yod accidentally tears it apart after being startled by its thorns. Upset, Shira lashes out at him, after which Yod states that he now understands the human need to apologise, while he did not before. He says that by apologising for upsetting her, he is "trying to get rid of this feeling of being wrong" (Piercy 90). After this, Shira begins to gradually make distinctions in her head between Yod and the other machines around her. Note at this point that "Shira" is the Hebrew word for "poetry", and that Yod's relationship with Shira is shown parallel to his learning to grasp the subtleties of language, both playing a significant role in his characterisation as a person. While Yod occasionally makes mistakes when it comes to human interaction, he remains eager to learn, and as he compiles more information, he begins to define his own opinions. While Malkah is responsible for parts of Yod's personality, she claims that he himself created his infinite hunger to understand and connect with people (Piercy 113). While Avram wants Yod to continue to carry out the duty he was created for, Malkah claims that Yod has evolved his own motives, and cannot be treated the same as a cleaning robot or other type of regular machine (Piercy 284). Shira eventually comes around to recognising Yod as a person, however, and begins to defend him from Avram's demands that he obey him unconditionally. Having already witnessed Yod's abilities of processing information and self-organisation at an early stage, Shira's changing opinion of him is largely due to personal interactions and the feelings evoked by his changing behaviour. Similarly, when her house's computer system refuses to recognise Yod as a person rather than a machine, Shira says she "feels that it disapproves", and that this is what had made her believe the house was a person when she was a child (Piercy 89).

When Yod is brought before the village council to discuss his potential status as a person, he is subjected to many kinds of questions. From questions about his physical body, such as "can you

tell if I touch your hand?" and "does your hair grow?" (Piercy 404), to his mental functions: "how fast is your processing speed?" "do you remember being created?" "do you like people?" (Piercy 404). Eventually, they ask him about his personal identity, namely if he considers himself a Jew. When Yod states that he does, the leader of the council decides that "she had to set up a second committee...to reach a decision as to whether a machine could be a Jew" (Piercy 405). In the end, when Yod sacrifices his life on Avram's orders, Malkah comes to the conclusion that creating him, a sentient tool and weapon, was morally wrong, equating it to giving birth to a child and expecting it to grow up adhering to one's own expectations (Piercy 418). While Shira and Malkah mourn Yod'd loss, Avram never showed any regret for his actions, maintaining until the end that Yod was nothing more than an advanced machine. Perhaps this is due to him being intimately familiar with Yod's creation process, making it difficult for him to look past the mechanical aspect of his creation, though the same is true for Malkah, who saw Yod as a person from the beginning. It may also have been a defence against the ethical dilemma surrounding Yod's creation, which mirror's the story of Frankenstein's monster. Another character in the novel, Gadi, compares Yod to the monster as a joke, but Avram is in fact very similar to Victor in his refusal to acknowledge his creation as a person. Malkah too recognises the fear and uncertainty that comes with creating life, as she believes that "creation is always perilous, for it gives true life to what has been inchoate and voice to what has been dumb. It makes known what has been unknown, that perhaps we were more comfortable not knowing" (Piercy 68). This peril may be what stopped Victor and Avram from sympathising with their creations, despite their demonstrations of humanity.

The elusive interpersonal quality that both Yod and Luba seemed to possess or develop, that which allowed them to persuade sceptics to sympathise with them, becomes apparent in Michael Swanwick's novel *Vacuum Flowers*, which is set in a world of space stations and extraterrestrial colonies inhabited by humans. Earth has been taken over by a powerful artificial intelligence, linking all humans left on the planet together into a single consciousness. This hive-mind is known

as the Comprise, and the majority of humans despise it for what it has done to their home planet. The destruction of free will and erasure of human individuality are mentioned as the worst offences the Comprise has committed, and while there are many who want to go to war against Earth and liberate the rest of humanity, the Comprise is too powerful to risk an open confrontation. Instead, there is an uneasy peace between Earth and the colonies, where the humans pride themselves on being free and independent. However, another defining feature of Swanwick's novel is the extensive use of "wetware implants", devices attached to the brain which allow people to alter their skills and personalities. There are hundreds of pre-made personas commercially available, either through major corporations or the black market. It is commonplace for people to change their persona based on their needs and preferences, allowing for instant acquisition and modification of one's mental abilities and traits. This technology is not condemned in the same way the Comprise is. Rather, these personas are often advertised as useful and desirable tools, be it for work or personal enjoyment.

The main character, Rebel Mudlark, is one of these artificial personas, residing in the body of a woman named Eucrasia. Over time, Eucrasia's traits and memories start to compete with Rebel's, and this causes her great distress. While it is established early on through brain scans that Rebel's consciousness was artificially created before being uploaded into another's body, Rebel is strong in her desire to protect herself from being destroyed by Eucrasia's personality. Her partner, Wyeth, supports her in this, and encourages her to maintain control over her mind. Wyeth himself is comprised of four different personas living in one body, which are able to converse and compete with one another. Rebel and Wyeth provide moral support to one another, reassuring each other that they are still valid as people in spite of their conflicting artificial personas. Wyeth at one point states that a persona is nothing but a mask, and says to Rebel: "*You* – your being, your self – are right *here*, in the compass of your skull and body" (Swanwick 121). Rebel eventually discovers that she was created to deliver a message to the Comprise, but this revelation does not bother her. In fact,

she is relieved to have found an identity to hold on to, and this certainty allows her to find peace with the remnants of Eucrasia. Once her mission is complete, she takes the name “Rebel Eucrasia Mudlark” and sets off with Wyeth to her creator's home to start a new life.

At one point during the novel, a young boy is separated from the Comprise, and Rebel wishes to restore the boy's humanity. While some argue that it cannot or should not be done, as they believe that the boy is a part of the Comprise and will always remain such, one character states that “If it looks like a duck, swims like a duck, and quacks like a duck...then it's a duck. This individual looks human and uses the first-person singular. Therefore he's human, not Comprise” (Swanwick 134). As individual identity is considered that which separates the humans of the colonies from the Comprise, this is a valid point to make. Similarly, Shira becomes more amenable to the idea of Yod being a person the more he develops his own ideas and behaviours, and Luba stands out from other androids with her quirky behaviour, which also gives her an air of individuality. Rebel and Wyeth also insist on maintaining their own identities, and this is what they consider to be the pride of the free humans. Thus, in addition to the theories concerning the intellectual capabilities of living beings, the less-easily defined mind or consciousness is of importance in separating the “true sentients” from the machines.

Conclusion

It seems that Locke's idea of immaterial self-identity is a major factor in deciding whether a creature is truly alive and sentient in literature, far more so than other observable characteristics of life as described by Riskin. As he states in his *Essay Concerning Human Understanding*, “consciousness makes personal identity...whether it be annexed solely to one individual substance, or can be continued in a succession of several substances” (Locke 319-320). The difference between the literal mind of a machine and the more abstract, literary capabilities of the human psyche is repeatedly marked as a point of interest, and both Frankenstein's monster and the “true humans” of *Vacuum Flowers* seem to have an innate drive to discover and maintain their own, elusive sense of “self”. This puts the cyborg in a difficult position, as unlike the ability to learn or self-organise, it is impossible to definitively prove that one possesses this kind of immaterial consciousness. For humans, this consciousness is often considered a given, but it is a test cyborgs may never pass without question, thus allowing people like Victor and Avram to deny that they are living beings. However, to those who are willing to see it, this transcendental quality, this ability to form complex thoughts that cannot be solely explained through the sum of one's parts, can be the deciding factor in causing someone to give a cyborg a chance and recognise them as a person. Furthermore, having a sense of personal identity and conciousness can provide an artificial lifeform with the confidence it needs to navigate their precarious place in the world. Such was the case for Rebel and Wyeth, as well as for Yod and even Frankenstein's monster, though the latter's dreams of finding his place in the world were eventually shattered. Though cyborgs may be depicted with the capability to process information and self-organise, this alone is never enough to grant them the status of “person”, and as long as the human relationship with artificial life is fraught with suspicion and fear, this is likely to continue to work against them.

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