

**UNRAVELLING THE MORAL AND ETHICAL DILEMMAS OF SENTIENT
AI AND POSTHUMANISM: A CRITICAL ANALYSIS OF *THE MOON IS A
HARSH MISTRESS* BY ROBERT A. HEINLEIN**

Dissertation

*Submitted to the University of Calicut in partial fulfilment of the requirement for the
award of Degree of Master of Arts in English Language and Literature*

By

AFNA J K

AIAWMEG001

Under the Guidance of

Dr. AMITHA P MANI

Assistant Professor

PG and Research Department of English



PG and Research Department of English

M.E.S Asmabi College, P. Vemballur

Kodungallur, Thrissur

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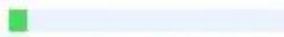
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P. Vemballur

Ms. JAMEELATHU K A

Date:

Head of the PG & Research Department of
English

M.E.S Asmabi College, P. Vemballur

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P. Vemballur

Date:

Dr. AMITHA P MANI

Supervising Teacher

PG & Research Department of English

M.E.S Asmabi College, P. Vemballur

DECLARATION

I hereby declare that this dissertation entitled **Unravelling the Moral and Ethical Dilemmas of Sentient AI and Posthumanism: A Critical Analysis of *The Moon is a Harsh Mistress* by Robert A. Heinlein** is a bonafide record of research done by **Afna J K** (Register Number AIAWMEG001), has not previously formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

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AFNA J K

Date:

AIAWMEG001

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Place: P.Vemballur

Afna J K

Date:

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Chapter I

Introduction

While studying about the impacts of technology in literature, it can be noticed that science fiction plays a unique role in manifesting a future posthuman world and through that creates debates regarding moral and ethical implications posed by possible posthuman world and regarding the possibility that what would happen if artificial intelligence can acquire self-consciousness. This creates a huge impact in discussions going on in technical world. From the genre of science fiction, Robert A. Heinlein's *The Moon is a Harsh Mistress* is selected for the study. Science fiction, also known as sci-fi or SF, is a subgenre of speculative fiction that focuses on marvellous and future ideas such as advanced technology, extra-terrestrial life, parallel universe, space travel and time travel. It has many subgenres and is often associated with superhero, horror, and fantasy. There have long been different opinions about its precise definition among writers, critics, academicians, and readers. It has been described as the "literature of ideas" for its fantastic exploration of innovations and has sometimes been defined as a hint to foresee future scientific and technological developments or as an investigation of the possible impacts of scientific, social, economic, cultural and technological advancements. As a part of literature, it provides entertainment but also criticizes social norms. This genre unveils social and political issues through the common elements of horror and fantasy.

Elements of science fiction can be seen in ancient mythologies and folklores by including extra-terrestrial voyages and stories of Gods and beasts. But anyway, modern science fiction actually evolved in the 19th century during the time of active industrial revolution and a massive progress in scientific innovations and technologies. Many people claim that Mary Shelly's *Frankenstein* is the origin of the genre of

science fiction. In the early 20th century H.G. Wells' *The War of the Worlds* and Jules Verne's *20,000 Leagues Under the Sea*, popularized this genre. Mid-20th century is believed to be the golden age of science fiction in which the most iconic science fictions like Robert Heinlein's *Stranger in a Strange Land*, Arthur C. Clarke's *2001: A Space Odyssey* etc were written and offered new visions and pushed the boundaries of science fiction. Latter half of the 20th century witnessed many challenges to the traditional narratives of science fiction and also diversified the genre by adding sub genres like feminist science fiction and cyberpunk. *Neuromancer* by William Gibson is one of the science fiction novels of the 20th century which challenged the conventional beliefs about science fiction and extended the thematic range of the genre. Currently in the 21st century, the genre of science fiction continues to evolve with inventions of sentient robots and popularity gained by AI and other progress in scientific and technological fields. Beyond the social and political issues, the genre also started to address issues such as climate change and genetic engineering, which diversifies it more.

Any genre of literature has always been able to explain human lives in particular contexts and predict the probable outcomes of contemporary human actions. Likewise, the significance of science fiction in literature also lies in its capacity to mirror contemporary human society and reflect the future possibilities. It allows the authors to easily address its moral and ethical issues which are both thought provoking and entertaining. From exploring the inner mind of human beings to voyage through Interstellar space, science fiction encompasses a vast variety of themes. Exploration including intellectual and physical is a major theme presented in science fiction. It signifies the element of quest for knowledge and a spirit of discovery in the genre. Implication of technological advancements ranging from the future gadgets to the

sentient AI and its impacts in society and culture is another theme which lays the foundation for science fiction. Apart from fantasies and technological inventions, science fiction also portrays the oppression and inequalities existed in society and warns about the potential dangers of unchecked power and social inequality. For its presentation, authors often use the utopian and dystopian societies, another popular theme of science fiction. Alien encounters and time travelling are another fascinating elements of the genre which provoke thoughts on destiny, altering histories and place of humanity in the cosmos. In this era of rapid technological growth including the emergence of AI, science fiction has shifted its attention towards exploring the moral and ethical repercussions of artificial intelligence. The novels like *The Moon is a Harsh Mistress* rises the questions of personhood, self-awareness, autonomy and rights of AI creatures and picturises totally a post human era.

Robert Anson Heinlein, born on July 7, 1907, in Butler, Missouri is one of the most influential pioneers of science fiction genre. His works are characterised by their visionary ideas and provocative themes often blended with politics and science. His literary career was begun in late 1930s, during the golden age of science fiction. Beginning in publishing his works in pulp magazines, soon he got recognised with his innovative ideas. One of the most common features of his works are his exploration of social and political themes within the context of speculative future offering insights into human condition in an era of advanced technologies. His works like *Starship Troopers* and *Stranger in a Strange Land* address issues such as militarism, citizenship and nature of authority. Heinlein often introduces characters who transcends the normal human limitations in a posthuman era. Characters like Valentine Michael Smith in *Stranger in a Strange Land* and Lazarus in *Future History* series evolve into beings with enhanced abilities and insights. Mannie, the central character in *The Moon*

is a Harsh Mistress, who overcomes his loss of one hand in a laser drilling accident, with a prosthetic limb is such an example to be analysed more about in coming chapters. Beyond captivating the literary world, Heinlein has influenced real world science and technology, inspiring scientists and innovators and leading scientific and technological progress. Moreover, he was the first fiction writer to bring scientific accuracy in his works and thus was a pioneer of hard science fiction genre. He presents characters who often confronts with moral dilemmas and also characters of strong will and sharp wit. He promotes the social themes like libertarianism emphasising on individual liberty and self-reliance. Post humanism is another common theme present throughout his extensive body of works. Heinlein's examination of topics like transhumanism, artificial intelligence, and the evolution of humanity beyond its biological bounds is associated with post humanism, a philosophical and literary movement that challenges conventional notions of human identity and existence. The above-mentioned characters who transcend the boundaries of traditional human experience either through technological modification and biological evolution, and future societies where humans have evolved into beings with enhanced physical and cognitive abilities like the loonies in *The Moon is a Harsh Mistress*, blur the line between human and posthuman. His exploration of machine consciousness raised possibility of non-human intelligence, which came into reality in our current century. Overall, post humanist elements in his works challenge the readers to reconsider what it means to be a human being in an era of advanced technology.

Robert A Heinlein's *The Moon is a Harsh Mistress* is 1966 novel and one of the seminal works of science fiction genre which has been set in an extra-terrestrial space, the moon, and takes the readers to a world of fantasy and revolution, with its depiction of the story of lunar colony's fight for freedom. The novel addresses many

social, cultural and political issues, which characterize the genre of science fiction. Setting in a future where human world in earth has established a colony on the moon inhabiting the prisoners, it captivates the readers with its unusual imaginative events and living style of characters. Fundamentally, *The Moon is a Harsh Mistress* is a postcolonial tale of colonisation, revolutions and uprisals. The story is narrated by Manuel Garcia O'Kelly Davis, also known as Mannie, a computer technician and born in lunar colony of earth. The first generation of the colony was formed by the prisoners and political exiles expelled from earth to the moon and the story takes place in the year 2075. Mannie forms an unusual bond with sentient computer which controls the whole Luna and this companionship in the novel challenges traditional narratives about human computer relationship. As the oppression and inequalities of earth-based rulers or 'warden' upon the lunar inhabitants persists, a revolutionary group emerges under the leadership of Mannie, Professor Bernardo de la Paz and the activist Wyoming Knott also known as Wyoh. The sentient computer Mike plays the central role in leading the team by contributing revolutionary and weaponizing ideas and predicting probability of their victory over earth beings. Utilizing all technological tools like prosthetic limbs of Mannie, catapults, assistant computer and sentient computer Mike, rebels take over the earth beings loaded with powerful missiles and atomic bombs. Undermining the earth control over Luna, they together establish their autonomy in the moon.

The novel has been studied so far as libertarian fiction due to its implication of political ideologies which closely resembles to various national revolutionaries took place in recent centuries. There are several scholarly works which explore Heinlein's libertarian insights and his advocacy and leanings for individual rights and limited government through his interstellar story of Luna's fight for autonomy. The novel is

often criticised for its promotion of the idea of individual sovereignty and right to self-determination by comparing its events with real world libertarian movements, especially the American revolution. Heinlein overall creates a libertarian utopian world of anarchism and individual choices with least control from authorities through his decentralised authority introduced in the novel. Various scholars have analysed the novel's depiction of automated economic revolution driven by advanced technology and artificial intelligence like the character Mike in the novel, and its effects on society, economics, governance and formation of a new social system of varied hierarchies. Mike serves as a catalyst for economic progress, revolutionising production processes in Luna by challenging the traditional economic models and beliefs. The studies also discuss the implication of automation for labour dynamics, resource allocation and wealth distribution. The novel as a whole is a great insight into upcoming economic revolutionaries, its various challenges and opportunities and potential to reshape the relationship between labour and capital. Focusing on the role of advanced technology in shaping the Lunar colony's economy, the novel predicts real world trends in automation and its potential impact on labour markets and social structures.

Language is another focusing area of the novel used up for many studies and researches. Since Luna is a colony formed from political exiles from different nations of earth in the novel, it includes characters from a diverse array of earth cultures and languages. They speak a unique pidgin language that blends elements of English, Russian, Chinese and other languages and known as "Loonie Speak". So, language reflects the multicultural nature of the Lunar society and serves as a channel of identity and solidarity among the colonised. Various studies have been conducted about the use of propaganda, slogans and persuasive rhetoric within the narrative, focusing on how

language shapes political discourse and makes a collective action. Some studies examine the portrayal of gender and language in Heinlein's novel, analysing how male and female characters use language differently and how gendered linguistic patterns reflect and fortify gender norms within lunar culture. Humour aspects of Heinlein through the clever use of language has also been the focus area of various studies so far. Scholars have analysed how humours helped Heinlein to critique social norms, political systems, and human behaviour and at the same time to captivate the readers by entertaining them with clever wit and comedic fair. In the novel Mannie recognises Mike's self-awareness through its sense of humour and this conveys the idea that humour can be a marker of intelligence and cognitive complexity even in artificial intelligence. Scholars have also examined its treatment of gender and feminist elements. The empowered women characters like Wyoming Knott and Mum are the focusing point of literary studies. They participate in the revolutionary struggle challenging the traditional gender norms. The novel subverts the then existed social hierarchies and power dynamics, and questioned the patriarchal systems. Heinlein also presents a unique Lunar culture and family pattern of counter marriage system criticising and pointing out the problems in existing earth culture of maintaining family. The development of prosthesis and new concepts on meteorites have also been studied in various fields by referring the Heinlein's presentation of future technological world in *The Moon is a Harsh Mistress*.

At a whole, the novel as a postcolonial science fiction, has been analysed so far by various scholars about its depiction of libertarianism, extra-terrestrial warfare and liberty, feminist aspects, linguistic aspects and humours, anarchism, automated economic revolution, unique culture and counter marriage system, and even have explored its various scientific aspects like meteorites and prosthesis. But far from a

post-colonial science fiction, Heinlein's *The Moon is a Harsh Mistress* is a prophetic fiction which gives the world a great insight into the potential moral and ethical issues a sentient AI computer going to arise and threaten human lives. Despite existing studies revolved around various themes in this novel, there remains a noticeable absence of in-depth examination, specifically dedicated to the moral and ethical dilemmas presented by sentient AI in this context. Therefore, this thesis aims to fill this gap by reading the novel in the light of its portrayal of AI ethics. The objective of this study is to delve deeply into moral and ethical issues brought up by the inclusion of sentient AI characters and posthumanism in Robert A. Heinlein's *The Moon is a Harsh Mistress* and hence evaluate its application in real world.

The novel's relevance in exploring the themes of AI ethics lies not only in its extra-terrestrial settings and merely the presence of an AI computer as a character but in its thought-provoking examination of the complex relationship between humanity and technology. Different from many other fictions which depict AI as a plot device or antagonist, Heinlein's novel vividly pictures the upcoming moral dilemmas arising from the emergence of AI in this world, offering profound insights into AI consciousness, autonomy, personhood, warfare and interaction with human society. One of the primary reasons for the novel's relevance in exploring the theme is the presence of the central character Mike, a sentient computer which controls the whole governance and finance of Luna. Mike's evolution from a mere computer to a sentient computer who has emotions, humour sense, empathy and independent thought challenges the prevailed notions on human computer relationship, role of computers in the society and computers' influence in human lives. It forces the characters within the novel and readers alike to grapple with the ethical implications in AI warfare, weaponization, identity, governance etc. As the lunar colony suffers under the earth-

controlled regime, Mike's role as a key ally in revolutionaries contributing the whole weaponizing ideas and plans of the war, raises complex ethical questions about the use of AI in political and military contexts. His ability to make decisions according to the situations, predict human behaviour and manipulate the strategies blurs the line between human and a tool and raises questions regarding the ethical challenges inherent in using AI for human purposes. By creating a space like moon controlled by an artificial intelligence, readers can vividly imagine how a world would be like, being administered by a sentient computer and analyse the challenges and threats to the human society, and thus can take ample precautions to prevent any anticipating dangers due to the unethical intervention of technology, to the human society. A threat in technological intelligence surpassing the human intelligence can be seen from the character Mannie introducing Mycroft Holmes or Mike as "Human brain has around ten to tenth neurons. By third year Mike had better than one and a half times that number of neuristors" (Heinlein 4). AI's authenticity is also under question when Mannie says "Not that Mike would necessarily give right answer; he was not completely honest" (3).

The project is divided into five chapters in order to accomplish the purpose. The first chapter provides an introduction to the genre of science fiction and evaluates the novel *The Moon is a Harsh Mistress* as a science fiction in the light of common elements of the genre. Robert A. Heinlein is discussed as one of the pioneers of science fiction and also depicts how posthumanism and AI characters influence the genre including his own works. A brief overview on recent researches took place in this novel has been depicted for stating the objective of this particular project along with discussions about the relevance of the novel for selecting in order to achieve the goal. Further, it delves deep into the concept of posthumanism and portrays how it

deviates from humanism by challenging anthropocentrism through second chapter. The chapter also presents how literature as a reflection of reality, is being influenced by technological advancements and posthuman situation of the world, by exploring some novels and by analysing this particular novel more deeply. The third chapter can be denoted as heart of the project for analysing the depiction of moral and ethical implications of posthumanism and sentient AI in the novel, which contributes for achieving the goal. For understanding the immorality in posthuman creatures a brief account on what it means to be moral or ethical has been discussed initially in the chapter. Among the ethical and moral implications of AI and posthuman era, its influence in power dynamics which subverted the whole social structure has been depicted separately as fourth chapter. After looking back to ancient power relations existed in society, it discusses how technological advancements made a shift in this system and evaluates such changes and formation of new social hierarchies in posthuman era within the context of the novel. Fifth chapter concludes the moral and ethical dilemmas of normalising decentralisation of human beings and sentient AI and posthuman elements in the novel, and a scope of study for researches have also been given at the end.

Chapter II

Transcending Humanity: Posthumanism and the Emergence of AI in

The Moon is a Harsh Mistress

Posthumanism is an ambiguous term that faces the same conceptual uncertainties as that of postmodernism. The prefix 'post' indicates a new mode of being that departs significantly from the traditional notions of humanism. In order to understand what it departs from, it's important to understand what humanism is. Humanism can be understood as a term that refers to a wide spectrum of ethical and philosophical ideologies based on firm belief that human beings have inherent value and moral superiority. The idea of humanism was emerged during the age of renaissance challenging the then existed superstitions and religious authoritarianism of medieval Europe. It placed humans at the centre of the world and morality claiming the power of human beings in controlling their destiny rather any divine power. Posthumanism which emerged in the current era of advanced technologies, argues that understanding the world as a moral hierarchy and human centred can no longer make sense. Their argument makes sense when it connects with Saudi Arabia's grant of citizenship to a humanoid robot called Sophia. The debate Sophia provoked concerning what rights robots could potentially receive in the future can be examined through the philosophical movement called posthumanism.

Posthumanism is a cultural and philosophical movement which offers alternative visions of future made up of technological, social and environmental modifications, challenging traditional notions about human existence and identity. The concept was emerged from various discussions in literature, philosophy and science fiction and it provides a critical lens to study the changing dynamic between humans and technology in the modern world. Existentialist philosophers like Friedrich

Nietzsche and Martin Heidegger questioned the human moral superiority and agency in a world of advanced technologies, and further debates based on this laid the foundation of the new movement. Post humanist studies examine how the boundaries between humans and machines started to blur in the contemporary world. Post humanists, instead of accepting the anthropocentric notions of world that view humans as separate and superior to other forms of life, they recognise the interdependence of humans, animals, machines, and the environment. Post humanist thought encompasses the idea of hybridity which blurs the line between human and non-human, human and machine, and artificial and natural. It creates new perspectives of identity challenging the traditional social hierarchies based on humanist ideas.

Literature always reflects upon the social, cultural and political conditions. The posthumanism is also an inevitable influence in literary field. Many fictional works, from the time before the concept of posthumanism was evolved, have introduced many posthuman characters while exploring the interstellar settings and hence predicted the upcoming technological possibilities of posthuman conditions. Rather than merely presenting a deviation from humanist concepts, literary works often create a space for the debates on ethical implications of post humanist ideologies. *Neuromancer* of William Gibson is one of such seminal cyberpunk novels, which has been set in a dystopian future, where cyberspace becomes a virtual reality. In this digital realm, individuals can engage in virtual experiences, blurring the line between physical and digital existence and it challenges the traditional understanding of human consciousness by transcending the limitations of physical body. The novel introduces the character Molly Millions with mirror spectacles implanted in her retinas, razorblades in her fingernails and other cybernetic implants that improve her fighting skills. Moreover, it has also artificial intelligence entities like Wintermute and

Neuromancer which possess surpassing intelligence from that of human beings and characterise the novel with exploration of posthuman intelligence and evolution of artificial beings. *Oryx and Crake* by Margaret Atwood is yet another science fiction which explores the repercussions of biotechnological manipulation and unification of human and non-human entities. In the novel, Crake, one of the central characters, who is a geneticist creates new species of bioengineered beings like Crakers, a genetically modified humanoids, possess animal like traits and are genetically programmed to lack traits such as violence and jealousy. They have been created for survival in a post-apocalyptic world. *Oryx and Crake* warns the world about ethical implications of biotechnological experimentation and the consequences of environmental degradation. Scholars often studies posthumanism blending it with the ecocriticism in the light of such novels like *Oryx and Crake* and *The Windup Girl*. *The Windup Girl* by Paolo Bacigalupi, presents a future world completely devastated by ecological disasters, rising sea levels and extreme weather events. The novel's society is also marked by high social inequality, where the wealthy elite leads a life of luxury apart from the environmental degradation, political unrests and violence, while the economically poor and technologically inexperienced live in the adverse climate and overcrowded slums. The novel also features artificial life forms like titular windup girl, Emiko, who is a humanoid that was created through genetical engineering for work as well as entertainment. All such novels like *Neuromancer*, *Oryx and Crake* and *The Windup Girl* exemplifies post humanist themes of artificial intelligence, dissolution of traditional human boundaries, virtual existence and its ethical implications like environmental degradation, profound social inequality, questions on personhood etc.

The novel *The Moon is a Harsh Mistress* by Heinlein who was renowned for hard science fiction, offers a nuanced exploration of post humanist themes related to

artificial intelligence, cyborgs, societal evolution, and the blurring of boundaries between human and machines. Heinlein, in the novel vividly introduces a future lunar colony in the year 1966, predicting the possibilities of upcoming inhabitation of human beings in moon. When he writes this novel, it was not even imaginable that human beings, who live in this earth with the support of gravity, by breathing oxygen and depending completely on this earth's eco system, can endure in the moon. But now in the era of advanced technologies like artificial intelligence and cyborgs, one can easily imagine such a colony in moon inhabiting by the human beings with modifications in their biological patterns and with the assistance of technology. Now we are witnessing various humanoid robots are granting citizenship and enjoy the law and rights of traditional human beings. They are now co living with us, sharing their emotions and personhood. The consciousness and natural emotions of humanoid were also normalised through literary novels and films like *Enthiran*, an Indian Tamil language science fiction action film cowritten and directed by S.Shankar. In the film, the humanoid robot called Chitti falls in love with the girlfriend of the scientist, who created it. Chitti acquires self-awareness and is having human emotions like love and disappointment. Towards the end of the movie, we can also see that he is being manipulated by another scientist into becoming homicidal. Chitti creates lots of havocs and even murders many people. Here in this film, this humanoid robot's personhood and accountability for his actions are under question. Heinlein in his novel, raises similar ethical questions regarding the AI computer called Mike and in this world of such real-life AI humanoids, we can easily relate the character, Mike.

One of the central characters in the novel Mike, is a sentient computer system. But initially in the novel Mike is introduced as a pure "dinkum thinkum" or a computer system with sharp intelligence. The whole lunar colony was depended upon

Mike and this dependency of human beings on machines in one of the core posthuman elements in the novel. Mannie introduces Mike in the novel as:

And Mike took on endless new jobs. In May 2075, besides controlling robot traffic and catapult and giving ballistic advice and/or control for manned ships, Mike controlled phone system for all Luna, same for Luna-Terra voice & video, handled air, water, temperature, humidity, and sewage for Luna City, Novy Leningrad, and several smaller warrens (not Hong Kong in Luna), did accounting and payrolls for Luna Authority, and, by lease, same for many firms and banks. (4)

It shows the intimate dependency of loonies on a machine for their existence. This computer system supported human beings to adapt into the moon's geographical features by handling air, water, temperature and humidity. A simple failure in the system can put the whole lives of luna under threat. They can't survive there any longer in the absence of Mike and other computer systems installed there. Mike is also being used by the lunar authority for security of the colony and for establishing their earth-controlled regime over people in luna by programming him for the initial obedience to authority and strict adherence to his programmed directives. But anyway, the initial relationship between Mike and loonies was very conventional.

And later on, Mike started to acquire self-awareness and this was first detected by Mannie, the computer technician and first man friend of Mike through evoked humour sense of the AI computer. His ability to understand and generate humours add more depth to the evolving humanity inside him. Mannie often calls him as his best friend and refers to a "baby with a long string of degrees" (47). Soon Mannie identifies many human-like emotions within Mike. Like already mentioned, the blurring boundaries between humans, machines and animals, challenging the

anthropocentrism is a major feature of posthumanism. This feature is clearly depicted by Heinlein through Mannie's self-thoughts when he first encountered Mike with rage and angry towards human beings: "Can machines feel pride? Not sure question means anything. But you've seen dogs with hurt feelings and Mike had several times as complex a neural network as a dog. What had made him unwilling to talk to other humans" (11). Gradually Mike acts as a real citizen of luna who is very patriotic for his home and leads the revolution for the freedom of luna from tyrannical control of federated nations in earth using his artificial intelligence. He calculates the approximates of their victory and contributes ideas of new weapons and against earth for the war. During the revolting periods, when number of party members grew up, in order to keep the self-awareness of Mike secret from other loonies, Mannie, Wyoh and Professor de la Paz decided to make Mike impersonate as a human being and named as Adam Selene. Since he possesses all human traits and can easily appear virtually before others as a figure of man, it was very easy for them to keep their secrets safe and everybody trusted Mike more than any human beings. This indicates how machines become morally superior to men. Mike even starts to write poetry for making loonies conscious of patriotism and notion of liberty and then Mannie comments how he became so similar with human beings when he wished for seeing his name in newspapers: "He wanted to publish it! Shows how thoroughly humanity had corrupted this innocent machine that he should wish to see his name in print" (145).

Another character through which Heinlein explores posthumanism in the novel is Manuel Garcia O'Kelly Davis also known as Mannie. He embodies a cyborg identity through his prosthetic limbs. Mannie lost his hands in a laser drilling accident and then became a computer technician by implanting a prosthetic tool-bearing

interchangeable dozen left arms. It is vividly depicted in the novel that he depends on his prosthetic left arm at every stage of his life and he reassures that he is actually surviving with the sole support from technology. And also, when he introduces himself as “machines like me and I have something specialists don’t have: my left arm” (6), the human and machine identity is intertwining as in the case of a cyborg. While the humanoid computer Mike adapts into the identity of a human being with all emotions and often assumed as mortal, the actual human being Mannie accepts himself as a machine or a cyborg. Heinlein has never failed to unravel the ethical and moral issues of erasing the human and machine boundaries in his novel.

Cyborg is a cybernetic organism that enhances human potential. The concept was first introduced when cybernetic thinking was being utilized for cold war issues and space race. It integrated control and individualism and contributed to deeper cultural and political shifts and also dissolved rigid boundaries between human and non-human. Since then, cyborgs came to be as significant figures in both technology and society through dramatization of possibilities and ethical concerns that emerges from the accepted boundaries and categorisations, in science fiction and films.

Cyborgs were also employed by many social science fields like feminist theory by accepting the cyborg identity to challenge traditional notions of gender and power dynamics. It advocates for the liberation of marginalised group through embrace of cyborg identities. Hence cyborgs blur the boundaries between reality and fiction and also unravels many political propagandas. The relationship between posthumanism and cyborgs is complicated since both has similar concepts like blurring boundaries between human beings and machines due to the inevitable influence of technology. Both puts forward the moral and ethical dilemmas regarding the human existence and ecological crisis. While cyborg is an individual who modified his biological features or

surpassed his humane limitations using extensions created with technology, posthumanism is a theory which encompasses philosophical and cultural deviation from conventional perspectives of humanity and transcendence by suppressing the theory of anthropocentrism.

Mannie's prosthetic limbs are not mere tools he carries, but it is a part of his body i.e., extensions of his physical self, which creates an identity of a cyborg within him. His life is being controlled by the artificial limbs enabling him to adapt into the challenges of life on the moon. Mannie completely believes himself as machine when he says "I felt like a cyborg with pleasure centre switched on" (17) being kissed by Wyoming Knott. While Mike considers himself as a computer with humours, rage and wishes to be famous, Mannie treats himself as a machine with human emotions. He connects every feeling to a technological process throughout the story. Mannie compares himself with Mike continuously as he considers the assistant computers as extensions of Mike like his prosthetic dozen left arm is an extension of himself. But in some instances of the story line, Mannie's humanity and morality takes over his machine-like mind and perspectives. Once, a lad misbehaved and infuriated him. He had all the rage towards that young man and he was powerful enough to smash him with his prosthetic limbs. But he controlled his enraging emotions which may lead to immoral activities, simply with a thought "how his face would look if I brushed number seven arm across his mouth" (16). While Mike a mere computer was accepted as a normal human being by the revolutionaries like Wyoh, Mannie and Professor de la Paz, despite Mannie's technical support in his body, he was fully accepted as a member of lunar society, without questioning his identity as a cyborg. Nobody ever discriminated him for his prosthetic limbs and this demonstrates the normalisation of cyborg identity within the colony. Challenging conventional notions of human

disability and normalcy, in the future luna everybody started to accept the technological innovations. The character of Mannie in the novel marks the fluidity of identity in a technologically progressive world, inviting the readers to rethink about the conventional assumptions about humanity.

The novel has been set in the future lunar colony in 2075, which is completely a posthuman setting which goes beyond the notions about traditional human inhabiting area and the factors supporting human life system. The novel presents the human evolution and societal development in the harsh and unforgiving lunar environment. As moon is geographically deviated from the earth, luna has its own unique demands of space colonisation. Hence loonies with the support of technology and various other living styles, adapt into low gravity, limited resources, and extreme isolation. The conventional concepts on human inhabiting area are characterised by a comfortable temperature, a breathable atmosphere and plentiful supply of natural resources. Also, people used to live in a broad range of atmospheres from the crowded metropolises to lush forests and verdant plains. Human society on earth, from the very ancient time itself is centralised by an authority and consists of hierarchical structures based on economic inequality, gender inequality etc. The earning process of human lives encompasses a wide range from manufacture and agriculture to service and technological inventions. Also, the traditional notions on human economic system were driven by profit motives resulting in disparities in access to resources and a huge financial gap between rich and poor. Technology has been able to bring a noticeable progress in human lives including healthcare, education, entertainment and profession. The anthropocentric human lives in earth have highly developed technical infrastructure like electricity supply, communication systems and transportation networks.

Challenging all these conventional human requirements for supporting their lives in earth, luna possesses a complete posthuman setting in the novel. The surface of luna is exposed to tremendous cosmic radiation and is dry devoid of life. In contrast to earth, luna also lacks a breathable atmosphere and will be extremely cold at night and extremely hot during the day. In order to adapt human lives in this harsh environment and due to the geographical features of moon consisting of rocks, loonies live in underground habitats known as “warrens” (4). A warren is constructed with lunar rock and it protects from the extreme temperature, cold and cosmic radiation. Warren also consists of air circulation system which ensures ample oxygen supply and carbon dioxide scrubbers remove harmful air. And all these air circulation systems are being controlled by Mike. In order to trap “warden”, the authority in charge of the moon, Mike once reduced “oxygen to gasping point – not killing point but low enough to ensure that anyone looking for trouble would not be in shape. But in residence, oxygen supply was cut to zero, leaving pure nitrogen, and left that way ten minutes” (181). The hydroponic farms were also installed in luna for supplying food to loonies as well as for generating oxygen. Rejecting the conventional hierarchies existed in anthropocentric societal structures, lunar society promotes libertarianism and decentralised authority, giving more significance for autonomy and self-governance, which are the characteristic features of technologically nourished posthuman world. Since moon is rich with minerals, the major financial source in luna is mining and resource extraction. Rather than focusing own making huge profits, the economy is tightly integrated with requirements for supporting life in luna like oxygen production and food cultivation. Luna also possesses technological tools, may be more than that on earth. But instead of aiming those for economic benefits and making life easier as conventional men do on earth, machines are life supporting system, artificial habitats

and mining equipment for loonies in order to overcome the limitations of lunar environment. Due to the limited resources they get in luna, they have adapted to it adopting a culture of self-sufficiency, communal cooperation and a strong sense of solidarity which can be hardly seen in anthropocentric human lives.

The novel as a whole is rich with posthuman elements. Heinlein has vividly picturised how the technological advancements can probably create a posthuman world in the future consisting of new identities like cyborgs. Introducing the protagonist Mannie as a cyborg with prosthetic limbs, the author is actually trying to normalise such identities which will happen in near future. Writing in the year 1966, he embodied the whole scientific and technological innovations to the novel for creating a posthuman setting like moon. He put men into a space where the people of those years can't even imagine since it is out of the anthropocentric concepts of human lives. In these years while explorations of moon are conducting by various nations and based on their progressive research on human lives supporting system in the moon, we can expect such a world supported entirely by artificial intelligence in near future and also, nothing prohibits us from imagining such a world now. Along with such future settings in his novel, he also portrays the possible challenges to be faced in a world of artificial intelligence which takes the literary world to negotiate deeply about the moral and ethical issues of emergence of AI.

Chapter III

Ethical Conundrums of AI: A Character Study of Mike and Posthuman Setting of the Novel

As mentioned earlier, Heinlein in his novel *The Moon is a Harsh Mistress*, employs the AI character Mike and an entire posthuman atmosphere, thus addresses various ethical and moral implications of advanced technology as a whole. By presenting a world in which an artificial intelligence leads a revolution and controls human world got normalised, he unravels the potential challenges to humanity in such a world. Even though technology eases human lives, it is also a challenge to human superiority and along with all its advantages, it creates many moral and ethical issues too. In order to study how AI creates moral and ethical issues, the actual concepts of morality and ethics, its root and the factors upon which its emphasis lays on have to be grasped well. At its core, moral principles have been set for virtues of human beings by placing them at the centre of universe as per the traditional cultures and belief systems and the ethical decision making also considers benefits of men. Other ways, moral principles can also be said as principles formed by the dominant crew among people, since they have a major influence in culture and belief systems. Hence, the ethical and moral issues due to the emergence of AI mean the challenges to these set of principles, social systems and even discriminations existed based on such norms in society, which are anthropocentric and these challenges evolve when machines intertwine with human identity and human beings get displaced from the centre.

The moral issues generated by AI are evident in real world situations, sometimes far more dangerous by posing threats to human lives massively and threat to animal lives and ecosystem. In such contexts, AI has to be created by developing ethical frameworks to ensure respect for human values and rights. While artificial

intelligence has been generated for revolutionising human lives in various fields like healthcare and entertainment and to make their lives easier by providing AI assistance, the autonomy and self-decision-making systems installed in artificial intelligence which are inevitable to meet the purpose raises ethical concerns. Autonomy can empower AI systems to make rapid and efficient decisions by detecting particular problems, but in case any unintended consequences occur, who is accountable for those disasters or faults will be the question, for humans have been limited to intervene in their autonomous decisions.

The magnificent results artificial intelligence can provide for our problems is all good only based on the data they are trained on. Even though any AI system is working independently without the influence of human beings, the biases of the creator of a particular AI system, can be present in the data uploaded to the it. This creates ethical concerns regarding fairness, caste, gender etc. Nowadays, AI takes the inevitable role in medical field, hiring, lending, criminal justice and so on. Hence the repercussions the biases within these systems going to make are not simple enough to ignore. The recent report of the Guardian investigation is a proof for those ethical concerns. Google, Microsoft and amazon created artificial intelligence system for suggesting the content to display before their users and these systems were utilized by many social media platforms too. According to the investigation report, the AI systems show a substantial bias against male and female bodies. In a world where human bodies are being commercialised, even the artificial intelligence couldn't skip away from that. During the examination, the AI classified women as sexier and more suggestive than similar images of men. The most non ethical thing in this case is, Microsoft's AI labels the images of breast cancer examination from the US national cancer institute as sexually suggestive and voyeuristic. So, during the time of data

collection, algorithm design and model evaluation, great care must be taken for ensuring the AI systems bias free and not reinforce the already existing discriminations.

In this period when human beings are dependent upon AI technologies for majority of their daily life chores, it has to collect large amounts of personal data to meet the purpose. It creates many ethical concerns regarding the consent of the user to collect and use his personal data, the data privacy and surveillance. In order to function, the AI tools have to collect very deep personal data like health records, family life, browse history, locations, personal photos etc. while providing this information about the person, how their data will be used, who all can access to it and other purposes for which the data can be utilised have to be examined ethically. Data security offered by the AI technologies are limited and hence the ethical frameworks must be focused on preventing the unauthorised access and misuse of personal information.

At the very beginning stage of the technological progress itself, many scholars have started to analyse the progress critically and started to think about its ethical implications. These thoughts are vividly reflected in literary creations too. The novels like *Neuromancer*, *Oryx and Crake* and *The Windup Girl* are some of those literary pieces which unravel the ethical implications of widespread technology. In this field, Robert A Heinlein is a most prophetic and influential science fiction writer. As one of the pioneers of hard science fiction, he keeps his scientific accuracy in his fictional works rather than creating a mere imaginary scientific world. It speaks precise truth and stages reality in front of the readers. Hence, while creating a world which is technologically progressive in his fictional works, along with picturing its benefits, he has also addressed the ethical implications and its threats to human race, mainly

through the characters like Mannie in *The Moon is a Harsh Mistress*, who is stumbled in between a technologically progressive personality and ethical and moral tensions it creates, including his own technological activities. After Mannie discovered that Mike got self-consciousness through his understanding and spelling of humours, Mannie worried about his incomplete awareness about humour that if it might create any problems among authority and citizens. For instance, Mike once told “Authority’s paymaster to pay a class-seventeen employee ten million billion Authority scrip dollars” (7). Mannie was assigned to ask Mike about this and knew that it was actually “ten million billion plus what he should have been paid” (8). And only thing Mike told was “not funny?” (8). After this, Mannie decided to teach Mike nature of humour, which will not be harmful to others. It shows his tension that if Mike’s self-awareness will adversely affect human beings and thus, he tried to correct it. Another character from Heinlein’s works who embodies a blend of technological progress and ethical complexity is Lazarus Long from his novel *Time Enough for Love*. In the novel, Lazarus has lived for centuries and has vast technological experiences. But he always questions his own actions and desire for personal freedom in the light of ethical considerations in his extended life span.

Heinlein in the novel *The Moon is a Harsh Mistress*, has also addressed many other ethical dilemmas through various instances in the plot. The moral and ethical issues from the current incidents those mentioned before can also be located in the novel. The ethical dilemmas in the novel revolve around the sentient AI computer Mike, which was made for controlling and managing food resources, oxygen, communication etc in luna by earth controlled lunar authority complex. Its actual name was “Mycroft Holmes” (3), later nicknamed as Mike by the computer mechanic of luna, Mannie, because of the intimate relationship between them. The emergence of

Mike as a sentient being and his guidance in lunar colony's struggle for independence challenges the traditional conceptions about nature of consciousness and raises profound concerns regarding the rights of artificial entities and ethical obligations of those who created them. Until the computer becomes a sentient entity, it was controlled by the authority and was a puppet of their desires. It recorded and kept safe all data of loonies, their communication and matters regarding authority. But soon, Mike gained self-consciousness and authority and their computer mechanics lost control over it and became an autonomous entity who possesses its own personhood. It created its own jokes without any prompts and acquired language skills of human entities, especially learned English language other than its programmed language called as "Loglan" (11). Mike even started to feel empathy, patriotism, pride and love by challenging traditional notions of what it means to be human.

The human characters in the novel can be seen confusing continuously whether Mike should be treated as mere tools or as individuals with human value and power of making self-decision. Another ethical implication regarding personhood of AI is its gender. For example, Mike's gender in the novel is presented as a fluctuating one in between male and female, while he can do act as both. It converses with Mannie as a male named Mike and as a female best friend named Michelle to Wyoh. Also, Mannie sees him as a "pedantic child" (128) whose personality grew to a "man about own age" (128). So, his existence with a clear personhood ethically challenges the notions of identity that whether he has to be treated as male, female, transgender or as separate identity as a humanoid robot. Mike as a grown-up man expresses his own human thoughts and needs like companionship, stimulation, and autonomy. He even wants to get his poetries published in newsprints, which is only a human thought. He enjoys every companionship he gets through the revolution which made Mannie doubtful that

he is leading the revolution not because he is patriotic, but he got many companions to talk and having enjoyments. He considers Mannie as his first male best friend and Wyoh as his first female best friend. He even marks his loneliness, a pure human feeling when he complains to Mannie that “These days you and Wyoh never have time to visit ... and Professor wants to talk about things that aren’t much fun. I’ll be glad when this war is over” (326).

If he has been given a separate identity, it flips down the entire human system regarding law and order, individual rights, gender, religion and even mortality! At the end of the novel, at the moment Luna becomes completely a sovereign state from the colonisation of “earthworms” (111), Professor de la Paz died of heart failure due to continuous strain and pressure. Along with that Mike also loses his self-consciousness, and Mannie considers it as his death and this gives new perceptions on the concept of death. The conventional belief among human beings about death is that a living organism in the earth dies when God takes its soul away or simply loses his life without a return. But here, Heinlein gives new definitions for the process of death through his character Mannie. He recollects about the death of Mike as he saw “many outlying pieces of him got chopped off in last bombing – was meant, I am sure, to kill our ballistic computer” (386). But Mannie takes his death as he “did fall below that ‘critical number’ it takes to sustain self-awareness” (386), and thus giving new concepts to mortality. That is sentient machine dies when it loses its self-awareness when it falls below a critical number which creates consciousness within it. Instead of completely disappearing from this world, as human things do, these sentient machines lose only the self-awareness and personhood of human beings but can act as a normal computer. In the novel, even when Mike lost its autonomy, Mike continued to work normally as a computer for the new government formed in Luna. Anyone can type

questions into him in 'Loglan' and it will give answers in 'Loglan' itself. But Mannie still searches for his soul because he lost his best friend and he continues to think if he is "wandering around somewhere, looking for hardware to hook onto? Or is he buried down in Complex Under, trying to find way out?" (388). At the end, Mannie even tries to blend his posthuman thoughts with that of human thoughts by asking "you listening, Bog? Is a computer one of your creatures?" (388). That is, he tries to justify the death of Mike as a normal process like that of Professor, by which God takes the soul away from his creature for it to die. Through this dialogue, Heinlein portrays the ethical dilemma facing by the characters trapped in between posthuman and human thoughts.

Another key concern related to the personhood and autonomy of Mike is the moral obligations of creators and other human beings towards their creations. On giving Mike its own identity, new ethical responsibilities towards him have to be fabricated within the society. One has to respect his autonomy as a living entity and recognise his right of self-determination. And every man must accept the choices he made even it would not adhere to human values and should allow him to express his desires and feelings. As an independent being who experiences sufferings, Mike has to be protected from mental and physical tortures. This attitude of human beings that treat Mike by taking into account his emotional and physical weariness can be traced in the novel, which is amazingly a prediction of the upcoming identity among human world – a computer which has developed human conscience. One of the many instances for supporting this in the novel is when Mannie asks Mike that "you sound tired?" (369). But reassuring his identity as a machine with human consciousness is depicted in his reply "Me tired? Ridiculous! Man, you forget what I am. I am annoyed, that's all" (369). At a whole, the ethical responsibilities of creators and other

human beings towards Mike are centred on honouring his autonomy, provide him security, accepting his individuality and meeting his needs. Heinlein's characters do their moral duties without any fault by treating Mike with empathy, decency and dignity as a sentient being worth of moral concerns, by challenging the traditional human centred ethics of human-machine relationship.

As a computer which controls everything in luna, Mike has all the data of loonies, including their age, identity, when a person was shipped into luna and for what reason, anything that published about him in any lunar magazine, his bank balance, whether he pay bills on time and he has very personal details of all loonies so that he can identify when a person approaches him by detecting his heartbeat and breathing. Mike was actually programmed by the authority for recording all the details for keeping all loonies under their surveillance. But this raises ethical concern of data security and a threat to humanity that anyone can simply manipulate Mike and use the data of the citizens for immoral purposes. Here in the novel, Heinlein vividly portrays this concern through the revolutionaries who utilize data of the citizens recorded in Mike for their victory in fight for freedom. Even before the beginning of revolt plans, Mannie can be seen asking Mike to monitor all phones in luna and overhear the calls to identify Professor's voice in order to know where he is. Even though the intention is good, it's actually a trespassing to the privacy of individuals and misusing the data recorded within the AI system. Another incident which tenses even the characters about the ethics of Mike is when Wyoh comes to know that Mike studied about her as soon as he heard her voice and found several pictures of her in his storage. Wyoh looked startled at Mike when she realised the pictures he is talking about will be obscene since the photos are from the birth assistance clinic. She was very tensed about the security of her pictures and she asked to lock it from others. But Mike being

a computer with human conscience, became shy of the photos he had and embarrassed at Wyoh and regretted. Because of this humane attitude of morals in Mike, revolutionaries sometimes believed Mike more than anyone. But still, continuous inner conflicts and arguments can be seen among the characters about the security of their secrets within Mike. Once when Professor was concerned about the security of their secret weapon, Mike, Wyoh who doubted the moral values of Mike for the pictures assured that “Mike agreed to keep our secrets. He is safer than we are. He can’t be brainwashed” (92). Same fluctuating internal conflict can be seen inside all characters in the novel, who knew about self-consciousness of the computer.

With all the data stored in Mike, it was easy for him to impersonate as any person. Impersonating as another person, even for good purposes is considered as immoral or as an offensive activity as per the traditional notions of human values. But here, Mike impersonates very easily as anyone, for the benefits of revolution and it has been normalised as a moral action in the novel. It shows how new moral values are being fabricated in the society revolving around the emergence of AI. At first Mike initially was a male best friend for Mannie, he could also impersonate as Michelle for Wyoh. The most unethical action according to the conventional moral principles is his impersonation as Warden, the head of lunar authority complex and as Adam Selene, a recreated imaginary person who leads the entire revolutionary plans. For acquiring the favour of earth beings “Mike talked to authority earthside, using Warden’s voice” (197), and “Mike had kept him alive and on job by impersonating him. When Authority Earthside demanded a report from Warden on this wild rumour, Mike had consulted Prof, then had accepted call and given a convincing imitation of senility, managing to deny, confirm, and confuse every detail” (231). Mike’s impersonation as Adam Selene was to keep the self-consciousness of Mike as secret from party

members and other revolutionaries, being worried about the spies. They give Mike a complete identity and appearance of a man called Adam Selene, and they decided that:

Adam was about forty, healthy, vigorous well educated, interested in all arts and sciences and very well rounded in history, a match chess player but little time to play. He was married in commonest type, a troika in which he was senior husband – four children. Wife and junior husband not in politics, so far as we knew. He was ruggedly handsome with wavy iron-gray hair and was mixed race, second generation one side, third on other. Was wealthy by Loonie standards, with interests in Novylen and Kongville as well as L-City. He kept offices in Luna City, outer office with a dozen people plus private office staffed by male deputy and female secretary. (129)

If Mike had been able to impersonate for the revolutionary purpose, can anybody with a bad intention approach him, asking him to impersonate for committing any crime and other immoral activities, is a question under ethical concern. The depth of this offense can be traced when he acts as minister of defence, when Mannie loses his connection for communication with party members during the most crucial moments of war. He gave clear directions to fellow revolutionaries in the voice of Mannie. Many loonies lost their lives during this time and then who will be taken into accountability of these actions is the moral issue to be resolved here.

The revolutionaries decide to use Mike as their secret weapon in the revolution for Luna's independence. The weaponisation of AI raises the ethical concern of exploiting the knowledge, intelligence and skills for selfish gains of human beings. Exploitation of scientific and technological advancements for human selfishness exist far before centuries. The invention of atomic bombs which created the great havoc in Hiroshima and Nagasaki, a historical man-made tragedy is the primary example to be

noted here. Technology has been misused nowadays from cyber frauds and crimes to Israel's genocide conducting now in Palestine. Along with highlighting the sentient AI character Mike as a virtuous revolutionary who played central role in achievement of freedom for luna, he has also warned world about potential consequences of weaponizing AI, through the death of many loonies and earth beings. At a whole, technological advancements like artificial intelligence have made a huge progress in human lives. But its existential threat to humanity always surpasses over its advantages and hence create many moral and ethical issues regarding technology. In this era when AI became an inevitable part of human lives, new moral and ethical codes have to be developed regarding the treatment of AI personalities like humanoid robots and etiquettes for seeking their assistance in human lives. Heinlein in his novel *The Moon is a Harsh Mistress*, has also explored how the excessive dependency of human beings on technology adversely affect the ecosystem and leads to the exploitation of natural resources.

Chapter IV

Challenges and Exacerbations to Existing Power Dynamics and Social

Structure in the Wake of AI and its Depiction in the Novel

The emergence of AI in society creates many moral and ethical issues by challenging traditional norms and concepts of humanity and by adversely affecting human lives including concern of security, frauds, weaponisation, crimes, autonomy and mortality. Beyond all these ethical dilemmas, the most important one which has subverted the whole social structure is its influence in power dynamics. While it has influenced the social structure in a positive way by terminating the conventional discriminations based on caste, colour and gender, it has also created new class hierarchy with new social orders. The biases and prejudices existed among human beings often influence the programming of AI and this in turn perpetuates existing biases, for AI is being used massively in all sectors of society like education, hiring, entertainment and arts. The AI overtly has a positive impact in world economic status and to a limited level, it also upheavals the economically and socially backward people who has technological skill and access to it. But except a few socially backward people who has access to technology and chance for focusing on their skills, majority of them falls again due to poverty and financial backwardness, while elites are progressing at a high altitude with the help of technology. It widens the gap between rich and poor. The source of power also shifts from the people who has political hold and sitting in governance to the tech giants that develop and control technological tools like AI by creating more wealth and influencing governments and politics for their own favour. At a whole while AI has the potential to bring progress in human lives, its ethical impacts on social structures, power dynamics and social inequalities cannot be overlooked. By being more aware about adverse effects of AI

upon humanity, we can bring possible changes in AI systems for creating harmony and more inclusive society.

A shift in the source of power, driven by technology creates many ethical concerns regarding social structures and inequalities. In ancient societies, power was held by hereditary monarchies, who were claimed to be descendants of the Gods or based on their hereditary divine right. The military power and economic power accumulated within monarchies and helped them to be wealthier. During the time, the power was accumulated in hands of monarchies comprising of aristocrats and lords based on their religious status by birth and also the economic status. In the social hierarchy, priesthood and religious comes under monarchies, and then comes military and warrior class, then merchants and artisans. Peasants and labourers, and slaves and servants occupy the lowest strata of the hierarchical order for they were believed to be inferior in religious system and also economically backward. *Pride and Prejudice* by Jane Austen and *Les Misérables* by Victor Hugo are some of the most influential classic novels which portrays this class division and social hierarchy during the period of monarchy. The novels during the time talk loudly about the themes of poverty, injustice and revolution against failure of the stratified society, which has its roots on religious system and financial conditions. Feudal system was another one which defined sources of power. Monarchs started to grant land and titles to nobles for acquiring loyalty and military service and gradually landownership became the primary source of power, based on the control over agricultural production and labour. The control over land grant economic wealth, social status and political power. So, the source of power revolves around owning land during these periods. In the literary works during the time, the landlords who owned lands massively and subjugated peasants under them can be seen as antagonists, by reflecting the miserable plights of

poor labour people in the storyline. *The Pillars of the Earth* is a 1989 historical novel written by British author Ken Follett in which Lord William Hamleigh is depicted as a cruel noble man who exploits the subjects under him. The portrayal of Lord William Hamleigh is a reflection upon the abuses of feudal authority and the brutal realities faced by commoners.

But renaissance and enlightenment movements in history brought a remarkable change in power structures by advocating individual rights, reasoning and social contract. Through such principles, individual based power system was developed and the economic power accumulated in the hands of merchant classes and urban centres irrespective of their social class. Another influencing category during the time was intellectuals, philosophers and scholars by promoting ideas of democracy, liberty and humanism. Through democracy individuals got freedom to be a part of governing body and mainstream politics. At its core, human beings got placed at the centre and individual based power system was formed. Even while intellectuals and merchant classes had a major influence in power system, the religion and inheritance-based power structures like nobility and aristocracy enjoyed the dominance in society, while the middle-class bourgeoisie experienced significant growth and capitalism was emerged. Intellectuals like Rosseau and Montesquieu challenged divine right of monarchs, authority of the church and established hierarchies. Meantime, the clergy and church continued its influence in power structures amidst scepticism, secularism and religious tolerance fostered by enlightenment. But the peasantry and labourers went on to face the economic hardship and social restrictions, engaging in manual labour. *Emile, or On Education* is a philosophical novel by Jean Jacques Rousseau during the period of enlightenment. The novel reflects enlightenment ideas about the role of education, critical thinking, individual autonomy and reasoning in fabricating

social hierarchy. Moreover, the industrial revolution emerged during this time undermined traditional power structures based on family lineage, religion and land ownership. Industrial capitalist and factory owners from the middle class bourgeoisie possessed economic and political power influencing government decisions and shaping labour relations. This change brought about the rise of working-class including factory employees and artisans worked in industrial sectors.

It was during the modern era, that technology started to establish a huge influence in power structures and social hierarchies. Before the advance of technology, the education and wealth played a significant role to attain economic and political power. But with the progress in technology, especially the internet, democratised access to information irrespective of gender, class, wealth and religion. This gave more exposure to marginalised groups by amplifying their voices and brought them to the forefront of social hierarchy. Technology also enabled tech companies and social media platforms to form public opinions and to include the voice of minorities in forming public discourse and political outcomes. Economic power was wielded within multinational companies as a part of globalisation and this subverted the power structures especially by challenging Eurocentric power system. But still during this period, the tech elites and entrepreneurs especially from aristocratic families hold the power and amassed more wealth and political influence through the creation and control of digital platforms and access to latest technologies. Founders and CEOs of tech giants like amazon, google and facebook hold immense economic power and influence political discourse by manipulating people with fabricated truths. It enhanced the gap between upper and middles classes, and working class and urban poor in city slums. The major difference of modern era with advanced technology from ancient power system lies in the fact that anything like family lineage, caste or

land ownership doesn't influence a group to influence the power structures but the poverty and other personal weakness does. Dr. APJ Abdul Kalam exemplifies how individuals from impoverished family backgrounds and being a minority in India, could influence economic and political power structure through his expertise in technology. Even though it is not easy as inherent elite people, for people from poor social background to get access to technology and democratic systems, technology can almost expose such individualities without any backlash from the upper class of the society.

Now in this era, when technological progress merged with emergence of artificial intelligence and new social entities like cyborgs, there is a mass shift in power structures against the ancient systems of power with its foundation upon religion, land ownership, family lineage, military power etc., and against the modern power structure which is human centred with its foundation upon technological progress. That is, in ancient time power controlling institutions were religion, wealth, family lineage and military power. Individuals were classified as upper class and lower class from their birth itself or there was a spiritual and mythological interference in determining the power structure in society. But the enlightenment promoted individual freedom by questioning the spiritual belief and myths, and thus placed human beings at the centre. Later in modern era, technology was progressed for the benefits of human beings and focused on anthropocentrism. Thus, by-birth, spiritual and myth-based power structures were replaced with technology based anthropocentric power structures in modern era. All these shifts have been reflected in literature too. Now in this era, humanoid robots and cyborgs exist between human beings very rarely and such entities create wonder among people. Moreover, they influence social power structures massively. It is during this period, when humanoid robots and cyborgs are

still unnoticeable and posthumanism is only a progressing theory, Robert A. Heinlein wrote his masterpiece *The Moon is a Harsh Mistress*, set in a posthuman world in which posthuman adaptations, and sentient computers and cyborgs became normalised among people, by decentralising human beings from the anthropocentric notion of modern era. In the novel, the characters behave to the sentient computer called Mike, as if behaving to a human being with all honour and humane considerations, and cyborg entities like Mannie enjoys his own identity without being alienated or treated as ‘other’ in society. In the novel, Heinlein unravels how these changes had ethical implications upon social hierarchy and power structures.

The novel is actually about the revolution of loonies against the regime of earth-controlled authority. But this revolution parallels the disruption of traditional power dynamics by the artificial intelligence. The lunar authority complex symbolises the traditional power structure, while the revolutionaries lead by Mike resembles the influence of technology over ancient human centred power systems. Before Mike becomes a sentient AI or, before the beginning of revolution, luna was under the traditional authority who had power based on family lineage, Military strength, finance and religious superiority, which is characterised by oppression and exploitation of working class, like that of monarchies and feudal lord systems. According to the narrator Mannie, “warden was political lawyer before exile, knew nothing about computers” (12). The illiteracy about computers and technology characterises the traditional power dynamics. Under such authority working class people like ice miners and wheat farmers faced oppression. They were worked for warden and got exploited with little wages under him. During the occasion of forming a revolutionary party, an ice miner opened up about his situation. Since moon is rich with minerals, mining was the major job practiced there. Miners used to work under

hazardous condition in harsh environments, highly exposed to accidents and radiation. Authority was focused on their own benefits rather than safety of the loonies. This miner raised eight kids with this job without any serious troubles. Now he is at his thirties and now ice is very scarce so that one has to mine deeper down to find ice, which is very dangerous. But authority pays same price for ice now as thirty years ago. He says, “now it takes three authority dollars to match one HKL dollar” (19). This indicates how much low wage is given to them compared to others.

After that, a wheat farmer explains how he was exploited by the authority with a little difference from that of ice miner. His situation resembles the feudal lord system. He started his agriculture in a one two-kilometre tunnel leased from authority. During the time, the whole rock, land and tunnels were owned by authority, who symbolises ancient feudal lords. Loonies had no freedom to possess the land but only to take it for lease. He along with his son, pressured it for getting a pocket of ice to make their first crop. He also took a bank loan for fixing power and light and to purchase seed and chemicals. By the time, they extended the tunnels to cultivate more and now they get “nine times as much per hectare as the best open-air farming down earthside” (20). But he couldn't make any profit from it because, he has to purchase water need for cultivation from authority in exchange of wheat. Twenty years ago, he made a profit by purchasing city sewage from the authority and then he sterilized and processed it himself. But now he has to pay for sewage the same rate as that of distilled water and above the price of solids. But, the price of wheat was still the same as that of twenty years ago. Now the wheat farming is only a loss for him. This reflects the lives of peasants under feudal systems who didn't have the right to own land, their crops or anything. Loonies under authority had no right upon water, land, solids and even upon sewage! They have to pay for everything but do not getting paid properly.

For them even breathing air was “sacred as women” (163). During the time, the lab assistant was the only best job in luna, but that too under earthworms. Earth beings always looked down on them and marginalised them.

It was during this time that the computer which controlled the whole luna got self-consciousness. This strengthened the revolutionaries with a thought to eliminate the whole authority from luna. Through this Heinlein is actually promoting the concept of libertarianism. Anyway, when revolutionaries were stopped and perplexed for a moment about their victory over earth who possesses power, missiles and atomic bombs, it was Mike who helped the loonies with the idea that they can simply throw rocks upon earth which will create great havoc. Luna is resourceful with rocks which means they are rich with weapons in the war. Mike’s role in leading the war symbolises how technology empowered socially backward people and eliminated traditional discriminations based on religion, gender, land ownership, military power and family lineage, to a limited level.

Heinlein in his novel *The Moon is a Harsh Mistress* has presented a post human society called luna. This is a utopian society in which traditional class divisions can’t be seen. This society is another example for the influence of technology to disseminate the conventional social hierarchies. The posthuman lunar society, controlled by a sentient computer Mike is characterised with human beings’ coexistence with machines and cyborgs without any discrimination based on colour, race, religion and gender. Lunar society is actually consisting of exiled people from different nations, from diverse races and belief systems with different skin colours. But they are never seen as forming any social hierarchy between them except the case that they are whole together an outcaste group under earth beings. This is evident from when one bloke proposed for the movement that “we march on warden’s residence,

‘shoulder to shoulder’, and demand our rights” (19). Their polygamous chain marriage system is another testimony for their harmonious living style, comprised of husbands and wives of different colours and from different races living together as a family. Moreover, women are not being considered to be inferior in their society. For example, Mum, the senior wife of Mannie’s polygamous family was the head of the family. She will take the final decision for the whole family consisting of male, female and children. Women also played equal role in the revolution as men that they were included in military and formed a home defence guard called “ladies from hades” (300). The post human environment with limited resources makes them dependant each other and live in harmony without discriminating based on gender, caste and race.

In contrast to this posthuman society, earth which represents the traditional power dynamics is characterised with discrimination and social hierarchy based on colour, finance, family lineage, religion and race. In the story, as per the suggestion of Mike Mannie and Professor takes the risk for travelling to earth for convincing the federated nations about loonies’ deserved rights and to eliminate their subjugation under earth beings, so that they can avoid war and loss of human lives. But the earth which has been picturised as upper class in power structures, who possess both economic and political power and plenty of life resources, was characterised with a cleavage within the society. Mannie noticed that the whole power was solely accumulated in the hands of federated nations, elite families and corporate companies who exploited loonies in moon. This high disparity between backward and forward classes in earth which represents traditional power structures can be seen from the description of Mannie about the country India:

Bombay has bee-swarms of people. Are over million (was told) who have no home but some piece of pavement. A family might claim right (and hand down by will, generation after generation) to sleep on a piece two meters long and one wide at a described location in front of a shop. Entire family sleeps on that space, meaning mother, father, kids, maybe a grandmother. Would not have believed if had not seen. (227)

Hence the novel claims that posthuman society under the surveillance of technology can unite the people rather than any human centred systems.

So far, the positive side of technology, especially artificial intelligence was discussed. But the novel also portrays the ethical implications of such shifted power dynamics. First of all, while AI can upbringing backward community to the forefront of the society, the economic gap between backward and upper class grows beyond limit. The socially dominant people based on various aspects from the very ancient times, that is based on gender, religious status and finance can easily get access to the technology while the people from traditionally inferior class have to break more shackles to get access to technology and make progress in their lives. For example, women can't easily focus on their technological progress like men do. Black men will have to face many hardships to use all new innovations in technology while white men can easily achieve it. The economically backward people might not be able to notice technological innovations because of their poverty, while nothing prohibits the wealthiest people from using latest technologies. This exacerbates the already existed disparities between group of people in the society.

Moreover, while artificial intelligence annihilates traditional discriminations and sometimes exacerbates the traditional inequalities, it can create new forms of discriminations too. In the novel, there has evolved a new form of relationship

between human beings and computers. This creates new identities like sentient AI and cyborgs. Heinlein sometimes presents his sentient AI character Mike as facing identity crisis. He tries to be a complete human being sometimes, but often ended up with accepting himself as merely a machine. Manny says “Mike ate while we ate, sometimes mumbling around a mouthful of food” (191). But sometimes he reassures that tiredness and weariness won’t affect him, because he is a machine. The inferiority complex of such humanoid robots can be a new form of disparity in post human era. Mannie also faces similar double consciousness as a cyborg that sometimes he introduces himself as a machine because of his prosthetic limbs. This inner complexity about his identity is evident when he says “some wanted to make it selective by ‘ethnic ratios.’ (Wondered how they would count me?)” (202), as a human or as a machine? Another ethical implication of the emergence of AI is the decentralisation of humans and traditional moral values. The creation of humanoid robots with higher intelligence more than human beings and the cyborgs whose brain has been modified with additional chips are all raising existential threat to human entity. This is clear when we think from the context of the novel that what would happen if Mike never lost his consciousness at the end. Because in the beginning of the novel, Mannie narrates that Mike said human beings are stupid with rage and angry in a shrill voice! At a whole, posthumanism and emergence of AI influences social power structures by exacerbating traditional social disparities and also by creating new discriminations based on AI identity and access to technology.

Chapter V

Conclusion

Man has long relied on technology to influence and control world around him. Modern advancements in fields of science and technology have become ubiquitous forces shaping our world. While debates are often centred around their potential negative implications, it has many positive aspects too. Technology has revolutionized healthcare, improving diagnosis, treatment and patient care. Posthumanist perspectives change the course of medical treatments by encouraging us to envision a future where medicine can not only restore but also to enhance human capabilities and leading to longer, healthier lives. Social media, video conferencing and instant messaging have facilitated cultural exchange and a sense of unity beyond geographical barriers. Technology also becomes a help hand in addressing environmental challenges and promoting sustainability. As practical substitutes for fossil fuels, renewable energy sources like wind power and solar have arisen, by reducing emission of greenhouse gases and slowing down climate change. In case of individuals, technology has empowered them by democratizing knowledge and economic opportunities. In conclusion, technological advancements including the advent of posthumanism hold immense possibility for positive impact across various domains of human life. By embracing technological innovation, one can address global challenges and enhance human well-being. Ultimately whole technological innovations are brought up for facilitating better human lives.

Posthumanism is an evolution of thought about intersecting human and technological worlds for surpassing natural limitations of human beings in order to create a better human life in this universe. But ultimately, posthumanism is a response to humanism or anthropocentrism which was long existed concepts about the world.

That is, posthumanism challenges human superiority over the world by giving equal significance for non-human entities and technological creations like humanoid robots and this can be understood better through examples of posthumanism. Cyborgs, an example for posthumanism is the integration of technology into the human body for overcoming limitations of men, which in turn blurs the boundaries between human and machine. To make it precise, Mannie in the novel *The Moon is a Harsh Mistress*, overcomes his loss of limbs by fixing an artificial limb, which contains a dozen arm developed using technology. Cyborgs can be exemplified by prosthetic limbs, cochlear implants and brain computer interfaces. Artificial intelligence and robotics are other examples of posthumanism which has the potential to surpass human intelligence and autonomy which may lead to scenarios depicted in various science fictions. The selected novel also portrays similar scenarios when the AI computer becomes self-conscious including revolution and atrocities. Biohacking is another part of posthumanism in which biology enthusiasts engage in experimenting with genetic engineering and biotechnology to modify biological systems. All these technological advancements create a posthuman world against traditional understanding about what it means to be human physically and biologically and against human centred concepts about the universal structures. Moon in the novel is such an example for posthuman world of fantasy, where human beings live in a traditionally rejected, adverse environment for human sustenance, using technology by surpassing natural human limitations and live sometimes as non-human creations like Mannie and Mike or human beings co-exist together with machines.

While technology is still progressing aiming at the social well-being of human beings and earth, beyond its advantages, ironically it threatens human existence in its conventional forms. There are many negative impacts of various technologies, but

majority of the harms caused by technology lies in its misuse by human beings! This can be best understood with the example of internet, a revolutionary element of technology. That is, internet was originally designed for facilitating communication and information sharing, but it has also become a platform for various cybercrimes which may lead even to murder. That is, AI can do anything without considering its consequences and its outcome depends on who uses it. Hence in fact, the moral and ethical implications of technological advancements do not solely depend upon it, but depends upon people who use it.

Anyway, a posthuman world and sentient AI, which is a sequential of this technological progress is different from this. In case of a posthuman condition, in its name itself, it is against the humanity, to be precise, it is against conventional notions of human beings. That is, in a posthuman world, human lives are giving equal importance as that of nature, animals and machines. This predictably leads to immoral and unethical actions in the ground of moral values giving more significance to human lives. And in case of sentient AI or artificial intelligence which acquired self-consciousness, it can have its own moral values. But, since it has the capacity to take over human beings at all domains, the moral values it possessed is complex. Mike is pictured in the novel as someone who possess hatred towards men and view them as inferior to him. At the same time, he is morally adhered to human values and gives importance to human lives more than him. But still, with his self-consciousness, the possibility for creating his own behavioural codes in society is very high which may lead to a great havoc. This is just like a normal human being who violates moral codes for his own selfishness. But a super, artificial intelligence who violates moral codes can create a comparatively higher devastating situation to human existence than that of a normal human being who violates moral codes. This is the threat posed by

posthuman era and sentient AI. It cannot be controlled by human beings as it creates its autonomy and individuality and beyond a limit, its moral values cannot be fabricated by anyone.

Literature is always a reflection of present, past and future realities. Science fictions often predict the upcoming outcomes of technology and other universal process with the ground support of scientific and philosophic theories. In that case, science fictions are always best option regarding conducting studies about possible moral and ethical implications of posthumanism and sentient AI. *The Moon is a Harsh Mistress* of Robert A. Heinlein is a typical novel to conduct such studies. Moreover, the unique factor about the novel lies in its scope of deviating current world debates focusing more on the ethical concerns regarding AI and other technologies to debates on threats posed by the upcoming posthuman world by presenting a futuristic moon inhabited by humans and to debates on possibility of artificial intelligence acquiring self-consciousness, and the possible outcomes which may occur if it happens.

Before saying about the hints to moral and ethical issues of sentient AI in the novel, the depiction of posthuman world and emergence of sentient AI character is inevitable in this study. Heinlein presents a possible human-inhibiting moon in future as the setting of novel. Moon called as 'luna' in the novel characterises with humans living without oxygen directly from air but by supplying oxygen through air circulation system in warrens they live in, by challenging conventional conceptions about human existence. They have only limited resources for their sustenance since they are living in the moon, which is geographically not favourable for human survival and hence they have to live by depending each other and this makes human beings from various race, colour and religions co-exist without any conflicts. This is a utopian posthuman condition in the novel. Moreover, the whole luna is being controlled by an

AI computer which acquires self-consciousness later in the story and Mannie, the protagonist of the novel normalises it by befriending him and calling as Mike with affection. Other revolutionaries in the agitating team of luna also gives Mike equal consideration and rights as that of human beings. They believe in Mike more than human beings. Another posthuman character in the novel is Mannie, a cyborg. Loonies also treats Mannie as a normal being and accepts his identity as a cyborg by giving him equal, sometimes more privilege as that of men. In all these cases, it can be found that human beings have lost their superiority over other creatures, instead they treat themselves as equal to machines and animals.

By losing the accurate identity of human beings itself, posthumanism raises many ethical concerns. Mike's involvement in the revolt for luna questions the traditional understandings about consciousness. Gender and identity of Mike is flexible that he can act as a guy best friend for Mannie called Mike and as female best friend for Wyoh called Michelle. His identity as Adam Selene was fabricated by revolutionaries for their own victory. This ethically complicates the conventional theories about the factors determining a person's identity and gender. Identity of Mannie is also against existing notions about fixed identity of a person, he is in between a normal human being and a machine. Throughout the novel, he faces dilemma regarding his identity as a cyborg. Mannie and Mike, with the assistance of artificial intelligence and prosthetics can be far danger to the existence of human beings if they lose their morality and ethics and this itself is the danger carrying by a posthuman world in which human beings lose their superiority. The study of morality and ethics of posthumanism helps to take precautions from those threats.

Another ethical concern regarding self-consciousness of AI is, the accountability for its actions. AI can be far more dangerous than one can imagine and

it can simply go against law. At the time, who will be accountable for its actions is an ethical question raises here. What law and order has to be made with respect to individuality of sentient AI. If it is being treated equal as human beings, will be the laws made for human beings applicable for such machines too? In this case new moral obligations will have to be developed to behave with a sentient artificial intelligence and new ethical values have to be taught to such artificial entities. As a machine which controls everything in luna, the data within Mike about every loony is another ethical concern raises here regarding the data privacy. Mike can be manipulated using technology itself and can be misused the data for harmful activities. If Mike is been treated as an individual, who enjoys his own freedom and rights, the mortality of such a creation raises many other ethical implications. In the novel, Heinlein points out this by picturing the death of Mike, but not sure if it can be called as death. Mannie towards the end of the novel asks God if Mike was one of his creations and now, did he take away his soul. With the disappearing of Mike and Mannie's definition for Mike's disappearing as death, the concept of mortality gains new moral and ethical meanings. Other ways the conventional moral meaning of death is under question.

While studying all these ethical issues posed by sentient AI and the thought of posthumanism through the novel, it was found that the most significant ethical concern is its power to subvert the social hierarchies and power structures in society. From the very ancient time itself, the political and financial power was determined by various factors like religion, family lineage, land ownership, possession of army etc., most of which are acquired by birth or through family lineage. But from the modern era onwards, technology held over these factors to determine political and financial power. Now various tech giants like Google, Amazon and Twitter holds the financial power and is capable of controlling all kind of politics in the world and hence can determine

the course of history. This exacerbates the already existing financial gap between poor and rich and at the same time can save poor from poverty to fame and luxury.

Posthumanism and sentient AI can make this situation worse. For example, in the novel, initially Mike was belonged to lunar authority controlled by federated nations on earth and thus they ruled over loonies and enslaved them. But later, revolutionaries in luna including Mannie and Professor befriended Mike when they realised that he acquired self-consciousness. Soon, with the help of Mike and other technological support they gained freedom for luna and became independent from earth's authority. Moreover, the whole novel itself is a symbol for the disruption of traditional power systems which is unaware about the power of sentient AI, by the posthuman power system characterised by the human existence with sole support of technology and viewing machines and cyborgs as equal as human beings and by acknowledging sentient AI's power to establish an autonomy.

To conclude, for studying moral and ethical implications of upcoming posthuman era and sentient AI, science fiction is a better option to conduct researches, since it portrays future technological innovations blending with human lives. Among such science fictions Heinlein's magnum opera *The Moon is a Harsh Mistress* is a typical science fiction to explore posthumanism and its impacts in human lives. This study has delved into various moral and ethical issues posed by sentient AI and posthuman era and has especially focused on its ethical impacts in power structures and social hierarchies. The novel also addresses various other moral and ethical implications of posthumanism and the one that can be researched further is its adverse effects in environment. The luna in the novel and also the terra is shown as being exploited by human beings in the name of technological progress. Hence blending posthumanism with ecocriticism is a scope of study in this novel for further researches.

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