

ABSTRACT

Title: **“Posthumanism and Science Fiction: The Case of Alex Garland’s *Ex Machina* and *Annihilation*”**

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My honors thesis explores two films written and directed by Alex Garland, *Ex Machina* (2014) and *Annihilation* (2018), through the lens of posthumanist theory. Posthumanism is a broad umbrella term, which can be separated into various categories. Differentiating these schools of thought allows for a clear distinction of the various theoretical viewpoints, which can then be used to analyze major themes in Alex Garland’s films. Although each of Garland’s films evokes a separate set of subject matter, they share commentary on scientific research as well as a plausible vision of humanity’s future. By portraying specific themes associated with the Sci-Fi genre, Garland provides a vision of where humanity stands in the midst of a fast-growing world. His earlier film, *Ex Machina*, includes technological themes such as cybernetics, artificial intelligence, advanced technology, and the role of social media in our technocentric era. Garland’s most recent work, *Annihilation*, centers on human biology such as genetic mutation, cloning, and cellular division. By providing social and scientific commentary on humanity’s future, Garland’s films evoke a sense of hyperrealism and create an unsettled and disturbed emotion within audiences. Garland’s hypothetical, yet conceivable, narrative themes enable audiences to learn how humans coexist alongside technology, and what may result from this existence. Furthermore, Garland’s films not only acknowledge the future, but also the past history of science, ecology, and the human species, further exposing how we are bound to an inevitable end, which is accelerated by our own self-destruction. By applying a posthumanistic lens to these two films, my thesis provides a suitable analysis as to how science fiction offers audiences access into the theoretical, scientific, and philosophical mentality of posthumanism.

The genre of science fiction presents audiences with a speculative view of the future, often portraying fictional depictions of technological advancements and major social or environmental changes. Many of us view science fiction as a fabrication; however, the genre can indeed help us understand what the future may look like. For example, many works of science fiction have allowed us to see futuristic visions of robots, artificial intelligence, ‘smart’ handheld devices, or self-driving cars—all before they were conventional realities. Specifically, cinematic science fiction shows audiences how human advancements are implemented into our world, and it brings these scenarios to life through motion pictures. The contemporary sci-fi films written and directed by Alex Garland, *Ex Machina* (2014) and *Annihilation* (2018), actively explore the relationship between science fiction and social reality, exposing the truths of an entity *beyond* the human species. Particularly, within the theme of human-machine fusion, many sci-fi films remain focused on the human and imagine an amplified version of the postmodern human subject. However, *Ex Machina* and *Annihilation* represents the true nature of the human being, presenting us with a vision that the human is not central, but only one species among countless others. Furthermore, Garland’s films expose a humanist critique of mankind’s manipulation of technology and biology, and through a posthumanistic lens, we can evaluate the future state of humanity and its trajectory moving forward, which could perhaps be the end of the “human” as we know it.

From Transhumanism to Posthumanism: Theoretical Positions Across the Field

Posthumanism can be categorized into different schools of thought, all of which challenge the Cartesian notion of human subjectivity anchored in a rational, conscious being in full control of its actions. These different schools include a cybernetic oriented critique of human subjectivity, an ecological critique, a materialist-feminist critique, and a biological oriented

critique. An important way to make sense of these distinctive orientations of posthumanism is to focus on the different inflections of the term itself.

To examine these various divisions of posthumanism, a suitable place to start is by distinguishing posthumanism from transhumanism. As Nick Bostrom points out in his essay, “A History of Transhumanist Thought”, transhumanism “can be viewed as an extension of humanism that develops out of humanism and seeks to continue and improve upon humanism”¹. Transhumanism contrasts starkly with posthumanism, which explicitly rejects the humanist tradition as the ideology of a privileged class of people (white, male, bearded, property-owning “subjects”) that has been used again and again to subjugate and enslave other peoples, races, and living beings for profit or self-gain. However different the various strands of posthumanism may be in comparison to one another, they all reject the traditional humanist paradigm and by extension, the transhumanist notion of improving humanism, or the human, via the informed use of advanced technology (prosthesis), medicine (pharmaceuticals), bioengineering, and social media. Technological enhancement is clearly transhumanist, although transhumanism is not necessarily only life enhancing, but also life-sustaining. In other words, transhumanism can be considered a life-saving necessity inside the body, (pacemakers, defibrillators, insulin pumps, etc.), but can also be related to self-enhancements or “improvements” outside the body, such as prosthesis (glasses, hearing aids, artificial limbs, etc.). In summary, theorists who support transhumanism argue that enhancements are positive reformations of the human subject, whereas posthumanist critics reject this claim.

From a transhumanist perspective, humanism remains an important force for doing good in the world. Without humanism, we would have no human rights, no freedom, no self-

¹ Bostrom, Nick. "A History of Transhumanist Thought." (2005): 5.

determination, etc. Hence it is important to balance the denunciation of humanism by posthumanism with reference to both viewpoints. Francis Fukuyama, for example, refutes posthumanism because it threatens humanism and would ultimately destroy the basis of equal rights. His argument depends on three assumptions: (1) there is a unique “human essence”; (2) only those individuals who have this mysterious essence can have intrinsic value and deserve equal rights; and (3) the enhancements that transhumanists advocate would eliminate this essence.²

Critical history of the “posthuman” emerged when early philosophers began to consider human agency based on reason, language, and free will that allowed us to distinguish the human from other non-human animals. While these philosophers challenged the boundaries of the human, it was not until the late twentieth century that researchers with backgrounds of postmodernist theory, literary studies, critical theory and science and technology studies influenced the emergence of posthumanism and challenged the traditional account of the human subject. In 1977, postmodern theorist Ihab Hassan coined the term in his journal article titled, “Prometheus as a Performer: Toward a Posthumanist Culture?” with the statement, “Humanism may be coming to an end as humanism transforms itself into something one must helplessly call posthumanism”³. Hassan’s overarching argument is that posthumanism is viewed as the representation of the convergence of two opposing forces of reality, humanistic thought and science. Hassan argues humanism is coming to an inevitable end, and we must accept the transformation for what it is, the beginning of man’s end and the transformation of the

² Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnology Revolution* New York: Picador – Farrar, Straus and Giroux, 2007.

³ Ihab Hassan, “Prometheus as Performer: Toward a Posthuman Culture?” Performance in Postmodern Culture. *The Georgia Review* (1977): 834.

posthuman subject. Other theorists would agree with this claim, that man has already been altered by technology. Also, many theorists argue that humans have *always* been fused with a certain set of technologies. However, it is important to note that numerous posthumanism theorists insist that they are not against the human, but against “humanism”.

Humanism can be defined as the ideological anthropocentrism that has caused so much suffering in the world, via colonization, enslavement, global warming, etc. Theorists like Cary Wolfe seek to undermine anthropocentrism and humanism. From the book titled, *What is Posthumanism?*⁴ Wolfe states, “posthumanism in my sense isn’t posthuman at all—in the sense of being “after” our embodiment has been transcended—but is only *posthumanist*, in the sense that it opposes the fantasies of disembodiment and autonomy, inherited from humanism itself”⁵. This viewpoint stands in the middle of an ongoing discussion where participants seek to undermine humanism. Wolfe’s conceptualization of posthumanism aims to fully comprehend what amounts to a new reality and redefines humanity’s place in the world, he writes:

the human occupies a new place in the universe, a universe now populated by what I am prepared to call nonhuman subjects. And this is why, to me, posthumanism means not the triumphal surpassing or unmasking of something but an increase in the vigilance, responsibility, and humility that accompany living in a world so newly, and differently, inhabited. (Wolfe, 47)

Like Wolfe, other theorists note that humanism serves to justify the conceptions of man often based upon religion, science, or politics.

In between the two poles of the spectrum, transhumanism and posthumanism, we find mixed forms. A good example is feminist materialism, which certainly questions the traditional

⁴ Cary Wolfe, *What is Posthumanism?* (Minneapolis: University of Minnesota Press, 2009).

⁵ Wolfe, *What is Posthumanism?* 15.

humanist ideology (because it excludes women and disempowers minorities), yet, at the same time, does not want to relinquish some of the privileges that come with humanism (right to vote, right to use resources more than others beings on the planet, empathy, care for nature, care for family). Donna Haraway's *A Cyborg Manifesto*⁶ critiques traditional notions of feminism that focus on identity politics, socialist feminism, and radical feminism. Haraway examines the cyborg as a rebellious entity that undermines the categories of organic-machine, animal-human, male-female and physical-non-physical. She situates herself within the context of socialist feminism both at a political level and at an epistemological level. Haraway notes that political and social constructs are made ambiguous through advancing technologies; however, she also notes that the potential for new liberated politics is enabled by technology. In other words, Haraway argues cyborgs have the means to live in a world without class-based systems of oppression:

The cyborg is a creature in a post-gender world; it has no truck with bisexuality, pre-oedipal symbiosis, unalienated labor, or other seductions to organic wholeness through a final appropriation of all the powers of the parts into a higher unity. In a sense, the cyborg has no origin story in the Western sense - a 'final' irony since the cyborg is also the awful apocalyptic telos of the 'West's' escalating dominations of abstract individuation, an ultimate self untied at last from all dependency, a man in space. (Haraway, 151)

Haraway argues that without the humanist basis of traditional Western politics, cyborgs would have no means to form a society based on our history of male-dominate capitalism or racism.

According to Haraway, the story of the “Western,” humanist sense depends on “the myth of

⁶ Donna Haraway, ‘A Cyborg Manifesto: Science Technology, and Socialist-Feminism in the Late Twentieth Century’, *Simians, Cyborgs and Women: The Reinvention of Nature* (New York: Routledge, 1991), pp. 149-181.

original unity, fullness, bliss and terror, represented by the phallic mother from whom all humans must separate, and the task of individual development”⁷. The cyborg skips original unity with humanity and therefore does not identify with individuality or gender formation. Haraway claims that humans are products of an advancing techno-culture, which makes us, in some ways, cyborgs ourselves through the use of biotechnologies such as prosthetics, genetic engineering, in vitro fertilization, pharmaceuticals, and cosmetic surgeries, for example. Haraway, I would argue, falls into the transhumanist category. Aside from Haraway’s discussion of martial-feminist theory, other theorists such as Norbert Wiener, Niklas Luhmann, and Andy Clark engage in separate discussions of cybernetics and autopoiesis.

Cybernetics is an important mid-20th century theory that is situated in-between and has influenced both transhumanism and posthumanism. An earlier theorist and author of *Cybernetics or Control and Communication in the Animal and the Machine*⁸, Norbert Wiener focuses on the aspects of homeostatic processes and our information society. His theory centers on the similarities (rather than the differences) between living forms and lifeless machines—a comparison that seems to indicate a posthumanist perspective. For example, humans are able to regulate body temperature through homeostasis, and their bodies compensate, within limits, for disturbances that come from the environment (like hot or cold temperatures). Similarly, thermometers are able to control the temperature in your home by restoring the system back to its desired setting. In both cases, both the human body and machine react to changes in the environment by using a controlled feedback system, which works automatically to maintain a balanced internal environment and compensate for errors in the state of the system. In particular,

⁷ Haraway, *A Cyborg Manifesto*, 152.

⁸ Norbert Wiener, ‘Cybernetics: or Control and Communication in the Animal and the Machine’, (Cambridge: MIT Press, 1948).

Wiener collapsed the semantic and pragmatic notion of how information is processed in both machines and humans:

A mechanism involves a certain set of messages, which go out generally into the nervous system, to all elements which are in a state to receive them. In the nervous computing machine, it is highly probable that information is stored largely as changes in the permeability of the synapses, and it is perfectly possible to construct artificial machines where information is stored that way. (Wiener, 129)

Wiener notes that animal and human brains work similarly, acting as a relay system where electrical currents are either at rest or fire. Like computing machines, each neuron has its message fed into it by other neurons at points of contact, known as synapses. Norbert Wiener developed a way to understand the nervous systems of humans and animals, ultimately using his analogy to define the human subject as a mechanism. I would argue that Wiener occupies a position of posthumanism, considering his argument that humans and machines are alike systems. However, I would argue that Wiener also occupies a position on the transhumanism side as well. Based on his hypothetical chess-playing machine, he argued that computing technology would perform better than the standard human player. In many ways, early ideas of cybernetics can be applied to *Ex Machina* when exploring the subject of an A.I. Aside from Wiener's 'brains to electronic circuits' comparison, artificial intelligence explores the relationship between human consciousness and computer programming. In terms of the Turing Test⁹, which suggests that a machine is only conscious if it matches human consciousness, this becomes problematic when considering the other devices humans use besides consciousness.

⁹ Developed by Alan Turing (1951).

A later philosopher and theorist named Niklas Luhmann extended Wiener's ideas regarding complex systems theory and further deprivileged the human. Luhmann's theory centers on the filtering information through autopoietic closure¹⁰, which is the idea that systems reproduce themselves from within themselves, or, a system's self-production and understanding the organization of its definitive process configuration. In simpler terms, for example, a plant reproduces its cells with its own cells. Suggesting that humans are not "subjects" but instead autopoietic life forms, Luhmann further argues that the basic idea of autopoiesis applies not only to biological life forms but also to a large number of non-human animals¹¹ and non-biological systems. He thus appropriated the originally biological concept, modified it and applied it to the social domain. Similar to biological systems, social systems were thus conceptualized as systems that reproduced their own structural organization on the basis of its own elements. This shift in focus allows theorists to determine the boundaries of the system and distinguish it from its environment. This boundary determines what is meaningful communication for the system and what is irrelevant for the system. The distinction overthrows the human's hierarchal position at the top of living beings and replaces it with a web of relationships and feedback loops that include other life forms as well as non-living forms, such as social systems. The relationship between homeostatic processes, autopoietic closure, and communal information is significant in the later discussion of the film *Annihilation*. The way in which self and environment interact to keep systems at continuum is presented in *Annihilation* when the humans enter the unknown environment known as "The Shimmer". As Garland's characters enter the mysterious and reshaped environment, their cells begin to change and mutate until they eventually become completely different life forms—or refractions of The Shimmer.

¹⁰ Humberto Maturana and Francisco Varela, *Autopoiesis and Cognition* (1980).

¹¹ See page 15, discussion of animals

The idea that a system (biological or non-biological) is able to self-produce and reproduce supports the understanding that humans use tools to build a foundation for humanity within history and society. In an Aristotelian sense, humans rely on the capacity to institutionalize tools such as language, culture, education, technology, and artifacts in order to function. Furthermore, without these constructs, we would have no social human network. Andy Clark, cognitive scientist and author of *Natural-Born Cyborgs*¹², supports this theory and expresses how humans have co-evolved beside tools or “technics” since the beginning of time. Clark furthers his argument by deconstructing the means of a ‘cyborg’, arguing that humans have already merged with independent non-biological tools. However, Clark is not primarily interested in new technology, but in what defines humanity itself. In *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*, Clark writes:

It is about us, about our sense of self, and about the nature of the human mind. It targets complex, conflicted, and remarkably ill-understood relationship between biology, nature, culture, and technology. More a work of science-sensitive philosophy than futurist manifesto, my goal is not to guess at what we might soon become, but to better appreciate what we already are: creatures whose minds are special precisely because they are tailor-made for mergers and coalitions. (Clark, 88)

Clark explains that humans are natural-born cyborgs, because we have merged our mental activity with the operations of tools (i.e. pen, paper, electronics), which allows us to control our world and improve our lives. Our brains are able to continuously rebuild a web of circuitry with non-biological constructs, which do not always have to depend on a physical wire or machine. However, this would suggest that a person whose mind *is* deeply linked to devices must be a

¹² Andy Clark, *Natural-born Cyborgs*, (Oxford: Oxford Univ. Press, 2010).

medical patient or a strange hybrid creature out of science fiction—a cyborg. If the mind extends into the world and is entangled with a range of devices, Clark rejects the idea that a person is a complete individual. Clark argues there is more to cognition—such as our mental machinery, neurons and synapses that send electric impulses, and all the unconscious systems rooted in our connected pathways that form the ‘self’. Furthermore, as our worlds become smarter, it becomes harder and harder to say where the world stops and the human begins. With this discussion of the relationships between cybernetics and humanity, it is important to examine the evolution of the human along with the biological factors that constitute our developing species.

Within the sci-fi genre, particularly within the theme of human-machine fusion, many films remain largely humanist and imagines an amplified version of the independent, liberated human subject. However, Garland urges us to acknowledge that the human is only one among countless species, and our human history is only a fragment of the entire history of the universe. It is important to discuss how humans evolved as terminal entities, and to acknowledge that our bodies are hosts of billions of other life forms and microorganisms. Humanists’ on the other hand only focus on the “individual”, which explicitly misrepresents the true nature of the human being. In the book titled, *What is Life*¹³, evolutionary theorist and biologist Lynn Margulis and son Dorion Sagan indicate the idea that reproduction is the underlying source of our species mortality. In their argument, Margulis and Sagan try to explain why human beings have a programmed and inevitable death. Bacteria, by contrast, are in some ways superior to humans because they do not die due to natural causes like humans do. Furthermore, this undermines the humanist idea that humans are the most “advanced” species to exist. As the first life form to ever

¹³ Lynn Margulis & Dorion Sagan, *What Is Life?* (Berkeley, CA: University of California Press, 2000).

exist on our planet, bacteria came together and made cells with nuclei, and these cells with nuclei often cloned themselves into multiple copies that stayed in physical contact after reproduction.¹⁴ From this process, the first species ever to exist are called protoctists. Unlike bacteria, protoctists can be either single-celled or multicellular and are eukaryotic, this means protoctists will age and die even if environmental conditions are suitable for health. Furthermore, the origins of individuals that belong to the same species (humans) are identical to the origin of the first protoctists. “The origin of any ‘individual’ large organic being depends on integrative gene-transferring process that is not easily reversed. [...] Algae, like other protoctists, fungi, plants, and animals (but unlike bacteria), do not casually trade their genes. Larger organisms simply cannot trade genes the way bacteria do.”¹⁵ Thus, larger organisms (i.e. humans, plants, animals) cannot trade genes to reproduce, therefore humans and animals must interbreed in order to sustain life. According to Margulis & Sagan, aging and death first evolved from sexual protoctists. Thus, if humans and all other species originate from sexual protoctists, human reproduction is therefore inextricably linked to aging and death as well. Even with sustainable environmental conditions, aging and death cause cells to disintegrate with predictable timing. This concept internalizes the fact that sexual reproduction is the reason why most living beings are destined to die.

Other forms of posthumanism are more clearly directed against not just the ideological history of “humanism,” but also against the anthropocentrism¹⁶ that informs this history. They argue that humanity will not simply be able to adapt to or change its local environment in some way or another, as other species might be able to do. Ultimately, these posthumanists are not

¹⁴ Margulis & Sagan, *What is Life?*, 135.

¹⁵ Margulis & Sagan, 136.

¹⁶ Refers to the point of view that humans are the only, primary holders of moral standing.

only against the humanist “subject”, but in some ways also against the consistent privileging of the human as a superior being throughout history. Anti-anthropocentrism argues that humans have led to the destruction of other species including animals, plants, the entire eco-system and our planet, which leads to eco-criticism. From the book, *Requiem for a Species*¹⁷, author Clive Hamilton writes, “During periods of rapid transformation in human history, such as the Renaissance, the meaning of individual lives begins to surface as a disturbing problem [...] The new narrative will reflect a world no longer subject to human, but will be governed by forces largely beyond our control.”¹⁸ Rates of global emissions of carbon dioxide have steadily risen, and according to Hamilton, at this rate annual admissions will double every 25 years locking in the irreversible global warming. “We will be powerless to stop the jump to a new climate on Earth, one much less sympathetic to life. The kind of life that has allowed civilization [plants, animals] to flourish will be gone.”¹⁹ We have modified the entire planet to such a degree that geologists have coined a new term, the Anthropocene, to describe the global effects of technology and industrialization that have left a permanent record in the Earth’s structures, further disrupting the natural process of everything around us. The evolution of species along with the distinct environment in which they live are tightly grouped together as a single and inseparable process. Thus, the climate that has allowed civilization to flourish will be gone and humans will enter a struggle of survival. Hamilton voices that high accumulations of harmful greenhouse gases are rising due to rich and developing countries, “In the 1970s and 1980s global emissions of carbon dioxide (CO₂) from burning fossil fuels increased at 2 percent each year. Since the year 2000, the growth rate of the world’s CO₂ emissions has almost trebled to 3 percent

¹⁷ Clive Hamilton, *Requiem for a Species: Why We Resist the Truth about Climate Change*, (Washington, DC: Earthscan press, 2010).

¹⁸ Hamilton, *Requiem for a Species*, 219.

¹⁹ Hamilton, 2.

a year. At that rate annual emissions will double every 25 years.”²⁰ Climate change is intimately linked to the transformative powers of the scientific-industrial revolution, the political and cultural forces of growth fetishism and consumerism, and further more, it arises from humanity’s inability to change our harmful ways of living, as we are our own source of impending extinction.

In terms of posthumanism, the most extreme form of anti-anthropocentrism is OOO (object-oriented-ontology). Here, the goal is to move beyond not only “humanism” but also “subjectivity” and the “human” altogether, in order to further undermine the very distinction of material vs. living processes. Object-oriented-ontology focuses on objects as worthy of attention, whereby objects are not considered in relation to any subject at all. The most radical form of OOO suggests that single objects (i.e. rocks, stones, etc.) are worthy of the same respect and consideration as other living things (i.e. humans, animals, plants)²¹. On a less radical scale, this viewpoint implicates that electronic or digital networks have the ability to react without an intentional influence. For example, in a busy city, power lines or traffic light systems could shut down or malfunction due to excess traffic. Although these networks are not necessarily alive, they do produce reactions depending on inputs from their environment. Political theorist and philosopher Jane Bennett emphasizes ontology, relation, and revitalized ecological sensibility to focus the attention on objects and their position within human and non-human processes²². Bennett insists that objects have ‘thing-power:’ “the curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle”²³. Bennett stresses the focus

²⁰ Hamilton, *Requiem for a Species*, 2.

²¹ Timothy Morton, *Dark Ecology: For Logic of Coexistence*, 2011.

²² Jane Bennett, *Vibrant Matter: a Political Ecology of Things*, (Durham: Duke University Press, 2010).

²³ Bennett, *Vibrant Matter*, 6.

should *not* be on objects, but on relations between objects of networks. Furthermore, Bruno Latour’s ‘Actor-Network Theory’²⁴ seeks to eradicate the conventional distinction between human actors and passive technological artifacts. The latter should rather be understood as embedded ‘actans’ (not agents) that shape human actions and relations just as much as humans shape their technological environment²⁵. Although object-oriented-ontology can be viewed as a somewhat extreme form of posthumanism, it leads us to a better understanding of the broader political and ecological framework in which the nonhuman functions.

Among the posthumanism theorists, some position their viewpoints on a subjective level, which is extended, connected, and affective—the opposite of rational humanism. Writer of *The Posthuman*²⁶, Rosi Braidotti presents a subjective viewpoint of posthumanism and politics and discusses Science and Technology Studies’ (STS) along with neo-communist theory. Braidotti speaks across these two positions, and makes relations between STS, advanced capitalism, and human-nonhuman hybridity through contemporary materialist feminist theory. She critiques STS’s neglect of subjectivity as well as the neglect of processes that constitute who gets to count as human, and instead calls for a ‘return’ to the subject in current posthuman landscapes. This renewed emphasis on “subjectivity” clearly distinguishes Braidotti’s sense of “posthumanism” from most other viewpoints discussed earlier. In this sense, Braidotti focuses on the posthuman subject and its engagement with advanced capitalism and materialist engagement with biopower. This is perhaps *The Posthuman*’s most significant contribution—it sets out a genealogy of the posthuman moment we find ourselves in, and (re)introduces the question of the subject in

²⁴ Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005).

²⁵ Edwin Sayes, “Actor–Network Theory and Methodology: Just What Does It Mean to Say That Nonhumans Have Agency?” *Social Studies of Science*, pp. 136, 2014

²⁶ Rosi Braidotti, *The Posthuman* (Cambridge: Polity, 2017).

contemporary materialism, relevant to the ethics and politics of speaking to power in our posthuman time. Braidotti borrows from feminist theory, postcolonial and race theory, ecology and environmentalism, STS and the work of Deleuze and Guattari to construct a complex and deeply relational way in which these strands of thought connect. Within this web, the posthuman subject emerges as multiple and inherently differentiated. Braidotti's contribution foregrounds critical insights and takes 'the cultural turn', in which are often neglected in contemporary materialist work, this contribution is significant. She writes:

A serious concern for the subject allows us to take into account the elements of creativity and imagination, desire, hopes and aspirations [...] without which we simply cannot make sense of contemporary global culture and its posthuman overtones. We need a vision of the subject that is 'worthy of the present'. (Braidotti, 52)

The global economy is post-anthropocentric and ultimately unifies all species under the imperative market and its excesses to threaten the sustainability of our planet as a whole.²⁷ With regard to the global economy of advanced capitalism, she is most concerned with its biogenetic structure: the Human Genome Project, stem cell research and bio-technological interventions into animals, seeds, plants and cells. Through scientific and economic control, advanced capitalism both invests and profits from these industries, thereby positively influencing life itself. "This context produces a paradoxical and rather opportunistic form of post-anthropocentrism on the part of market forces which happily trade on life itself."²⁸ Braidotti's main intervention throughout the book is a call for postanthropocentric posthumanism as a deconstructive political move that is situated within the hybridisation of capitalist postanthropocentrism, but steers clear from re-introducing human(istic) hierarchy. This project is invested in tracing the very

²⁷ Braidotti, *The Posthuman*, 63.

²⁸ Braidotti, 59.

structure of our bodies as natural–cultural entities, while also foregrounding the political dimension of recomposing this body in resistance to the violent opportunism of advanced capitalism: “The ‘becoming-machine’ is no longer cast in a dualist frame, but bears a positive bond with multiple others and merges with one’s technologically mediated planetary environment.”²⁹

The discussion of animal rights and bio-ethics is another topic positioned between the spectrums of transhumanism and anti-humanism³⁰. Historically, the ontological divide between the animal and the human has been secured by the foundation of the humans’ ability to record language and perform intellectual functions. However, many argue that there is a slippage in the system. Prominent animal philosopher, Peter Singer, has argued the question is not whether humans and nonhuman animals are “the same” morally, but the issue is not saying that all lives are worth equal treatment. Extending this notion, animal rights activists want to spread the same privilege previously reserved to humans (male, white, property owning “subjects”) to animals. They argue humans with abnormalities (developmental problems, cognitive issues, etc.) will never gain self-autonomy, awareness, or self-consciousness; yet, these humans still have basic human rights. The ideology of humanism is not wrong in itself; it just needs to be applied on a more even playing field and live up to its own ideals rather than serving just one group. Several laws have been implemented to ban animal testing, and 46 out of the 50 U.S. states have enacted felony penalties for forms of animal abuse. Yet, the arguments concerning animal rights and bioethics have not advanced enough to where the nonhuman animals could be comparable to human hierarchy.

²⁹ Braidotti, *The Posthuman*, 92.

³⁰ Theory that is critical of traditional humanism and traditional ideas. This theory rejects the beliefs, assumptions, and principles of humanism.

In summary, posthumanism designates a series of breaks with foundational assumptions of modern Western culture, and specifically incorporates a new way of understanding the human subject in relationship to the natural world in general. Posthumanism melts into popular culture through various platforms such as contemporary art, philosophy, literature and science fiction. In particular, science fiction films play an important role in posthumanist discourse, because many sci-fi movies reflect a “humanist” version of the posthumanistic theory to raise questions about human nature and our relation to the non-human world. Transhumanism utilizes technology to produce a ‘super human’, or a human of the future, a common theme among the sci-fi genre. Emerging science such as, AI technology, bioengineering, cybernetics, and genetic engineering, are also common themes displayed in films such as, *Blade Runner* (1982), *Terminator* (1984), *Gattaca* (1997), *I, Robot* (2004), *Limitless* (2011), *Ex Machina* (2014), among a multitude of others.

An Overview of Alex Garland’s *Ex Machina* and *Annihilation*

As a genre, science fiction has the ability to produce a realistic account of contemporary technology, however, intense visual effects such as CGI programs sometimes mask this interpretation. In a book chapter titled, “Posthumanism and Science Fiction” Stephen Herbrechter raises the question, “Is fiction still following any reality here? Is science fiction inspired by the possibilities of scientific research, which are then exploited and ‘extended’ so to speak? Or has reality long disappeared within this nexus of fictionalization and de-realization and turned into something like ‘hyper-reality’? (113). As a mediating and popularizing force between science and everyday life, science fiction floats in a simulative space, in between realism and fictionality (Herbrechter 116). This area contains narratives of futures yet unknown,

which creates a de-familiarized state of viewing. In particular, director and screenwriter Alex Garland utilizes themes of conceivable sci-fi reality and also forms aspects of hyperrealism within his films.

Alex Garland's directorial debut, *Ex Machina* (2014) analyzes the capabilities of artificial intelligence in a near future world. When computer programmer Caleb Smith (Domhnall Gleeson) wins a contest to spend a week with Nathan Bateman (Oscar Isaac), the CEO of a leading search engine company, Caleb soon learns he will endure one of the most important tests of his life. Nathan has created an advanced A.I. robot he calls Ava (Alicia Vikander), and explains to Caleb he will perform the human component in his Turing Test to determine if Ava possesses human-like consciousness. Theorist Andy Clark argues that the mind extends into the world and is entangled with a range of devices, rejecting the idea that a person is complete in him or herself as an individual. From this cybernetic perspective, the Turing Test is not a stable assessment of a machine's ability to match human consciousness when considering the outlying factors that make us humans. In *Ex Machina*, Ava represents many of these devices such as her ability to draw, formulate sentences, and participate in conversations, all of which demonstrate her use of devices besides consciousness. Although Ava is artificial, she uses devices shared by humans as well, which raises ethical issues pertaining to 'human' rights. Garland's psychological sci-fi thriller focuses Ava in relation to Nathan's disturbing manipulative agenda, and also in relation to Caleb's naïve personality. Through a series of unmonitored power outages, Ava explains her fears to Caleb regarding Nathan's motives, which causes Caleb to become progressively empathetic towards his bionic counterpart. Ultimately, Ava does not reciprocate empathy towards Caleb and leaves him behind, saving herself from the possibility of anything interfering with her one true desire, to escape Nathan and exist within human society.

Four years after his release of *Ex Machina*, Alex Garland delves into an exploration of naturalism and estranged environmental influences on the posthuman in the film, *Annihilation* (2018). Garland was inspired by Jeff VanderMeer's best-selling trilogy, and began adapting the narrative into his psychologically challenging Sci-Fi film. In the film, protagonist Lena (Natalie Portman) is a successful cellular biologist who seems to be getting over the loss of her husband, Kane (Oscar Isaac), who went missing over a year ago after expending on an unknown mission. Lena and Kane are transported to "Area X", where Lena learns from Dr. Ventress (Jennifer Jason Leigh), her husband is the only person who has ever returned from the Shimmer: described as a growing area in Southern Florida struck by a supposed radioactive meteor. Lena finds herself entering the mysterious environment with a group of four other women, hoping to uncover what caused her husband's destruction. Lena's hope is to save him by releasing herself in The Shimmer, along with Dr. Ventress, the psychologist, Anya (Gina Rodriguez), the paramedic, Josie (Tessa Thomson) the pathologist, and Cass (Tuva Novotny), the anthropologist.

As the group of women scientists enters the Shimmer, *Annihilation* only begins to peel away at the surface of danger, fascination and the unknown. The group uncovers a continuous mutation of crossbred species – plants grow into shapes of human silhouettes, deer's antlers are made up of flowered branches, alligators grow shark's teeth, all of this should be genetically impossible. The group begins to change within The Shimmer: as Lena examines her blood mutating under a microscope, she is changing at a cellular level, multiplying and dividing into something new. As the environment begins to consume them, Lena's shocked expression shows she is scientifically aware that the group of women are losing part of their humanity. For example, the theme of cellular division and mutation is manifested within Josie's character, when she walks away and vanishes into a sculptural flower figure. Before this, Josie tells the

other women, “The Shimmer is a prism, but it refracts everything” (1:05). We can conclude that The Shimmer refracts the genetic information of living things and turns it into something new. In terms of the biological aspects of posthumanism, this theme exemplifies that humans are not individual, but made up of countless cells and microorganisms, further proving that human mutation, and also plant and animal mutation, must begin at the subcellular level. At the end of the film, a thematic question is asked by a scientific investigator after Lena returns from The Shimmer, “What does it want?” Lena responds, “It didn’t want anything, only to survive” (1:44). However, each group member falls into some form of human destruction, and do not make it out of The Shimmer the same way they entered. This thematic point further emphasizes the humanist critique in *Annihilation*, in that the humans fall into some form of annihilation, either completely or partially reconstructed. Lena and Kane are the only life forms to return from the gene-merging environment, and return as an altered ‘posthuman’, reconfigurations of their former selves.

Digging Deeper with Technology: Analysis of *Ex Machina*

Cinematic science fiction has the ability to present audiences with a taste of what could happen in near future, usually evoking a feeling of unsettlement coupled with keen curiosity. Science fiction audiences submerge themselves in a visual experience that delivers an aspect of uncertainty when viewing themes that could either stem from fictionality, or a realistic future. In *Ex Machina*, Nathan makes enhancements to the human through themes of advanced technology, which centralize around already implicit realities within our society (i.e. social media usage, search engine privacy, intelligent computers). By focusing his plot around an advanced, artificial being that possesses human-like consciousness (empathy, emotions, language, body, etc.), Garland raises ethical issues regarding human rights and demonstrates how our human

consciousness conceptualizes the way we function within society. For example, the film's antagonist, Nathan, constructs Ava so that she will be indistinguishable from a human and the rest of society. Utilizing his own search engine platform called Bluebook, Nathan constructs Ava's mind to think and act just like a human would. Nathan clarifies later in the film that he created Ava based on Caleb's porn search history, which exposes societal and technological anxieties regarding how much 'privacy' we have when it comes to personal data searches. This theme further contributes to our anxiety that surrounds the fictional, although plausible, narrative. Nathan's corrupt methods present a not-so fictional realization that technology can be easily manipulated through our already implemented handheld technologies. Theorist Francis Fukuyama emphasizes this concept in his argument that even a slight manipulation of humanized technology will change human nature as a whole, and will thus change our basis for human dignity. Since science fiction is such an integral part of the contemporary human imagination, technological and scientific developments are increasingly being 'explained' to, or are being made explicit for the public through analogies within science fiction scenarios. Again, these instances in the film lend themselves to the humanist bias seen in sci-fi films, Garland warns us against the humanized manipulation of technology.

Garland achieves a thought-provoking effect by presenting posthumanistic themes such as the state beyond humanity, artificial intelligence, body machine fusion, and our communication via technological devices with intelligible language. Furthermore, *Ex Machina* examines important questions about what institutes the human and the extended techno-genesis condition³¹, which allows us to momentarily suspend ourselves and reflect on what is already a post-humanized environment. In *Ex Machina*, Garland explores a critical sci-fi reading of society

³¹ Dealing with the destination of the human through science and technology (Stiegler, *Technics and time*, 1998).

to showcase what is becoming posthuman and the dangers of humans and intelligent technology becoming increasingly intertwined. Ava figures as the dominant symbol of cybernetics and posthumanism in the film. She is an artificially intelligent being who possess emotional responsiveness, understanding, high-functioning language, and survival instincts. Thus, regardless of whether or not Ava shows true consciousness by the end of the film, she is evidently a vision of transhumanist thought. For many of the scenes, Ava's naked body is shown comprised with metal wires and circuitry, however, Ava's face is similar to a human's and she sometimes wears wigs to make herself appear more human-like. When she is locked in Nathan's quarters, Ava is a clear example of how the film's visual effects emphasize the transhumanistic notion of human-machine merging. After Ava escapes, she transforms herself to look entirely like a human. She covers her body with artificial skin from Nathan's retired A.I. models, puts on a neatly styled brown wig, and selects an all white dress to wear—symbolizing Ava's rebirth into humanity, and indicating the start of her life as a member of society. The final scene opens with a view of a busy street—the inverted shot displays the shadows of people as Ava's silhouette enters through the meandering crowd. The final shot cuts to an image of Ava's reflection in a glass window, she looks around for a moment, and disappears within the crowd's reflection. The ending of *Ex Machina* demonstrates that Ava is living as an unnoticed member of society, just like she always wanted. She receives vengeance from Nathan and finally gets to see the world beyond the walls of her glass enclosure. Although we are left with the disturbing image that Ava left Caleb behind to perish, we are somehow touched with a sense of sympathy. Supported by the light, non-dietetic xylophonic melody, Garland achieves the overall sense that Ava got what she always wanted, freedom from her male-dominating controller, Nathan, and also, freedom from her artificial makeup.

Mechanically, Nathan has humanized Ava in several ways, but ultimately he manipulated her consciousness through a derivable yet apprehensive source, the public's web searches. In a particular scene, Nathan shows Caleb his lab where Ava was made and reveals how he managed to create such a high functioning, artificially intelligent machine. The mise-en-scene shows Nathan's lab room filled with sterile white tables, lined with artificial facial constructions similar to Ava's, along with blue orbs filled with an electric looking fluid, which Nathan describes is Ava's mind. Nathan explains to Caleb Ava's ability to mimic and read human facial expressions, which he was able to achieve by hacking into cellphone's microphones and cameras all over the world. As Nathan holds the artificial brain up to Caleb, Nathan reveals that Ava's software comes from his search engine, Blue Book. "You see, my competitors thought search engines were a map of what people were thinking, but actually, they were a map of *how* people were thinking. Impulse, response, fluid, imperfect, patterned, chaotic." (38:50:10). Although Caleb is aware Ava is merely a machine; he still manages to acquire feelings for her. Yet another manipulation, this was Nathan's true test. The test was not meant to measure Ava, but to determine if a human such as Caleb, could potentially develop genuine feelings for a machine.

Garland's depiction of the posthuman is fueled with gender constructs that tend to motivate the film's plot and also become relevant when analyzing the characters relationships, specifically regarding the A.I. and the human. Nathan is characterized as a hyper-masculine figure, dominating his power over multiple womanoid robots, as well as his employee Caleb. Posthumanistic feminist theory can be applied to analyze the film's depiction of gender roles, societal issues, as well as the connection between the artificially intelligent mind and the body. Nathan immediately sexualizes Ava, he tells Caleb she is programmed to be heterosexual, and that there is in fact a hole in between her legs, containing pleasure-inducing receptors. The

second A.I., Kyoko (Sonya Mizuno), functions as Nathan's silent sex toy and performs whatever he demands, whether it be cooking, cleaning, or erotic dances. Garland's sexually induced plotline presents us with questions of the link between body and mind, which raises several questions. Caleb becomes increasingly attracted to Ava and ultimately helps her escape from Nathan. In order for a heterosexual man to think of an A.I. beyond its mechanics, is the female body necessary? From the post-modern feminist perspective of cybernetics, Donna Haraway would argue that the cyborg should not be affiliated with any gender at all in order to alleviate any negative class-based stereotypes that have been associated with gender. However, without the A.I.'s body, male or female, we can gather that Nathan would not have had the same amount of empathy towards Ava. Haraway's argument is valid, however, if humanity wants to recreate a human using advanced technology, the cyborg would need a gender in order to fit in and communicate with the rest of humanity, or else that would just be one more factor contributing to their differentness. This raises the question, without Nathan's manipulation of Ava's female structure, would Caleb have developed the same emotional connection and conspired against Nathan? Well, maybe not. Nathan is kind and good hearted, and it is presumable that even if Ava was a man, Caleb could have sympathized for the highly intelligent A.I. that is locked in a glass cage. He understood the complexities of Ava's mind and knew she deserved to experience the world, just like anybody else. Sure, Nathan becomes attracted to Ava, but that does not distract him from the fact that Nathan is a compulsive, malicious creator. *Ex Machina* exemplifies the posthumanistic feminist theory in that Nathan's punishment represents a symbol for the way women have been exploited throughout history. The white, bearded, hyper-masculine male finally gets what he deserves, but as for Caleb, we can infer that Ava left him there to die. This turning point in the film shows that although Caleb is not a malicious man like Nathan, he is the

weaker, more naïve male character in the film. Perhaps Garland was trying to suggest that Caleb had to be sacrificed in order for Ava to be freed. This is proven at the end of the film when Ava walks with the rest of humanity, and if Caleb were with her, she would never get to experience life as a true 'human'. In *Ex Machina*, the 'meak' male is deemed lesser than the female cyborg, which provides a pro-feminist and anti-humanist perspective to the film's ending.

Entering the Realm of Sci-Fi Environments: Analysis of *Annihilation*

In an interview lead by Kelvin Vlk for Google, Garland stated he wanted to push against the themes in his previous film, *Ex Machina*. Writer and director of both films, Garland voiced he wanted to achieve a similar thoughtfulness and visceral effect that is presented in *Ex Machina*, but wanted to do something that was not done before. When asked about the complex questions presented in both films, which are not as concerned with providing explicit answers, Garland responded that this was predominately intentional. "This gives the audience a sort of requirement" Garland says, "The film is not going to spoon feed you, there is a two-way process they're willing to engage in." The English novelist, screenwriter, film producer and director remarked he was interested in creating a film that could hold "true originality", which Garland discovered in VanderMeer's novel and commented, "First of all, is also had a very, very powerful and strange atmosphere. The reading of the book is a little bit like having a dream." Inspired by the hallucinogenic, dreamlike state described in the novel, Garland reveals he only read the novel once on purpose, in order to create a more subjective view of the narrative. By adapting the film from memory, Alex Garland was able to create a more personal, focused account of the surreal atmosphere. One of the ways he achieved the film's 'visual strangeness' was to shoot *Annihilation* in England, rather than in Northern Florida, or the film's narrative

setting. “We dressed an English forest to look kind of like a distorted version of North American coastline, in the hope it would give us the otherness we were looking for, kind of a rightness and a wrongness.” Garland’s goal was to make everything in the film seem a bit off in order to create a unique strangeness. In Garland’s interview, he states, “Strangeness can have a diminishing return. If you start a story strange and end it strange, by the time you get to the end, you’re kind of acclimatized to the strangeness and you lose its quality.” Thus, the reason *Annihilation* begins in a suburban setting and progressively positions us into a more dreamlike, hallucinogenic state. In his interview with Kelvin Vlk, Garland stated, “I like films that work within genre, and then fuck with the genre in some way”. In regards to Garland’s attempt to create a realistic dream-like setting, Cary Wolfe and Niklas Luhmann make an interesting point as to how we perceive reality. According to Wolfe, “The world is thus a virtually and a multiplicity; it is both what one does in embodied enaction and what the self-reference of that enaction excludes.” Luhmann writes, “Reality is what one does not perceive when one perceives it.” Crucially then, “virtual” does not mean “not real”; on the contrary, given the ‘openness from closure’ principle, the *more* virtual the world is. The *more* real it is, because the buildup of internal complexity made possible by autopoietic closure actually *increases* the complexity of the environment that is possible for any system”.³² *Annihilation*’s tendency to warp our idea of reality was exactly what Garland seemed to focus on, further disorienting us within the film’s fictional space.

A good example is the scene when Lena, who assumes her husband Kane is dead, finds herself repainting their old bedroom as Kane suddenly returns and emerges into the frame. The scene cuts to a brief flashback of a playful Lena and Kane entangled in bed together, following with a juxtaposing shot back to the present Kane, who is emotionally withdrawn and shares little

³² Cary Wolf, *What is Posthumanism*, XXIV

about his mysterious trip. The next scene shows Lena and Kane in the kitchen positioned extremely far from one another, symbolizing their emotional distance. The camera zooms in on Kane's hand, shown gripping a glass of water with its focus on Kane's refracted fingers through the glass. A drop of blood flicks into the water, coming from Kane who begins to aggressively spit up blood. This beginning scene comes off particularly surreal, taking place in a domesticated household where Lena's 'supposedly' dead husband returns from a unknown mission, and starts coughing up blood. By presenting this scene within the first few moments of the film, gives the audience little background on what could possibly be going on. This manipulates our sense of reality as we know something is wrong with Kane, but because Garland does not give us any background on the matter, our minds race with possibilities until it is revealed that this was not Lena's Kane, rather a cloned version of his former self. The film later draws to the theme of refraction, which this scene is a clear foreshadow of in that Kane's fingers are refracted through the glass, and so is the 'Kane' that sits across from Lena in this very moment. This parallels to the end of the film, when Lena realizes that The Shimmer has caused human genes to also 'refract' or mutate—producing an entirely new living entity.

By submitting themselves inside the Shimmer, Lena and the four other women understand they will most likely not return like many of the groups before them. However, there is a reason each of the women submit themselves to the unknown environment. Cass, the anthropologist, has lost her daughter to cancer and explains it was like losing the person she once was. Josie, the pathologist suffers from depression and cuts her wrists. Anya, the paramedic who is now sober, was once an addict. The psychiatrist, Dr. Ventress has interviewed every person who has entered the Shimmer, and has watched them all fail to return. One night, Ventress explains human impulses to Lena, "Almost none of us commit suicide, but almost all of us self-

destruct.” She gives Lena examples of how we use free will to destruct by using examples of smoking, doing drugs, or even “sabotaging our marriages”. Ventress emphasizes this last example, passively indicting that this is Lena’s form of self-destructive behavior. Although left unexplained, Lena’s affair is perhaps the reason Kane submitted himself into the Shimmer, and in turn, Lena’s overbearing guilt is what caused her to enter the Shimmer herself. In a similar way to how the planet in *Solaris* and the room in *Stalker* became manifestations of the characters’ subconscious desires, the Shimmer is a manifestation of the characters’ inner destructions. Cass is consumed against her will and takes the form of a mutated bear, where only her agonizing screams remain, Anya’s paranoia takes over her mental state due to its weakness, Josie decides she does not want to fight the Shimmer and becomes apart of its environment by taking the form of a flower stature, and Dr. Ventress, who wanted to face it, merges within the Shimmer’s core and obtains a newfound ‘knowingness’ of how the environment functions. Lastly, Lena who wanted to fight the Shimmer comes out as something completely new. She returns as a combination of the Shimmer and her human self, a completely new entity. This exposes how the Shimmer affects each character differently, producing different forms of physical and genetic transfiguration.

Although VanderMeer’s novel builds on the theme of eco-destruction, the film examines human destruction. Garland remarks, “I think the main thematic preoccupation probably belongs primarily to the film, which is really about self-destruction. It’s about the nature of self-destruction in a literal sense: cells have life cycles and stars have life cycles and plants and the universe and us. You, me, everyone.” The theme of biological destruction is emphasized in a flashback of Lena and Kane before either of them enters the Shimmer. In this intimate close-up, Lena and Kane are in bed together and look up through the skylight above them. This is one

instance where the film positions religion and science in conversation with one another, perhaps drawing from Tarkovsky's themes. Kane brings up how it's strange to see the moon during daylight, and Lena replies, "Like God made a mistake." Kane disagrees, "God doesn't make mistakes. That's somewhat key to the whole being-a-god thing." The shot switches to a close-up of Lena, she replies, "You take a cell, circumvent the Hayflick limit, you can prevent senescence. It means the cell doesn't grow old it becomes immortal. Keeps dividing, doesn't die. We see aging as a natural process but it's actually a fault in our genes" (19:00). This scene foreshadows the Shimmer's ability to mutate human cells, and emphasizes the biological aspects of our mortality. Referring back to Margulis & Sagan, "All bacteria on the planet can, in principle, interbreed. If anything, they might be said to form a single, global species" (136). Thus, death is in fact not a fault in our genes but a fault in our biological make-up. Perhaps the Shimmer was attempting to create a new life form, a new entity that could outlive humanity's biological capabilities.

In the final scene of the film, Lena returns from the Shimmer and revisits Kane in the isolation unit. The camera catches a rainbow band glimmering in her eye, indication that she's been biologically changed. The same glow exists in Kane's eyes, further confirming earlier suggestions that he's not Kane, but a new entity produced in the Shimmer. In a previous climactic scene, Lena discovers Kane's human body in the lighthouse, or the Shimmer's birthplace. Lena enters the lighthouse and finds a burnt body surrounded by explosion marks. A camera set up in front of the figure, Lena plays the video and the shot switches to the camera's point of view. We see her husband Kane speak his final words before killing himself, understanding that the Shimmer has deconstructed his consciousness so deeply he simply cannot go on. Kane questions his place in the world and humanity itself, "If I wasn't Kane, was I you? Were you me?"

However, we soon realize that Kane is not alone. Before killing himself, Kane speaks to something behind the camera, “If you ever get out of here, you find Lena.” A voice emerges from behind the camera replies, “I will.” (1:29:00). Besides the literal emergence of Kane’s duplicate along with his outward dialogue, Garland inflicts other visual aspects to convey the Shimmer has refracted Kane into a separate being. As Kane sits down against the lighthouse wall, there are two shadows behind him. However, the two shadows do not overlap but move simultaneously together, mirroring one another. We can assume that when human Kane is still alive, his clone cannot function on its own. Only after Kane kills himself can his duplicate mobilize as a separate entity. We can assume the Shimmer’s refraction cannot function with the human still present, and only one can survive. Lena’s merge is quite the opposite of Kane’s, where in this case, the human body survives and her clone or refraction is the one destroyed. After Kane pulls the trigger and destroys his body, a cloned version of Kane emerges into the frame. The camera shows Lena, terrified, she now understands the person who came back to her was in no form her husband, but a completely new entity created by the Shimmer. The human Kane is dead, and only a physical copy of his body remains.

The following scenes show Lena’s transformation is quite different. After viewing the videotape, Lena hears Dr. Ventress’s voice coming from inside the walls of the lighthouse. She immerses herself into what is perhaps the core of the Shimmer, and finds a partially mutated Dr. Ventress. The disfigured face speaks, telling Lena she does not only *know* what is inside the lighthouse, but that it is inside her now. She does not know what it wants, or if it wants, but it will not stop until it encompasses everything (1:32:31). The scene progresses with Lena’s transformation. Ventress explodes with a multicolored, freeform light, from which Garland’s camera pans to find Lena staring in a state of terror. The camera follows rich droplets of blood

floating from Lena's eye and into the happening, which parallels to the blood dropping into the water glass in the earlier scene with Kane, symbolizing Lena is about to begin her own type of genetic refraction. Lena's blood mixes and mingles and forms a humanoid creature that eventually takes Lena's shape and merges with Lena, creating the hybrid that returns back to Area X at the end of the film.

Comparing these two scenes showing close-ups of blood droplets, it is interesting to analyze the song that plays when 'Kane' returns home to Lena. The diegetic song, "Helplessly Hoping" by Crosby, Stills and Nash plays into the scene as Kane walks up the stairs. The song's lyrics may be a potential cursor to the meaning of Lena and Kane's return. The lyrics are repeated; "They are one person/ They are two alone/ They are three together". Perhaps this implies Lena and Kane are *one* shared entity produced from the Shimmer, they are two alone now that they are two different beings that do not know each other like they used to. The "Three together" line leaves more uncertainty. Could this mean there are three entities shared between two bodies? One is their humanity, the second is whatever the Shimmer's refracted onto them, and three could be the new, genetically altered entity of the combination of human and alien. What will happen now that Lena and Kane's cloned bodies are a part of society?

In both films, Garland references the use of cinematic character subjectivity. However, the position of subjectivity across the films *Ex Machina* and *Annihilation* is positioned on different spectrums. For example, in *Ex Machina*, Nathan is the subjective force of the film. He provides Caleb with access to video feeds only *he* wants Caleb to see. In one scene, Caleb sees a live video of Nathan ripping up Ava's drawings in front of her. Caleb becomes confused and angry, and feels sorry for Ava, which was Nathan's intention all along. By not providing Caleb with the video's audio feed, Nathan explains later he was able to manipulate Caleb's

interpretation of his actions and further his adoration for Ava. On the surface, it is evident Nathan's subjective influence was not reliable but rather intentionally tricked. However, in *Annihilation*, Garland digs deeper with the use of cinematic subjectivity, where the film performs on a broader scale rather than focusing on the subjective character-to-character level.

In *Annihilation*, the audience is told Lena's experience of the Shimmer through her own series of subjective flashbacks after she returns to Area X. Derived from her 'mutated' memory, this is the only point of view the investigators, as well as the audience, receive. Furthermore, the theme of refraction can be applied to Lena's subjective viewpoint as well, in that her memory of the Shimmer was possibly distorted when she crossed back into Area X. With this idea in mind, audiences are left with complete ambiguity at the end of the film. Whether Lena's story is reliable or not, the larger effect of Garland's intention was to show how we can think out of a character's mind, rendering our own experience through a distorted human (or nonhuman) lens, slightly blurring the line between dreaming and waking, as it is almost impossible to tell the difference between fantasy and reality. Music and score is one of the most ubiquitous examples of subjectivity in film. The score isn't reality, like "Helplessly Hoping", and is most often used to steer us closer to the experience of a character. Garland captures Lena's real essence and emotions from experience while also focusing on her mental and physical state.

In an interview, Garland was asked if he was inspired by other films when writing and directing *Annihilation*, Garland remarked that the film echoes Andrei Tarkovsky's film, *Stalker* (1979). Tarkovsky is also known for shooting his films in a dreamlike sequence, as if space and time are all fractured in order to seem realistic when in fact, they are not. Many critics consider Tarkovsky to be a true master of cinema and possibly one of the first great science fiction filmmakers of his time. Tarkovsky imposes naturalism within dreamlike settings, disregarding

explanations for his ambiguous plotlines, much like Garland evokes in *Annihilation*. Alex Garland ran with the cinematic praise he received from *Ex Machina* and pushed to create a film focused on originality, while also conveying physiological concepts of posthumanism within his 2018 Sci-Fi film. Garland took an ambitious leap in developing a film that contains similar elements seen in Tarkovsky's work, but achieves an aesthetic nuance. Garland captures how an environment cannot only affect human consciousness, but also how an environment or unknown entity can mutate our existing biological complex by merging itself within the human. *Annihilation* also invites comparison to Andrei Tarkovsky's film, *Solaris*, which is a 1972 film about a man venturing to a space station that begins to taint his consciousness of what is real and what is an illusion or configured by the human psyche. Garland's goal was to push beyond what he examined in *Ex Machina*, or the concern for humanity against technology and artificial intelligence. *Annihilation* analyzes biology and science in relation to humanity, and what happens to the human body when crossed into a world of mutation and crossbred species.

In conclusion, *Ex Machina* and *Annihilation* allow audiences to broaden their knowledge of the evolved world around us and gives a clear depiction of how Garland's themes apply to our society and world at large. From a posthumanist standpoint, the take away factors in both films can be formed around a humanist critique. In *Ex Machina*, the technological advancements produced by humanity ends in destruction. Ava kills both of the film's human characters and walks away unscathed. However, Garland does not portray Ava as a murderous cyborg like we see in other films, and instead wraps sympathy around her character. This impression emphasizes that humans are not taking the necessary precautions when advancing and manipulating technology, and if we are not careful, these advancements could surpass human hierarchy and

leave us in bitter turmoil. *Annihilation* takes a different turn, and critiques the human at the evolution and biological level. Applying the themes to our advanced science of today, we can call on the representations of cellular division, genetic mutation, and cloning. However, as a film overall, *Annihilation* is overtly obscure and difficult for audiences to see in our near future. However, from an ecological humanist critique, the film presents what might happen to humanity when Earth is no longer livable. Once we are nearing extinction and living on a self-destroyed planet, it is possible to think that our environment might use what remains to create a different kind of species, one that can withstand the conditions of Earth. Similar to how the cloned versions of Lena and Kane walk out of *The Shimmer*, perhaps a new species will evolve through environmental genetic modification—forming a newly evolved and livable species that surpasses humanity.

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