

The Ethics of Transhumanism in Annalee Newitz's *Autonomous*

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Abstract

This paper examines the influence of extreme capitalism within the pharmaceutical industry and the existence of sentient robots within the context of transhumanism in the American novel *Autonomous* (2017) by Annalee Newitz (1969-). It also utilizes the theory of deontological ethics to clarify the ethical state of this futuristic world within the novel. Additionally, the application of virtue ethics is an attempt to select an ethical theory that aligns with the future of technological advancements. As technology rapidly progresses, resulting in extreme shifts in the ethical, political, and societal spheres, it becomes important to uphold ethical principles that would survive the test of time. Such ethical principles would be influential in cases where existing theories about ethics become insufficient in coping with the impact of ever-increasing technological progress. The paper also explores how *Autonomous* critiques the commodification of medicine by big pharma, as well as the ethics of merging man and machine against the backdrop of deontology.

This is primarily accomplished by employing textual analysis to explore and contextualize the pharmaceutical company “Zaxy” within the deontological system of ethics. It also examines the events in *Autonomous* in relation to real-world circumstances and delves into the consequences that arose from the existence of sentient robots and how deontology would view those consequences, especially the extension of human rights to machines. In seeking to discover an ethical theory that holds value in the future, character analysis is done from the perspective of virtue ethics as a possible solution to the lack of certainty concerning the future of technological progress.

The findings reveal that *Autonomous* reflects a common concern about transhumanism: its potential to amplify some negative aspects of capitalism. This is illustrated by the depiction of humans as a tool for profit, and by the limited access to new medicine, all of which are contradictory to the imperative of deontological ethics. The study concludes that character virtue serves as an anchor for proper ethical behavior in a future where the concept of ethics itself is redefined. However, balancing the demands of the drug patent system with the necessity to pursue the well-being of the public remains an unresolved ethical challenge.

Keywords: Ethics, literature, Philosophy, Science-fiction, Transhumanism

1. Introduction

Autonomous (2017) by Annalee Newitz (1969-) follows the character of Jack Chen (the name Jack is a nickname for Judith Chen), a drug pirate who illegally modifies an experimental drug called Zacuity from the pharmaceutical company Zaxy which claims that it enhances human productivity. Unknowingly to Jack, the drug had addictive properties and fatal side effects deliberately introduced into it by the drug company. This led Jack on a quest to finding a cure after she helps in the spread of the experimental drug to the population causing numerous fatalities (Vint, 2021) while evading attempts to be captured by the IPC (International Property Coalition) (Newitz, 2017), which is in charge of protecting patent drugs from any violation. The narrative also shifts to two main characters assigned to find Jack; agent Elias and an IPC robot named Paladin. The novel takes place in the year 2144 with occasional flashbacks; a futuristic world in which both humans and intelligent robots can be owned as property (Vint, 2021); a system referred to as “the indenture system” (Newitz, 2017, p. 55). The author of the novel, Newitz, is an American journalist, writer, and editor. *Autonomous* is her debut science fiction novel (Ton Editors, 2017). Implicit in her novel *Autonomous* is a major criticism of pharmaceutical greed and the effects of capitalism on the very concept of humanness. As a conceptual framework, the ethics of transhumanism in the novel are evaluated through the lens of deontology, while virtue ethics is proposed as a potential complementary theory to be aligned with the demands of an era of technological progress.

Originating from the philosophies of ancient figures, mainly Aristotle and Plato, virtue ethics emphasizes the character of the individual as a measure of ethical judgment. Therefore, the focus of virtue ethics is who the individual is. Virtue ethics

aims to cultivate an inspiring character whose motive is to act from pure goodness (Pojman, 2000). In *Nicomachean Ethics*, Aristotle distinguishes between two types of virtues; intellectual virtues, such as “judgment” and “wisdom,” and character virtues that include “temperance” and “generosity.” Neither of these two types of virtue is acquired by nature. Intellectual virtues, argues Aristotle, are a result of experience and are not naturally obtained. “Intellectual virtues owes its origin and development mainly to teaching, for which reason its attainment requires experience and time” (Aristotle, 2004, 1103a15-16), while character virtues come about through habit “a result of habituation (ethos), for which reason it has acquired its name through a small variation on ‘ethos’” (Aristotle, 2004, 1103a17-19). Aristotle suggests that virtues are similar to skills in that they can be gained with practice (Aristotle, 2004).

Virtue ethics is related to a common way of interpreting literature through a focus on characters and their behavior from the lens of ethics. The British philosopher Colin McGinn encourages this view when examining fiction (Blackford, 2017). In his book *Ethics, Evil, and Fiction* (1997), he argues that “virtue coincides with beauty of soul and vice with ugliness of soul” (McGinn, 1997, p. 93) and claims that philosophers are “too influenced by the commandment paradigm and not enough by the parable paradigm” (McGinn, 1997, p. 172). In this, he means that they are not influenced enough by writing that invokes human psychology and offers an identifiable moral lesson by inviting the reader to examine human psychology within the context of events (Blackford, 2017).

On the other hand, deontology is an ethical theory furthered by the German philosopher Immanuel Kant (1724-1804) who believes in the existence of a single and absolute duty that rational humans are guided to by reason which he calls the “categorical imperative” and asserts that “[t]here is, therefore, only a single categorical imperative and it is this: act only in accordance with that maxim through which you can at the same time will that it become a universal law” (Kant, 1997, p. 31). According to Kant, an agent should act in a way that the action would be acceptable if it were to be considered a universal law (Kant, 1997).

The diverse aims associated with transhumanism can provoke relevant discussions concerning deontology, such as the degree to which a futuristic transhumanist world and the changes it introduces would align with the categorical imperative. Kant limits moral worth to conscious beings and as such, science fiction stories that involve sentient robots pose a potential issue as to whether or not those

sentient robots deserve moral rights equal to those of their human counterparts. For example, *The Bicentennial Man* (1976) by Isaac Asimov (1920-1992) involves a sentient robot named Andrew, and from the beginning, the author pushes the reader into believing that Andrew possesses consciousness (Schneider, 2010). Likewise, *Autonomous* blurs the line between humans and machines, depicting a world where both are subject to slavery, thereby challenging preconceived notions about moral rights. It also involves a speculative future for big pharma and its practices that present ethical challenges regarding drug patent ownership and transhumanist medicine. The question of patent ownership centers around the right to own drug patents while contributing to drug scarcity at a time when transhumanist technologies are expected to aid humanity in its battle against disease.

2. Transhumanist Medicine and the Profit Motive

Technology plays a major part in human life, even in major areas such as communication (Jasim, 2021), and given that transhumanism is technology-driven, it expands to the area of medicine. And humans have always been interested in the subject of medical enhancement especially due to progressive medical technologies (Gordijn & Chadwick, 2008). This is part of the overarching human progress. The French Enlightenment philosopher Marquis de Condorcet (1743-1794) argues that human progress is infinite and asserts rather optimistically that the pursuit of progress is limitless and that the only limit of that progress is the duration of time of the earth's existence (as cited in Hale, 2013). At the center of transhumanism is a medical ideology that advocates for the use of technology for human evolution. This means that transhumanist medicine is different from traditional medicine in its goals. While the purpose of traditional medicine is the treatment of health conditions such as disease, or disabilities, when the element of enhancement is added, the purpose becomes not only to overcome human disease but to change human nature completely (Mirkes, 2019). This is in line with Julian Huxley's statement about the total transcendence of the human species (Huxley, 1968). According to Huxley, if people believe in the notion of transhumanism, the human species will start a new type of existence that is different from the current one (Huxley, 1968).

As the notion of transhumanist medicine becomes more prevalent, it also raises ethical concerns. Two of which are safety and fairness. Concerning safety, in the case of improving human intelligence, the lack of scientific knowledge regarding the mind-body connection, as well as the complex nature of human intelligence

itself, would make the results of any neural system modifications difficult to predict. The issue of fairness is about the tension between the all-natural humans and their enhanced counterparts, which is mentioned in chapter two. In the case of medicine, it pertains to the advantage that enhanced humans receive as compared to those who do not receive any enhancement drugs. Another issue is related to equality. Given that the purpose of biological enhancement is for the greater good, questions are raised regarding the accessibility of those benefits. The challenge is about individuals who require the medicine to treat life-threatening diseases and whether there will be any disparity between those who seek transhumanist medicine for treatment and those who seek it solely for enhancement purposes (Mirkes, 2019). Furthermore, there is a concern that transhumanism may exacerbate or worsen some negative aspects of capitalism (Thomas, 2024). Research scholar Elise Bohan states that intelligent individuals and those who are interested in technology are now increasingly becoming enthusiastic about transhumanism and are invested in transhumanist projects. They are also using their economic wealth to further this cause (Elise, 2018).

In the world of *Autonomous*, such ethical issues are present. Motivated by profit, the company Zaxy introduces an advanced drug to the population with addictive properties, which incentivizes people to seek more to enhance productivity. This is intentional and does not stem from negligence because the company prioritizes profit over health (Newitz, 2017).

Similarly, in the real world, the healthcare industry has faced heavy criticism in recent years due to claims regarding their lack of honesty and misconduct, as well as the high expenses of medications that are responsible for the treatment of life-threatening medical conditions, indicating that the novel is concerned with the possibility that the profit motive will transition into the future. Kantian ethics would compel the pharmaceutical industry to ensure that humans are not used as means to an end; i.e., an instrument for gaining profit. If that occurs, the pharmaceutical industry would be acting unethically (Drennan, 2017, pp. 1, 5). Although there have been some real-world improvements to ensure the safety of drugs, such as the 1962 Kefauver-Harris Amendment that requires trials to ensure the safety of drugs (Peltzman, 1973), the fictional scenario in *Autonomous* is not optimistic. The drug Zacuity that is desired by the public (Newitz, 2017) is not properly tested, and since the drug itself, along with humans, is treated as a means to gain profit, those who are unable to afford life-saving drugs are left to suffer and live short lives (Newitz,

2017). This paints the future of the pharmaceutical industry in a bad light from the perspective of deontological ethics. Additionally, in *Autonomous*, humans are used as a means to an end; “companies like Zaxy” (Newitz, p. 169) made drugs “without taking them through trials” (Newitz, p. 169). They took advantage of people’s ignorance about drugs and were able to escape accountability (Newitz, 2017). The effects of the drug are to make work enjoyable and thus increase productivity. “After taking Zacuity, work gave you a kind of visceral satisfaction that nothing else could” (Newitz, 2017, p. 14). The drug also results in dangerous symptoms as well as death, and the novel describes some of the incidents where, in one example, a man arrives, almost losing his consciousness because he does nothing but paint for more than five consecutive days and suffers from the same type of addiction as gambling or heroin addiction (Newitz, 2017).

Moreover, Zaxy does not reveal the information surrounding the trials of the drug, and as a result, any information that pertains to its side effects remains unknown (Newitz, 2017). Jack initially suspects that she has made some error in the process of reverse-engineering Zacuity, but that is later proven false. She always tests the drugs she pirates, “until Zacuity” (Newitz, 2017, p. 17) because of its similarity to other drugs she previously pirated. It is worth noting that Jack’s anti-patent activism began much earlier. Growing up on a farm, her path started when she was young. She took notice of the pressure that goes towards the production of monoculture crops following the market and how it causes harm to the ecosystem and results in the increased reliance on genetically modified seeds and chemical supplements. During her time as a student, she began to worry that nondisclosure agreements related to the funding of research may undermine the honesty or transparency of science. Through cooperation with others, she managed to create “The Bilious Pills” which is a newsletter that is dedicated to the publication of essays that critique the pharmaceutical industry in its efforts to undermine the objectivity of science (Vint, 2021). Although she receives the attention of the news media, she is excluded from having a job as a professor. Jack also becomes aware of how harmful her activism is to her career (Newitz, 2017). For this reason, Krish Patel who is a professor and a love interest for Jack, ultimately decides to close “The Bilious Pills” due to concern for their careers and seeks “less confrontational” ways to achieve their aims of “reform[ing] the patent system” (Newitz, 2017, p. 111).

However, the broader landscape of pharmaceutical corruption, exemplified by Zaxy's plans to increase the profit of the drug Zacuity provides further obstacles. Zaxy achieves this by adding addictive properties that would discreetly be taken care of and the drug is to be so expensive that only those who have exceptional health care would be able to afford it (Newitz, 2017). But Zaxy's plan met failure when Jack "started selling it on the street that the problems and side effects could be magnified" (Newitz, p. 29).

Due to the important role that pharmaceutical companies play in the well-being of humanity; those companies have a moral obligation to participate in the service of the public. Although profit may be a typical motive and does not usually raise any ethical concerns in other fields of the market, there are specific fields in which what is beneficial to society should be placed above profit. An example of that would be the pharmaceutical industry. Since moral duty is the essential point within the deontological ethics theory, the pharmaceutical industry should, therefore be judged more strictly than other types of industry (Thomas, 2017).

As such, criticism of pharmaceutical companies is not unusual. In the real world, the label of "the most hated man in America" does not belong to a serial killer or the leader of a criminal enterprise; instead, it belongs to Martin Shkreli, who is the CEO of Turing Pharmaceuticals. Turing Pharmaceuticals obtained the rights to "Daraprim" in 2015, which is the market name for a drug called pyrimethamine that has been available to the public for almost seven decades to treat toxoplasmosis; a dangerous infection caused by the parasite *Toxoplasma gondii* which in extreme cases, can result in death for individuals with a compromised immune system such as those with AIDS or cancer and major complications for pregnant women. Following the acquisition of market rights for the drug, Shkreli quickly and drastically increased its price from \$13.50 to \$750. Their reason is to equalize the price of the drug with other life-saving medications, which should not have occurred (LaMattina, 2022). Only a single month of using this medication would add up to a total of \$20,000 compared to the previous \$400. Shkreli was arrested in December 2015 on counts of conspiracy and fraud. This is not a unique example, other pharmaceutical companies such as Valeant Pharmaceuticals, also received criticism when in 2015, the company sold a drug called Duexis consisting of a simple combination of two active ingredients; Mortin and Pepcid, and they priced the drug at \$1,500 for a monthly subscription, while individually, the cost of each drug would not exceed \$40 (Feldman & Frondorf, 2017).

In *Autonomous*, this type of pharmaceutical greed transitions into the future with transhumanist drugs. Patents for new drugs extend beyond the human lifespan in a time when transhumanist medicine is common, such as the drug Viva, the purpose of which is to increase longevity (Newitz, 2017), and direct payment for treatment becomes typical which increases inequality concerning access to medicine (Harrison, 2024). Jack aims to widen access to medicine by making it less expensive. But she loses all her chances of pursuing any career in her field of synthetic biology because she is jailed after being declared an anti-patent terrorist (Newitz, 2017).

On the other hand, another key character is Rosalind Franklin, who “had the connections to deliver the [pirated] drugs to Federation kids who needed them” (Newitz, 2017, p. 85), and Franklin’s actions stem from her experience with Zaxy, which becomes a testimony to the company’s greed. She wrote an essay, which consisted of her own story of how Zaxy caused the death of her family by refusing to provide a license for an antiviral known as “Blense.” In consequence, this initiated Franklin’s journey in drug piracy and led her to reverse-engineer Blense (Newitz, 2017).

In the real world, the ethical dilemma lies between the right of drug patent ownership and the imperative to act in the public’s best interest. The research to develop new drugs to treat diseases requires funding and the costs are typically high. To incentivize research for new drugs, governments employ patent laws that allow pharmaceutical companies to gain the rights to their patents and profit from them. Despite that, this system does not introduce many incentives to lower prices. Therefore, deontologists would regard this system as unethical (Thomas, 2017). The issue may become more magnified with regard to transhumanist drugs. In *Autonomous*, even when the world should be free of disease and pain because of advances in medicine and technology, pharmaceutical greed is still responsible for the lack of access to medicine by those who need it. Kirsh, states, “[w]e live in a world where everyone can live for over a century without disease and without pain! [...] But the keys to this good life are held in the greedy hands of a few corps, whose patent terms last longer than a human life” (Newitz, 2017, p. 85). In the novel, shipments of medications that should be used to save lives are left unused unless they generate profit, and it is simply because “medicines were too expensive” (Newitz, p. 85).

The issue of greed and drug availability revolves around the patent system, which is a subject of contention in the novel. “Kirsh even compares it to the present system of slavery the “indenture system” (Newitz, 2017, p. 55) and Jack admits that it must be the cause of the many social problems as the two start to engage in a debate about whether or not a system of open patents could lead to or hinder “innovation in viral shell engineering” (Newitz, 2017, p. 55).

In *Autonomous*, Newitz arguably presents a future where capitalism takes control of the advancements in medicine to help change the biology of humans to make them more suited for work (Vint, 2021). The drug is addictive to the extent that one individual who was working non-stop for twenty-four hours started to consume the drug as food while abstaining from sleep (Newitz, 2017). The implementation of the addictive properties in Zacuity is presented as an illegal strategy. Thus, the idea of human enhancement for the company Zaxy becomes a way to modify biological functions and turn humans into work machines in the service of capitalism (Vint, 2021). Consequently, the drug Zacuity serves corporations because it causes people to become addicted to not only work but the completion of projects (Newitz, 2017).

Treating humans as means to an end by pharmaceutical companies contradicts the imperative of deontological ethics; Kant’s view that “rational nature exists as end-in-itself” (Kant, 1997, p. 37) which is “the Formula of the End in Itself,” implies that humans ought to be treated as an end in and of themselves according to Kant’s statement and “never merely as a means” (Kant, 1997, p. 38). Kant states: “[A]ct as if the maxim of your action were to become by your will a *universal law of nature*” (Kant, 1997, p. 31). Upon encountering circumstances in which one questions whether a particular action is right, Kant invites individuals to ask the question: “[H]ow would it be if my maxim became a universal law?” (Kant, 1997, p. 32). One of the examples that Kant provides is that of a person who possesses natural talents that could be useful for any purpose but fails to incorporate them into anything useful because he chooses to indulge in comfort rather than improvement (Kant, 1997).

By contrast, the main characters in *Autonomous* who stand against human economic exploitation and instead strive to prioritize human well-being follow Kant’s universal law principle. An example would be the bot character, Med, who gains autonomy. She is a medical researcher created through synthetic biology and manages to develop the cure for Zacuity in partnership with Jack. Med becomes at

the forefront for the creation of the cure. The name of the cure is Retcon, and ultimately, Med distributes it, but details of her project are concealed by Zaxy, which seeks to sever the ties with its own drug (Vint, 2021). Furthermore, Zaxy also seeks the withdrawal of Med's research paper "unless it survive[s] a rigorous peer review process at a prominent Seviert journal" (Newitz, 2017, p. 291). Nevertheless, considering corporate dominance, *Autonomous* holds a pessimistic view of the possibility of transformation. Following its name, the cure represents the literary device "retroactive continuity," which is the introduction of new information to the narrative that changes preexisting interpretation (Vint, 2021). This is done practically in the novel since the cure itself alters the memory of the brain; Med states, that they modify the neurons in such a way that they remove the memory associated with the reward that Zacuity brings and they create a connection to the mental state of the past before the addiction (Newitz, 2017). In this sense, the cure becomes an alternative present that changes the meaning of a good life which regains the potential agency of the affected individuals instead of a meaning that centers on the mere service of capital (Vint, 2021). In the context of Kant's "good will," which Kant maintains is the ultimate good, he addresses the idea that things such as fortune can often lead to arrogance and asserts that good will can change its effect on the mind (Kant, 1997). This philosophical perspective lays the foundation for further ethical questions about transhumanism that are present in *Autonomous*, such as the issue of robot and human slavery.

3. Humans and Robots: Slavery of the Future

In some possible cases, transhumanism can blur the line between man and machine. Particularly when they either merge or exhibit similar characteristics. This is significant because the question becomes about the applicability of ethical laws. If, in some possible future, machines evolve to the extent that they possess traits that were previously deemed human, the need to highlight characteristics specific to humans becomes all the more necessary. Because of this, a definition of the word human is fundamental to recognizing the distinction.

However, providing an exact definition is challenging because the word human is defined differently depending on perspective. For example, a biologist would offer a different definition than a physical anthropologist. Biologists may relate humans to their genetic makeup. A physical anthropologist may use the word human within the scope of the exoskeleton, meaning that the human bone structure

defines a human. The issue of what it means to be human has resulted in many ethical disputes in the past. When America was first discovered in 1492, there was a dispute about whether or not the natives were to be regarded as humans. In this way, the natives were mistreated on the basis that they were not classified as such (Doyle, 2018). Similarly, in 1857, the United States Supreme Court made a decision about a slave whose name was Dred Scott and who at the time was living in an American state where slaves were free, should not be regarded as a United States's citizen (Urofsky, 2024). Chief Justice Roger B. Taney, who declared the opinion of the majority, made the statement that African Americans are inferior and should not be associated with whites in any way, neither in political nor social affairs, to the point where they should be offered no respect (as cited in Sheppard, 2007). This particular case prompted deeper questions about the criteria that define a person as entitled to rights from the perspective of the law (Doyle, 2018).

In *Autonomous*, the issue extends to include machines. The ethical dilemma is the lack of a unique definition for what constitutes a human or a person which becomes problematic when laws aimed at regulating robot behavior are issued. If no distinguishing characteristics between man and machine exist, then the law has to be applied to both.

Autonomous shows that since robots' primary purpose of creation is that they are simply means to an end, if they are to be enslaved for profit gain, so should humans. "For bots, industry always precedes autonomy" (Newitz, 2017, p. 224). The laws aimed at enslaving robots and humans in the novel are referred to as "indenture laws" and are based on capitalism. The bot character of Bug states that human's dislike for robots stems from that indenture system (Newitz, 2017). It is after legal disputes that corporations "established the rights of humans to become indentured, too. After all, if human-equivalent beings could be indentured, why not humans themselves?" (Newitz, 2017, p. 224). Moreover, Krish writes a comment on the idea of the freedom to reverse-engineer drugs so that they can be available to all, that the result is not going to be biologically catastrophic, but rather that the true catastrophe lies in how capitalism is turning living beings into property (Newitz, 2017). Therefore, the question is about equating robots and humans ethically, especially to the major effects of the "indenture system." Jack had "known a few kids at school in that situation, mostly Natives who got indentured to jobs in habitat management or mining up north. [...] Some of those kids had probably died up on

the Arctic coast without ever owning anything, even themselves” (Newitz, 2017, p. 166).

To determine whether or not an entity is deserving of moral rights, it is worth considering whether the said entities, in this case, sentient robots, should be regarded as persons or whether they meet the personhood criteria. A common view about personhood is that of John Locke. According to Locke, what defines a “person” is the ability to think, reason, and perceive “itself as itself” irrespective of time and place (Locke, 1849). Locke argues further that the presence of consciousness marks the self (Locke). In the world of the novel, humans are ethically equal to robots because robots are intelligent and possess superior abilities. Some automated events within the bot character Med, who is a sentient bot, “could pass for consciousness” (Newitz, 2017, p. 273). Med’s appearance is also similar to that of a human. She is designed in such a way as to appear human-like (Newitz, 2017).

This is further complicated by the presence of robots with human parts. Those types of robots are referred to as “biobots” and are often indistinguishable from humans. Jack mistakes the character Threazed for a biobot (Newitz, 2017). Additionally, some philosophers following Locke’s personhood theory do not merely restrict the theory to humans but to some animals as well, such as some great apes, but they do not apply it to fetuses or people who suffer from dementia or other types of cognitive impairment (Doyle, 2018). This would lead to the notion that sentient robots would not be foreign to the personhood theory. Although the robots in *Autonomous* are sentient, they have issues engaging with humans (Newitz, 2017). For Paladin, “his massive, hardened body with its wing shields would make it difficult for humans to feel at ease with him” (Newitz, 2017, p. 73).

Locke’s personhood theory is also related to memory since Locke argues that what makes a person is the extension of consciousness through time. That is if Socrates, for example, “waking and sleeping [does] not partake of the same consciousness, Socrates waking and sleeping is not the same person” (Locke, 1849, p. 227).

Following Locke’s notion, Paladin possesses a human brain, but the robot has a security lock that prevents access to the memories. Lee is Paladin’s “botadmin” and the federation has the key to unlock his memories, but they remain encrypted, and they can modify Paladin’s thoughts as they see fit (Newitz, 2017). Paladin states that he is “a user of his own consciousness, but he did not have owner

privileges” (Newitz, 2017, p. 124). He also recognizes that his desires stem from the way he is programmed, and for this reason, he seeks the autonomy key that will grant him access to his code. This would only happen after ten years of indentured service, which is enough for them to compensate for the investment they made in creating the bot (Newitz, 2017). Obtaining his autonomy key is nothing but hope (Newitz, 2017). Paladin does not even recognize illusion from reality and starts to question his own feelings because he recognizes that the mere purpose of his program is to instill allegiance (Newitz, p. 128) This further highlights how capitalism is portrayed in the novel: a force that distorts the distinction between man and machine since it is responsible for changing the overall cultural, legal, and political spheres of the two. The coalition titled “Free Trade Zone Economic Coalition” (Newitz, 2017, p. 288) is in control since there are no specific regulations set in place (Winter, 2021). The conflation of man and machine goes to the extent that “[f]amilies with nothing would sometimes sell their toddlers to indenture schools, where managers trained them to be submissive just like they were programming a bot” (Newitz, 2017, p. 31). The indenture system has dire consequences, and despite not being allowed, children were being indentured as well (Newitz, 2017). Some are also forced to indenture themselves due to circumstances such as in the city of Yellowknife, where during a time in the year, it was full of young college students and tourists who were forced to indenture themselves by working as either servants or guides (Newitz, 2017). Threezed is also an indentured human who escapes, and Jack initially mistakes him for a bot, as previously mentioned. He received training in engine building, but after the financial acquisition of his school, Threezed began to struggle under harsh circumstances (Newitz, 2017). The process of auctioning a human in *Autonomous* is notably similar to that of auctioning a material item, which illustrates the extent of economic exploitation (Newitz, 2017).

From the deontological viewpoint, Kant’s idea of humanity is associated with the notion that humans are rational beings and to control the will of another is unacceptable. This is the reason that slavery would be unethical according to deontological ethics (Smajdor, Herring, & Wheeler, 2022). In this transhumanist future, Newitz links two ideas: the ownership of humans by equating them with machines and the prioritization of profit over public health to demonstrate how capital can subsume life. In this way, Newitz invites the reader not to regard Jack’s drug piracy as property theft but as a refusal to transform the world into one where anything can be owned (Vint, 2021). This raises a question about the type of moral

theory that can account for the complexities of the future and advancement in technology and provide a framework for proper ethical conduct.

4. Virtue Ethics in a Technologically Advanced World

Advances in moral thinking should parallel technological advancements. This is because while humans have evolved technologically, technological progress creates moral questions that current moral psychology or political systems may not be adequately prepared to deal with. Advancements in moral thinking are also necessary when considering the scale and influence of future technologies and the possibility of catastrophe, such as the threat of nuclear war (Persson & Savulescu, 2012).

In *Technology and the Virtues: A Philosophical Guide to a Future Worth Wanting* (2016), the American philosopher Shannon Vallor asserts that virtue ethics is an answer to the question of how man can sustain living well amidst increasingly developing technologies. According to Vallor, technological progress requires humans to create a specific type of morality within themselves, a moral theory about what can be considered a good way of living; a life that is justifiably better than any other form of living, as there are ways of living that one would not choose and are not desirable given the better alternatives, such as lives that are full of pain, selfishness, contempt, etc., and that the alternatives are more virtuous lives (Vallor, 2016).

Given the significance of technology and its impact on the human value system, thoughts, behavior, etc., a theory that involves a life of this kind must include ways of coping with technology. Discussions surrounding rising technologies reflect many ideas present in science fiction, both optimism and anxiety for a world such as one where humans are artificially designed to work with robots in various fields and disciplines. The difficult part lies not in the prediction of tomorrow's technology but in man's behavior toward it. It is undeniable that humans would rather live a good life than a bad one, but the issue also resides in the uncertainty of the future as a whole. Vallor addresses classical ethical theories and argues that they are created with the assumption of fixed conditions and cannot account for every case in the future. For example, with regard to Kantian ethics, the categorical imperative is difficult to apply for whether or not to bring forth a future where humans coexist with robots, or one where through the use of biomedical

technologies, humans can alter their genes, all due to the lack of clarity regarding the future. For this to be applicable, more clarity for the future is required. The case is similar with utilitarianism since it is not possible to predict with full certainty which scenario would yield the most happiness and best minimize suffering (Vallor, 2016).

For ethics to be considered for future generations, moral education is required based on the action's impact on others. The ethical dilemma is in the technological capabilities that humans possess, as it is within their capacity to permanently sabotage life on Earth (Persson & Savulescu, 2012). Although there is a benefit to the diversity of ethical perspectives given the variety in world cultures, it is also necessary to find a common ethical structure that deals with rising technologies, one that promotes mutual ethical discourse (Vallor, 2016).

Aristotle, who fathered virtue ethics, introduced the notion of eudaimonia as the highest good, the meaning of which is contested. He states that "[f]or the masses think it is something straightforward and obvious, like pleasure, wealth, or honor, some thinking it to be one thing, others another. Often the same person can give different accounts; when he is ill, it is health; when he is poor, it is wealth" (Aristotle, 2004, 1095a22-26). Both virtue ethics and eudaimonia are connected. Ancient theories about eudaimonia took eudaimonia in the context of the ideal way of life, and they defined eudaimonia as consisting of virtue. Virtue allows the individual to live well and do good within the scope of eudaimonia. The virtues that eudaimonists uphold are closely related to the ones that Aristotle supports, including justice, courage, kindness, temperance, and truthfulness. It is worth noting that for contemporary eudaimonists, virtues come to mean characteristics that influence how a person behaves, acts, responds, feels, values, and observes (Baril, 2014).

In *Autonomous*, Jack acts out of her virtue in seeking the world's flourishing by making advanced medications available to those who need them but cannot afford them. Often, even the income is allocated for further batches of free medicine for those who need them (Newitz, 2017). For Jack, the highest good i.e., eudaimonia, is the reason she chooses "Good Science," so that she can help save lives. "She knew without a doubt that one day she was going to do Good Science and save millions of lives" (Newitz, 2017, p. 53). Science is only a means for her to do so. It represents her entire world (Newitz, 2017). To Jack, "Good Science" is one defined by its ability to help people and positively transform their lives (Newitz, 2017). Jack's piracy is a tool for transformation. She wishes that she could solve the

issue of the indenture system and contemplates by wondering if the indenture system can be pirated and about how this could be achieved (Newitz, 2017).

In a discussion between Jack and Mali who is Jack's friend, Jack also shows courage when Mali questions her on the risk of possibly sacrificing her life to expose Zaxy. Jack responds, "[t]his isn't just about my life" (Newitz, 2017, p. 91) since she believes that "it could lead to real changes" (Newitz, 2017, p. 91). Pursuing good with the possible threat of death can be regarded as an example of the Aristotelian virtue of courage, the characterization of which involves acting toward the noble regardless of the circumstances (Clark, 2015). In *Nicomachean Ethics*, Aristotle asserts:

[L]ife is especially worth living for a person like this, and he knows that he is losing the greatest goods – and this is painful. But he is no less courageous for that, and is perhaps even more so, because he chooses what is noble in war at the cost of these goods. So it is true then, except in so far as one achieves the end, that the exercise of every virtue is pleasant (Aristotle, 2004, 1117b11-16).

Courage can, therefore, be regarded as an example of a virtue that is not associated with pleasure. Nevertheless, exploring the ethics of Jack's actions would be analogous to exploring the actions of Robin Hood. Jack is a representation of Robin Hood since she is designated the name in her pursuit (Newitz, 2017). The moral dilemma is that although Jack's drug piracy is illegal, she uses piracy for the greater good. In this case, assessing Jack's actions is ethically equivalent to the actions of Robin Hood. For virtue ethics, stealing would be a wrongful act, but virtue ethicists would also maintain that if an authority practices an abuse of power, people are entitled to correct the wrongdoings. In addition to that, virtue ethics would also lean toward the notion of self-governance, and although undesirable, there are cases where theft is a necessary act of survival. Virtue ethics also treats the human character as having the ability to be shaped and changed such that it allows for reformation and rehabilitation (Marinoff, 2009). Jack's character serves to demonstrate the possibility that virtue may be an optimal motivator for improving the individual and society as a whole in a technologically advanced world. Her behavior echoes her sense of responsibility. When she discovers that Zacity is responsible for the fatal side effects, she started to feel the responsibility of informing people of its side effects and how dangerous the drug is, and was even willing to sacrifice her life for this cause (Newitz, 2017).

The emphasis on good character in virtue ethics can also be applied to the character Rosalind Franklin, who did not engage in the act of piracy to be recognized as a savior, but because she and Jack seek the good for society. She refrains from using her name in an effort to remain unidentified from the IPC. Regarding Franklin's real name, Lyle, who is Jack's companion, tells Jack that the name holds no relevance to good work. And that Jack is merely providing access to medicine to the people who need it most (Newitz, 2017). Drug piracy is not profitable to Franklin. She states, "I also run a legitimate business as a consultant, and all my money is funneled through that" (Newitz, p. 213). Both Jack and Lyle had to survive financially, but the issue is that although they did not seek to charge money when they sought to create their lab, at the same, they couldn't conceive of the idea that "science could be radical, and a laboratory could be free" (Newitz, p. 206). Ultimately, they are pursuing a revolutionary cause, and it is stated in the novel that they could not refer to themselves as striving for liberty while at the same time charging money (Newitz, 2017).

The cure for Zacuity is successful and "[t]he Retcon Project's code repository was exploding with traffic. Hospitals all over the world were printing out the drug, and the more liberal corps started issuing their own press releases, distancing themselves from Zaxy and saying they would no longer supply their employees with Zacuity" (Newitz, 2017, p. 288). And although Zaxy did not meet the consequences of their actions, Med has "made enough of a difference" (Newitz, p. 291). All of this is part of the vision shared by Jack and Krish; that "they would reach millions of people and bring Good Science to everyone. She'd known with absolute certainty that they were about to change the world" (Newitz, p. 279). In that sense, Jack continues to do so by manifesting character virtues.

For the advances in technology of the future, character virtue transcends all in times of adversity. It is highlighted through Jack and other characters who strive to stand against a system that they see as causing more harm than good despite the progress of technology that should hypothetically make the world a better place, which through exploitation, causes suffering.

5. Conclusion

Autonomous showcases a transhumanist future that correlates with the development of an extreme version of capitalism dominating the world. A future in

which humans become fused with the overarching goal of capitalism. They become tools, subjects to be owned, and means to an end, which contradicts the imperative of deontological ethics. The novel also paints a bleak future in which the primary pursuit of profit by pharmaceutical companies is exacerbated in an age where transhumanist drugs are available. The existence of intelligent and sentient robots and the application of the indenture system highlight an ethical issue that presents itself when man and machine become indistinguishable and laws simultaneously become the subject of capital. Virtue ethics offers the possibility to cultivate a moral character that seeks change in such a speculative world. It brings forth a motivation for justice, courage, and responsibility. The character of Jack serves as an experiment in virtue ethics by demonstrating its timeless nature and its implementation in the future.

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أخلاقيات ما بعد الإنسانية في رواية "أوتونوموس" لأنالي نيويترز

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المستخلص

يتناول البحث تأثير الرأسمالية المفرطة في نطاق صناعة الأدوية، و وجود الروبوتات الواعية ضمن سياق حركة ما بعد الإنسانية في الرواية الأمريكية أوتونوموس (Autonomous) (2017) للكاتبة أنالي نيويترز (1969)، كما تستعمل نظرية الأخلاقيات الواجبة (deontological ethics) لتحليل الحالة الأخلاقية لهذا العالم المستقبلي بالاستدلال في نص الرواية، فضلاً عن ذلك يتم تطبيق نظرية أخلاق الفضيلة لأجل اختيار نظرية أخلاقية تتماشى مع مستقبل التطورات التكنولوجية التي قد تؤدي إلى تغييرات جذرية في المجالات الأخلاقية والسياسية والاجتماعية، وبذلك يصبح من المهم الحفاظ على مبادئ أخلاقية ثابتة لا تتغير مع الزمن، ومن الممكن كذلك أن يكون لهذه المبادئ تأثير كبير في الحالات التي تصبح فيها النظريات الأخلاقية الحالية غير كافية لمواجهة تأثير التقدم التكنولوجي السريع والمتزايد. يتطرق هذا البحث أيضاً لكيفية طرح الرواية لموضوع الاستغلال الاقتصادي للطب من قبل شركات الأدوية الكبرى، فضلاً عن تسليط الضوء على مشكلة دمج الإنسان والآلة من منظور نظرية الأخلاقيات الواجبة.

يتم إنجاز ذلك من خلال التحليل النصي الذي يكشف دور شركة الأدوية "زاكسي" ضمن نظام الأخلاق القائم على نظرية الأخلاق الواجبة، فضلاً عن التطرق إلى الأحداث الموجودة في رواية Autonomous وعلاقتها بحالات واقعية، ويتعمق البحث أيضاً في العواقب الناتجة عن وجود الروبوتات الذكية وكيفية تقييم نظرية الواجب الأخلاقي لهذه العواقب، لاسيما فيما يتعلق بشمول الآلات بحقوق الإنسان، ويتم تحليل الشخصيات من منظور أخلاقيات الفضيلة بوصفها محاولة لاكتشاف نظرية أخلاقية تمتد قيمتها إلى المستقبل، إذ يمثل ذلك حلاً ممكناً لمسألة غياب اليقين فيما يخص التقدم التكنولوجي في المستقبل.

كشفت النتائج أن رواية /أوتونوموس/ تعكس قلقاً شائعاً يتعلق بمبدأ ما بعد الإنسانية، وهو أنها قد تُضخم بعض الجوانب السلبية للرأسمالية ويتضح ذلك من خلال تصوير الرواية للبشر على أنهم أدوات

لتحقيق غاية الربح، فضلا عن تقييد الحصول على الأدوية الجديدة، وكل ذلك يتناقض مع مبدأ نظرية الواجب الأخلاقي، كما تستنتج الدراسة أن نظرية أخلاق الفضيلة تُعد بمثابة أساس للسلوك الأخلاقي السليم في المستقبل الذي يعيد تعريف مفهوم الأخلاق. ومع ذلك، يبقى التحدي الأخلاقي المتمثل في تحقيق التوازن بين متطلبات نظام براءة الاختراع الخاص بالأدوية وضرورة السعي لتعزيز صحة البشر دون حل.

الكلمات المفتاحية: الأخلاق، الأدب، الفلسفة، الخيال العلمي، ما بعد الإنسانية