

A Posthumanist Study of Becky Chambers' *A Closed and Common Orbit*

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Abstract

The study examined the relationship between science and humanity. It highlighted the symbiotic bond between machines and humans in Becky Chambers' *A Closed and Common Orbit* (2016). The research argued that human-technology interaction is inevitable since the two reciprocate and aid each other. The purpose of the research was to demonstrate the fusion of human ingenuity and technological advancements and how they ensure the prosperity and survival of humans in the coming decades. The study, therefore, explored the future of humanity in science fiction, evaluating how humans integrate with machines or artificial intelligence. A close reading of *A Closed and Common Orbit* (2016) investigated Posthumanism ideology and its strands—Transhumanism propounded by Pramod K. Nayar and the Critical Posthumanism proposed by David Roden. Posthumanism deals with the idea of the intersection of different species, like humans, non-humans, and technological tools. Transhumanism and Critical Posthumanism look at the amplification and improvement of human capacities with the use of technologies – machines, robots, and computers. Humans do not exist as monolithic, which is why this bond between humans and technology gives us a sense of a symbiotic relationship. As human technology is a two-way methodology, it represents a symbiotic union and proves a futuristic step in the realm of science fiction. Thus, the study concluded that humans use technologies to enhance, support, and disburden their abilities to thrive.

Keywords: Technology, Machines, Computers, Science-fiction, Posthumanism, Transhumanism

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Introduction

Artificial intelligence has brought innovations and relationships between technologies and humans. The use of artificial intelligence, as Oke (2008) puts it, signifies vitality and virtual presence in several fields, such as art, science, and management sciences. Tai (2020) defines artificial intelligence as an intelligent tool that is linked with computers and machines to perform tasks and interpret data accurately and minutely. In this sense, artificial intelligence is attached to a system. It helps mankind to solve problems in no time. Auernhammer (2020) argues that robots and other artificial intelligence are designed based on human capacities and structures. In this way, technology and humans interrelate and amplify the capabilities of each other.

Whether we detest or appreciate the wonders of technology, it has become part and parcel of our lives. Directly or indirectly, technology impacts our lives. Yamin (2019) highlights the emerging use of technologies and their inevitable importance and usage, like the 'Internet of Things (IoT), Sensor Networks (location-based services), Artificial Intelligence, Robotics, Blockchain, Mobile digital platforms' (759). The use of these technologies and innovations is enhancing the abilities of humans. They help them to do all the manual and digital tasks in no time. Similarly, the sci-fi work of Chambers (2016) is also a fine example of a human's strong bond with technology, showing how Lovelace performs all the human tasks while sustaining herself as an AI. Her friend Pepper helps her to make a friendly and comfortable union with humans, even though she is inwardly AI. Thus, this work presents a very novel idea of how people and species from varied communities could interact and develop a very useful society.

Symbiosis is a biological term, but this work uses this biological term in the formation and interaction of humans and technology, and in this way, it describes its co-evolution. Technology, robots, machines, and computers are improving the lifestyle of human beings. The technological tools are the creation of humans, and they play a significant role in the progress of any nation. The positive and quality use of technology makes people and society more rational, logical, and creative. As Colley (1996) says, this symbiotic amalgamation between humans and technology enhances and adds excellence in its delights and marvels. The connection between humans and technology is emphasized as Gamberini and Spagnolli (2017) discuss the ideas of

artefacts and embodied cognition, which means the productive use of technology and the needs of its users, which can be incorporated in the words of Haraway (1985) who calls this union as hybrid, mixed, or cyborg.

According to Roberts (2005), the roots of science fiction are embedded in ancient Greeks and it is not a novel genre in the academic field. Some other writers, including Menadue and Cheer (2017), find its roots in ‘Sumerian creation stories, with the supreme god Marduk ‘cloning’ mankind from the blood and bone of the renegade god Kingu’ (p.1). Further, these writers emphasize the importance of this genre, especially after the publication of Darko Suvin’s *Metamorphosis* (1977) in the academic field. The genre of science fiction covers features like advanced technologies, space journeys, and the exploration of alien planetary systems. Its definition is best described by Menadue et al. (2020), who quoted Weiner et al. (2018) as “a crucial and popular mode, even the mainstream mode, of thinking about life in a modern technoscientific world” (p.2). Through selected strands like Transhumanism and Critical Posthumanism, this study uses Chambers’ *A Closed and Common Orbit* (2016) for a detailed descriptive analysis.

To know about Becky Chambers’ life also benefits to comprehend her selected sci-fi work. She belongs to Northern California and is an incredible writer of science fiction and a celebrated personality of the Wayfarer series. Chambers’ selected novel *A Closed and Common Orbit* (2016) has also written remarkable work like *A Long Way to Small Angry Planet* (2014) in the Wayfarer series, in which she gives magical and profound insight into the world of multispecies like Aeloun community, Harmagians, Andrisks, and modified Humans. She fuses all the species and delivers the message of harmony and peace in this world, and Nayar’s *Critical Posthumanism* proposes the same notion of the intermingling of different forms of life and the creation of a peaceful society.

In short, the research argues that the philosophy of Posthumanism is all-inclusive and exterminates all the limitations and boundaries set by human beings. It encapsulates all other species like aliens, robots, artificial intelligence, and machines to modify and amplify the skills of human beings. By using Chambers’ scientific literature (2016) and narrowing down Posthumanism to its strands, like transhumanism and critical Posthumanism, it is explored that

the role of artificial intelligence will help humans to survive in the future. Further, it highlights the human technological consciousness in the literary field. Hence, all the past mythologies are questioned and nullified through this research by proposing the argument that in the future, humans will not distinguish from technology rather while acting as cyborgs there will be a harmonious interaction.

Research Objective

To evaluate the fusion of human ingenuity and technological advancements in *A Closed and Common Orbit* through the lens of Posthumanism ideology.

Research Question

How does *A Closed and Common Orbit* explore the fusion of human ingenuity and technology within the context of Posthumanism?

Review of Literature

In the past, there has remained a terrible relationship between machines and humans in which one tries to maintain superiority over the other, creating difficulties in achieving set targets (Mokyr, 1990; Hobsbawm, 1962; Alkon, 2002). Similarly, Aravadinos (2016) states that in the Hellenistic period, technology was revolutionized, and the first leading technology was automatic robotic maids. On the contrary, this research explores the symbiotic relationship between humans and technology for their mutual benefit. It argues how they could develop communication and interaction between each other. Hence, this section pursues previous research endeavours to contextualize the present research and to establish the existing gap.

Using an AI (Artificial Intelligence) framework, Herbar (2019) examines Chambers' *A Closed and Common Orbit* (2016) from the viewpoint of gender and identity. He focuses on character conflict and identity politics. He reveals how difficult it is for people to find their identity and a true sense of gender in the real world by utilizing science fiction and technology. Nevertheless, this study analyzes Chambers' *A Closed and Common Orbit* (2016) in detail to make a commentary on the cordial relationship between humans and machines.

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In his analysis, Robert (2016) reveals the main ideas of *A Closed and Common Orbit* (2016). According to him, the novel is split into two parts: the first part covers Pepper and her history as “Jane 23,” while the other part focuses on Lovelace, an AI that was integrated into the “Sidra” human body kit. Though Lovelace is the main character, he claims that the novel jumps around by disclosing his history with Pepper. The significance of the novel and its central themes—like Pepper and Lovelace’s growing friendship and how it contributes to their survival. According to him, Sidra is Chambers’ exquisite creation, whose mind evolves from a logical computer to a sensitive human being.

Similarly, Alexander (2016) examines both the funny and scary aspects of Chambers’ (2016) work. He believes that life is an assemblage of various cultures and ideologies that opens people’s eyes to new perspectives on the world. He finds Chambers’ world’s “Galactic Commons” and “Port Coriol Planet” to be imaginatively set, and he finds it admirable that various species coexist in the same district. He sets Chambers’ fiction apart from other works of science literature in this way. The main argument of the research is to harmonize the connection between humans and machines, as posthumanism refers to the condition that many humans live with chemically, surgically, and technologically modified bodies or in close conjunction with machines. Hence, through Chamber’s world, this research gap is fulfilled in that multiple species can interact and be harmonious in the future.

Through the interwoven stories of two distinct characters, Clark (2017) offers an interpretation of Chambers’ new world. According to him, the character’s evolution and state of familiarity with a new environment constitute the most important aspect of Chambers’ writing. Sidra’s character serves as a metaphor for adjusting to a new setting as she transitions from AI on a ship to a “human-kit” body and ultimately discovers new viewpoints on different animals and civilizations. This helps the characters understand how the universe is progressing. According to Clark (2017), Chambers’ writing a sequel was difficult because the characters are vying for acceptance and a place in the world. They are attempting to coordinate with extraterrestrial species and adjust to a new environment. In addition to “Sidra” and “Jane,” he claims that other characters have also appeared, such as Tak, a tattoo artist who is a member of the Aeloun community and assumes a gender-bending role. Blue, who is acting as an artist, and Owl, who saves Jane 23’s life and serves numerous other roles in the novel, are Pepper’s other

partners. The novel introduces all of these characters, providing them with a fresh perspective. He claims that Sidra, the resurrected Beloved from Chambers' 2014 debut novel, shares similarities with the devastated Beloved. He says both events help understand the historical background of other species, but he particularly enjoys Chambers' sequel because it answers many questions, like what is the purpose of showing four-sexed species through the character of Tak, and how is it useful to transform an AI (artificial intelligence) into a human-body kit?

Jean (2017) finds beauty in the stark differences between Sidra and Pepper's lives as well as the alternative world of the Chambers. The readers become emotionally attached to the characters as a result of their back-and-forth travel, which also enables them to comprehend the nuances of their lives. Pepper's harrowing past and subsequent escape from a difficult life demonstrate the optimism of the Chambers family. The author discusses the hope that is felt and describes how Pepper's character gives Sidra's character this hope.

Additionally, Connolly (2017) explains the character's development and complexity. He elaborates on the characters' conversations and their love of trying out various drinks to comment on the minute details of the Chambers universe. He makes observations about the completely realistic portrayal of characters in the Sci-Fi genre. While some characters do help others and foster harmonious relationships, others also cause conflicts and hostile relationships.

Eve's review (2017) examines the Wayfarer ship and Lovelace and its AI that has been programmed into a human body kit. She questions herself, tries to recall the past, and feels uneasy with her new aura. She is still confused. Despite being an AI on the inside, she acts and breathes like a human, conversing, eating, dancing, and going to parties. Pepper, a technician, assists the human kit throughout the process to ensure appropriate behaviour and social integration. As a result, she draws attention to how the two characters' friendship advances the plot of the novel and how character development occurs.

Another reviewer, Maurer (2017), delves into the central idea of Chambers' world, in which Pepper, the main character, attempts to flee an oppressive and enslaved society. The act of Pepper imparts to the readers a sense of knowledge and awareness, encouraging them to resist harsh circumstances and instead work to undermine them. Lovelace, the other character, finds it

difficult to do the opposite actions and to get used to a human body that is small and constricted. As a result, Chambers uses Pepper and Lovelace's struggle to convey optimism and hope to the readers.

Simone (2021) finds Chambers' technique to be quite effective in presenting the alternate histories of two characters. The reader learns more about the characters' past and present through their back-and-forth dialogue. The back-and-forth movement of the characters gives revelation to the reader about their past and present. The characters exhibit resistance to changing their personas from the inside out. Chambers' character Lovelace acts as an AI but is transformed into Sidra a human-body kit, and Pepper helps her to communicate and survive in the world of humans. Pepper is also a character, who was Jane 23 in her past. Characters find it challenging to communicate and blend in with various cultural backgrounds. These are the wonders of Science and technology; there are inter-galaxies, planetary systems, machines, robots, and aliens, and how humans are intermixing with them and making possible more advancements. The novel uses science fiction to explore global cruelty and highlight humanity's shortcomings in the real world. Carlisle (2021) looks into the possibility of finding a planet, Pepper and Lovelace's existence and survival, and how they overcome all the challenges they face. She essentially evaluates the characters in the novel. She values Chambers' upbeat attitude and hopes that the character will survive in an alien world thanks to Pepper and Lovelace's friendship.

Another author, Romero (2022), examined Chambers' (2016) novel from the standpoint of human cloning and the creation of sentient artificial intelligence. The author presumably draws attention to the importance of ethical implications and how ethical views affect people. The presumption calls for the reviews of the novel from the perspectives of identity, gender, survival, and the cloning of human bodies. Several other species including humans, aliens, and AI like Lovelace and Owl are present in Chamber's universe. This study sheds fresh light on the ways humans marry non-humans. It further explores ways in which Pepper, a human figure, and an artificial intelligence figure like Sidra communicate with one another.

Theoretical Framework

In Chambers' *A Closed and Common Orbit* (2016), the human-technology symbiosis is examined through the theoretical lenses of two posthumanist strands: transhumanism and critical posthumanism. In addition to providing a fresh epistemology, posthumanism emphasizes the importance of preserving human-technology relationships. According to Bolter (2016), the term challenges the conventional notion of human superiority by "designating a new way of understanding the human subject and its relationship to the natural world (Bolter, 2016, p. 19)". Posthumanism is an apt theoretical frame since as a philosophy, it challenges conventional beliefs about human nature and its superiority. When discussing posthumanism and its substrates, such as Critical Posthumanism and Transhumanism, Pena (2017) discusses the idea of transhumanism and mentions Neil Harbisson, the first cyborg acknowledged by the government. She cites Kevin Warwick as a notable example in science and technology, citing his work on cybernetic implants and Telepathic Communication Theory. She goes on to discuss Sterlac's artistic creations, which are renowned for showcasing the potential and improvement of the human body. To achieve this, she quotes Sterlac, stating how he applied transhumanist philosophy and had a human ear implanted on his arm (Pena, 2017, para. 6). Pena also notes that the development of the knowledge of multiple types like NBIC (nanotechnology, biotechnology, information technology, and cognitive science) which has facilitated the advancement of the transhumanist agenda. These epistemologies help humans become more competent.

The Transhumanist strand envisions a technologically assisted future for humans that includes biotechnology, information technology, and artificial intelligence; Roden (2015) refers to this as the "suite of technologies," which includes Nano, Bio, Info, and Cogno (p. 14). Roden (2015) claims that by conjoining with technology, people can enhance their capabilities. Additionally, Pramod K Nayar elaborates on the phenomenon with two main concepts, i.e. the humanization of machines and the machination of humans. In this sense, the main theorists like Roden (2015) and Nayar (2014) discuss their perspectives on the Transhumanist strand.

Nayar's Critical Posthumanism (2014), which addresses the unconditional bond between humans and non-humans, is the second important thread. In line with this thread, Nayar (2014) affirms the diversity of species, stating that "humans as congeries" (p. 20). As it brings all life forms in this universe together and promotes co-evolution and harmony, this strand also helps to establish the symbiotic union between humans and technology. The scientific work of Chambers

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(2016) embodies both of these strands. Lovell (2018) interprets the philosophy of various isms, including “metahumanism, transhumanism, new materialism, and critical posthumanism,” within the context of critical posthumanism (p. 58). Critical posthumanism, according to her, is a “decentering of liberal humanism” (p. 59). According to Nayar, each of these approaches falls under the umbrella of “Critical Humanism” (p. 58) and offers her viewpoint that these are distinct aspects of posthumanism to comprehend life in the future on various planets. She uses examples from Callus (2014) and Herbrechter (2017) to demonstrate how technology permeates human experience. Investigating human subjectivity, she says; critical posthumanism does not ignore technology. Citing Haraway (1991), Bolter (2016) emphasizes that there are many gaps in the boundaries between humans and machines. He is implying that people are inherently conflicted and that they use discretion.

Critical posthumanism helps define the new meaning of humanism by describing its forms of embodiment and wholehearted relationship with other species (nature and technology) (Wolfe, 2010). Using the theoretical domain of posthumanism and its strands, including Pramod K. Nayar’s transhumanism and critical posthumanism, and Roden’s critical posthumanism, this research highlights the significance of human alliances with Non-Human forms of life to protect humanity’s future.

Research Methodology

The study is grounded in a constructivist paradigm, which views reality as socially constructed and emphasizes understanding individuals’ subjective experiences within their cultural context. This approach allows for a detailed exploration of the protagonist’s experiences, particularly about the fusion of human ingenuity and technological advancements, as depicted in Becky Chambers’ *A Closed and Common Orbit* (2016). By employing qualitative methodology, the research seeks to investigate how human-technology interaction functions as an inevitable, reciprocal relationship that aids both parties.

The study utilizes qualitative content analysis to examine the protagonist’s experiences with themes such as love, romantic relationships, and the broader human-technology bond. Through a close reading of the novel, the research explores the intersection of humanity, technology, and

artificial intelligence within the framework of Posthumanism. This includes examining key strands of Posthumanist thought: Transhumanism, as proposed by Pramod K. Nayar, and Critical Posthumanism, as articulated by David Roden. Both ideologies focus on the amplification and enhancement of human capabilities through the use of technologies—machines, robots, and computers—highlighting the fluid boundaries between human and non-human entities.

The study argues that the relationship between humans and technology is symbiotic, with each enhancing the capabilities of the other. By integrating human and technological capacities, the research demonstrates how this fusion not only drives the prosperity and survival of humanity in the future but also challenges traditional conceptions of human identity. In *A Closed and Common Orbit*, this symbiotic union between humans and technology represents a futuristic vision in the realm of science fiction. Ultimately, the study concludes that to thrive, humans must continue to rely on technology to enhance, support, and alleviate their abilities, ensuring a collaborative future where human-technology integration is central to progress.

Analysis and Discussion

Chambers presents a mixed world of AI and humans as a metaphoric representation of the togetherness of all the species in the future. Nayar's (2014) concept of symbiosis is analyzed through the persona of Pepper, Sidra, and Owl. In this symbiotic interplay, many other theoretical concepts of Nayar are entangled, including transhumanism and critical posthumanism. Transhumanism and Critical Posthumanism are strands of Posthumanism, and they cover all the technological developments occurring in society and how humans are incorporating them. Under the lens of Posthumanism and its strands, one becomes knowledgeable about how artificial intelligence and humans intermingle and produce hybrid human beings. Nath and Manna (2021) talk about the thriving union of human beings and posthumans and their dynamic role in manufacturing artificial tools. These artificial tools assist human beings by working as peers in this digital world. At one level, Chambers' *A Closed and Common Orbit* (2016) presents the phenomenon of the symbiotic interface through the characters of Jane 23 and Owl. The enhancement in Jane's abilities stems from the AI Owl, imbuing this research with a transhuman perspective. In contrast, multiple species like Aandrisk, Harmagians, Quelins, and Aeluons help Sidra in upholding the laws and regulations of society.

The assemblage of the species in Chambers' fiction gives the lens of critical posthumanism, another theoretical angle used in this research, where both angles encourage the notion of symbiosis.

Transhumanism and the Future Implications in *A Closed and Common Orbit* (2016)

This research discusses artificial intelligence, especially human-type artificial intelligence, as Osawa et al. (2022) analyze the fact that human-type AI is a significant feature of science fiction. Human-type AI, as Chambers describes Lovelace, is that kind of intelligence that has high consciousness and high adapting skills and becomes a productive member of society by interacting and acting as humans with other humans on the planet. To analyze Chambers' work further through the lens of transhumanism, it is stated that in the study of transhumanism, it is a general perception that humans use advanced technology to achieve superiority and immortality. Chambers' (2016) world is a transhuman world and it is analyzed through different personas in the novel. For example, in the introduction of the novel, Lovelace, who is artificial intelligence, is modelled into a human being, but internally, she is performing all the tasks of AIs as "the body kit had not altered her cognitive abilities" (p.5). The amalgamation of humans and artificial intelligence maintains a symbiotic relationship, as the intelligence of any type helps humans enhance cognitive abilities. Further, Pepper gives her human features like "kit includes synaptic feedback responses. It automatically mimics the things human bodies do" (p.11), which makes her survival possible on the planet. The friendship between Pepper and Sidra echoes the pleasant relationship between humans and technology.

As the philosophy of Transhumanism augments human capacities and makes human life a derivative of science and technology, Extropianism also deals with self-transformation and unlimited expansion. The purpose of attachment between humans and non-humans is to bring innovation to society. Since cyborg theories and techno-science are entangled with technology and are a great tool to analyze the human self, Chambers' characters act like cyborgs and perform the functions of two species simultaneously, as Chambers portrayed through the aura of Lovelace (externally, she is human but inwardly she is an AI), and being human she is given the name of Sidra. Her characters are also analyzed through the lens of Prosthetic Technology, implicating that technology helps humans in health departments, as a transhumanist philosopher,

F.M. Esfandiary states that “transhumanism included prostheses and plastic surgery” (Esfandiary, 2003, p. 7).

Artificial Intelligence in Human-Body Kit: Machination of Human

In science fiction literature and movies, the key feature is the transformation of the body. For example, in Mary Shelley’s *Frankenstein* (1818), Victor Frankenstein creates a new monstrous body by combining many corpses. Show where in the text and blend what you show with the theme of this paper. In Stevenson’s *The Strange Case of Dr. Jekyll and Mr. Hyde* (1886). Again, show where this is in the text and explain how it portrays how a man is transformed digitally into good and evil (Khan, 2023). Khan further elaborates on the social standards of 19th-century people who did not allow the intermixing of diverse species but rather used them for their benefit. In 1896, Wells created a notable Sci-Fi work, *The Island of Dr. Moreau*, in which a person forms a hybrid, animal-like human. In similar patterns, Chambers uses this element of body transformation in *A Closed and Common Orbit* (2016) and transforms artificial intelligence into a human-body kit. The exploration of this aspect in Chambers (2016) contributes to the development of the human-technology relationship. She provides a new angle to Science Fiction literature as she merges technology and humans in the process of body alteration. The advent of the era of digitalization and technology has changed the human’s mode of perception, and they are benefitting themselves by using technology in health units like genetic modification, human cloning, artificial intelligence, cyborg bodies, etc. Chambers’ characters deal with all these aspects, but mainly, they deal with artificial intelligence. Thus, each of the characters shows the purpose of intermixing with non-human species to undermine the concept of superiority of the human race.

Humans are using technology to augment their cognitive abilities and to transform themselves into posthumans or transhumans. In the future, humans will accomplish the task of accessing technology like artificial intelligence and their functioning of walking, talking, and imitating human models. That is why humans are experimenting with body transformation by intertwining with technology, and these changes are helpful for them to learn, grow, and live better. Technological enhancement does not promote superhumanity or a human achievement to defeat death but rather a method of co-evolving humans and technology to flourish in society. In

the study of the advancement of technology like artificial intelligence, it is analyzed that artificial intelligence is not replacing the value of humans but rather corresponding to augmenting human abilities. The primary function of an AI in the novel is to enhance the mind's capabilities and give suggestions to human beings. The human flesh is mechanized in the process of body transformation, and technology, such as AI Sidra, acts as a living machine. For example, when AI Sidra in the human disguise attends parties and takes food items, she enjoys the images of drinks and food items. In this way, body transformation is merged into the machination of humans.

The character of Sidra also raises awareness of how to deal with artificial intelligence. For example, during the conversation between Pepper and Sidra, Pepper gets more information about how artificial intelligence functions and how it distinguishes itself from humans.

The textual reference, "You know I can't lie, right? Pepper stared at her. Sorry, what? I am a monitoring system for big, complicated long-haul vessels. My purpose is to keep people safe. I can't ignore direct requests for action, and I can't give false answers." (2016, p.14) implies that Sidra, in the human-body kit, does not know how to perform human actions like breathing, speaking in an organic voice, cooking, attending parties, dancing, and taking drinks. She tells Pepper to know her abilities and linking pathways that only function in a ship. Further, she talks about her extraordinary cognitive skills, which she uses to help humans make decisions and give suggestions to them. On the other hand, Pepper transforms AI Lovelace into a human body kit and teaches her how to behave like a human, which is what Nayar calls Machination of Humans, which is a form of transhumanism.

At the beginning of the novel, Lovelace is an AI (artificial intelligence) whose ship is destroyed in an accident and now transferred into a body as Chambers writes, "Lovelace had been in a body for twenty-eight minutes" (2016, p.10) that was possible with the help of Pepper. Pepper's formation of a human-body kit shows her intelligence and expertise in engineering and reflects the teachings of her old companion, AI Owl. For example, she gives instructions to the human kit: "Your body has been given a three-day booster charge" (p.19). Further, she says, "You can safely ingest food and drink" (p.19). She discusses all the minute details from the body, food, hygiene, and sexual relationships to interact with other species. She sets a

tremendous emotional and psychological understanding with Sidra and instructs her to inform her if the body stops functioning. This symbiotic portrayal of both the characters as they try to help each other is a positive signal of human-technology integration. Pepper's creation of an intelligent human-body kit is no mere construction of a tool but rather a harmonious amalgamation. In this way, Chambers gives a message of unification and a sense of equality to other species through Pepper's character.

Pepper's purpose of her insertion of Lovelace, an artificial intelligence, into a human body, is to recover her lost friend, Owl (an AI). AIs cannot develop human consciousness, so Pepper puts an AI into human disguise to perform the actions of both species. Pepper gives human characteristics to technology as she stabilizes the emotional strength of AI Sidra and teaches how to give human expressions while making a human-technology assimilation. In some cases, if AI Sidra does not respond humanly, Pepper will reach there to save her. For instance, when Sidra says, "I started in the GC. I'm not a citizen, though." (Chambers,2016, p.44). In response, Pepper explains Sidra's point of view, "If you were born here but aren't a citizen, that means your parents didn't register you" (Chambers,2016, p.44). This is how Pepper performs the machination of humans as she integrates herself with machines. In this way, the main argument of the research is fulfilled, which is that the intermingling of multiple species with human beings can lead to a productive and harmonious society.

Furthermore, the conversion of AI into a human being does not manifest the human's misuse of technology but rather as a way to get awareness about them. In the process of transformation, she is not only taking external aids from her but becoming an essential part of her body. She gives her a new identity on the new planet by introducing her as a friend. A man comes forward to meet Sidra, and Pepper introduces him to Blue. Meanwhile, Sidra analyzes his appearance: "he was tall and slimly built, but not thin, like Pepper, and not hairless, either" (Chambers,2016, p.22). She also describes Sidra's interaction with thick crowds of people: "Pepper held the kit's hand, leading the way with the certainty of someone who had done this dozens of times" (Chambers,2016, p.22). Here, Pepper does not want to disclose Sidra's true identity to other species on the planet but rather wants to have a casual conversation with a new human friend. Pepper metaphorically presents the influence of technology on humans in the

future, and this process of the machination of humans also explores the technology's interaction with humans and, thus, acts as a way forward to progress human civilizations.

Fusion of Multiple Species: A Critical Posthumanist Perspective

Chambers (2016) also manifests the concept of Super-Wellbeing through the portrayal of multispecies at Port Coriol. Different species like Aeluons, Aandrisk, and Harmagians make a strong bond with humans like Pepper and Blue. To illustrate this, the novel presents Sidra, who gets imbalanced during a dance performance and is then rescued by Tak, her friend, and an Aeluon species. The idea of super-wellbeing implemented because people from other species were also dancing at a party, and they all asked Tak repeatedly, "Is she okay? It was the third Aandrisk, pushing his way alongside them. She's fine, Tak said." (Chambers, 2016, p. 199). It shows that non-humans, especially intelligent machines and other kinds of species, do not consider themselves superior on their planet and, similarly, do not intend to crush humans who come and start living there. All live together and make a harmonious connection with each other to show a symbiotic union.

Analyzing Chambers' intermixing of species through the critical posthumanism angle also establishes the main argument of the research. She presents the futuristic phenomena of the amalgamation of multiple species and the harmony between humans and technological tools, as Nayar (2014) also states that the advancement of technology inspires humans, and they use it for their benefit. Chambers' dealing with the life of other species and her unfolding of several characters gives insight into their lifestyle, culture, language, and gender differences. That is why Pepper's manufactured kit is inherently coming from the world of technology, but in the human world, she takes time to understand the sapients' behaviour. Each of the species gives detailed information about its origin and cultural patterns.

The information about other species encourages us to understand expressions of science fiction. Further, Nayar argues that the consciousness of humans is enhanced when the lives of different species co-evolve. According to him, the co-dependency and co-evolution of multiple species are called assemblage. This assemblage or intermixing of species is the foremost component of critical posthumanism. In Chambers' novel, there is the living representation of

many species and their intermixing as the co-evolution of modified humans, humans, AI, and imaginary humans. To discuss all four types and their co-evolution, it is stated that modified humans are girls who are manufactured with one less chromosome, like Jane 23. The description of the pure humans is very little, and Chambers presents one human personality, Laurian, who becomes Jane's apprentice in Port Coriol's world. On this new planet, Jane and Laurian are transformed into the characters of Pepper and Blue. AIs play a significant role in Chambers' world due to their interrelation with humans and to facilitate each other, as Pepper does to Sidra and Owl does to Jane 23. Port Coriol is the name of the planet where all these species (both humans and non-humans) interact to create a friendly environment. Similarly, Lovelace's transformation into a human-body kit and her interaction with alien species lead her to learn about their language and culture, which shows the symbiotic unification between technology, humans, and alien species at Port Coriol.

Furthermore, the formation of AI Sidra into a human-body kit is another ladder to understand the phenomenon of multiple species. Pepper and Blue represent the human species, and the way they guide manufactured kits shows the friendship between humans and non-humans. This is their act of kindness towards AI Sidra, stepping into the world of multiple species, understanding their languages, and intermixing with them. Further, the manufacturing of the human-body kit of AI Sidra symbolizes that she is blended with different colours and textures: "brown skin, black hair, brown eyes" (Chambers, 2016, p.23), which create a harmonious relationship with other species. Hence, Chambers portrays the fusion of species during the journey of AI Sidra to the Port Coriol planet.

In science fiction, there is the creation of unknown species, which enhances our awareness of their life and alien species on other planets. As the human species has rich and diverse cultures, Chambers (2016) depicts multiplicity in alien species also. Galactic Commons (GC) is the primary setting of Chambers, where she gives lives to other fundamental species, including Aandrisk, Aeluons, and Harmagians. To discuss the main features of Aandrisk and to understand the origin of their culture, Chambers gives notable characteristics, such as their native land, Hashkath, and how they communicate with each other in the "Reskitkish" (Chambers, 2016, p.25) language. When AI Sidra visits the "Undersea Transit Line" (Chambers, 2016, p.24) with her human friends Pepper and Blue, she observes different species and their style of the

journey: “Each car was labelled with multilingual signs. Aeluon. Aandrisk. Laru. Harmagian. Quelin” (Chambers, 2016, p.25). Here, labelling means categorization, and it proves convenient to know about other forms of life (Bostrom, 2014). That is why the knowledge about each of the species indicates the existence of individual species (Parrinder, 2003).

Furthermore, Aandrisk lives in the Kukkesh district, and like humans, they defend themselves by making boundaries and districts. Chambers interlinks different species and says that, like humans, Aandrisk also live within houses made up of doors and windows. The friendly environment between different species leads to the end of cultural differences, and this accomplishes the aim of this study. There is the imaginary depiction of “The Big Bug Crew” (Chambers, 2016, p.34) which is a group of children that provides information about cultures and languages of different species. This element of sharing resembles the contemporary concept of globalization in which there is a sharing of culture, ideas, and tradition with a motive to create a homogenized society.

Another species on Galactic Commons (GC) is the Aeluon species, which is known for its massive use of weapons and technology. Their way of understanding communication is through signals, as they lack a sense of hearing. The origin of this species is Sohep Frie, and there is gender fluidity among them. For example, AI Sidra makes a union with the Aeluon species Tak, a tattoo artist from Port Coriol, who enables him to change gender from male to female. In Chambers’ world, a species that alters genders is called shon (Chambers, 2016). Aeluons are identified through a colour coding scheme, and colours like red, blue, and orange reflect their emotions of danger, friendliness, and frustration. Sidra’s friend Tak helps her to develop communication skills with an ambition to survive and discover the universe. Like technology educates modified humans through the persona of AI Owl to Jane 23, alien species also teach AI Sidra without any fear. Hence, species make assemblages, and this cooperation creates a symbiosis between humans and technology (More, 2013).

Furthermore, Aeluons also contribute to enhancing the diversity of the species as they promote peacemaking despite possessing high technology. In this intermixing of cultures, one species learns from the other species and contributes to the phenomenon of symbiosis. During the conversation between AI Sidra and Aeluon Tak, Sidra discusses the phenomenon of war and

asks, “You said your fathers are anti-war. Are you?” (Chambers, 2016, p.190). This discussion gives the idea that the ancestors of Aeluons were against the war, and their children also emphasize the pity of war. Therefore, they demystify jingoism as they are aware of the horror and brutalities of war and its aftermath in the form of destruction and trauma. Hence, Aeluons do not harm other species, and it has been proven that they prefer symbiotic relationships.

Chambers describes the appearance of each of the species minutely based on the knowledge of each species in the universe. The third significant species that supports Nayar’s (2014) Critical Posthumanism is Harmagian, whose native language is Hanto. The nature of their body is soft, and their gender, either male or female, is identified with back spots. They do not get intimidated easily by other species due to their physical limitation and use carts to match their resonance with the speed of other species. Suppose Aandrisk is open to physical contact, unlike humans. In that case, Aeluon’s gender is differentiated through colour coding, and Harmagians are slow. Their depiction does not create conflict in society, instead, it has ways of knowing others and assimilating with them. While the biology, sexuality, languages, and customs of other species are different, they are portrayed as increasing humans’ insight into other creatures of the world. This idea of presenting the lifestyle of various species and their interrelatedness with humans is a futuristic step to unsettling all the barriers. Thus, the fusion of species in this work of Chambers’ *A Closed and Common Orbit* (2016) [which?] is a science fiction which manifests that the universe also proposes the idea of symbiosis and co-evolution.

Conclusions

The devastating attacks of Hiroshima and Nagasaki (1945) created an unhealthy association between technology and humans. However, from the future perspective, it is evident that progress is impossible without the harmonious connection between humans and machines. That is why this article has shown clear cases of interplay between technology and human beings. There is an inseparable symbiotic bond between species. The relationship accounts for the sci-fi novel *A Closed and Common Orbit* (2016). Additionally, the framework of Posthumanism and the strands of Transhumanism are critical to the understanding of the relationship between humans and Artificial intelligence, and Chambers’ portrayal of AI characters sufficiently demonstrates enhanced human knowledge and the abilities of readers, thus highlighting the

significance and functions under the genre of science fiction. These combinations of technological advancements in the forms of machines intersect with humans to etch out indispensable and intersecting harmonious relationships for humans now and in the future. In the future, researchers can explore the development of this genre of science fiction from an Eastern perspective, and how the production of sci-fi freelancers influences the economies of developing countries. Further, this study recommends that the role of digitalization and technology is not confined to America but rather prevalent all over the world, especially in a struggling country like Pakistan.

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